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Groups according to size and growth rates - 1

Though plants grow according to their species, they vary within certain limits depending on whether conditions are minimal or optimal. In addition, habit sizes are greatly influenced by the climatic region.

Categorisation:

1. Large trees	20 - 40 m
2. Medium-size trees	12/15 - 20 m
3. Small trees	7 - 12/15 m
4. Large shrubs	3 - 5/7 m
5. Normal shrubs / medium shrubs	1.5 - 3 m
6. Small shrubs	0.5 - 1.5 m
7. Dwarf shrubs	0.1 - 0.5 m
8. Semi-shrubs (base lignified, shoots not)	

Note: In order to be able to take account of all the various plant forms, borderline cases were included in all categories wherever they may occur.

A. Deciduous plants

Genus/species/variety	Height	Width
1. Large trees (20-40 m)		
Acer platanoides	20 to 30 m	8 to 15 m
Acer pseudoplatanus	20 to 40 m	12 to 20 m
Acer pseudoplatanus 'Erectum'	15 to 25 m	6 to 10 m
Acer pseudoplatanus 'Negenia'	20 to 30 m	6 to 10 m
Acer saccharinum	20 to 30 m	15 to 20 m
Aesculus hippocastanum	20 to 25 m	12 to 15 m
Ailanthus altissima	18 to 25 m	8 to 15 m
Alnus glutinosa	8 to 30 m	8 to 10 m
Betula maximowicziana	15 to 20 m	8 to 12 m
Betula papyrifera	18 to 30 m	10 to 18 m
Betula pendula	8 to 30 m	6 to 8 m
Betula pendula 'Tristis'	8 to 30 m	6 to 8 m
Castanea sativa	10 to 35 m	10 to 20 m
Fagus sylvatica	25 to 40 m	10 to 25 m
Fagus sylvatica 'Atropunicea'	25 to 40 m	10 to 25 m
Fraxinus excelsior	20 to 40 m	10 to 25 m
Fraxinus excelsior 'Altena'	20 to 30 m	10 to 15 m
Fraxinus excelsior 'Westhof's Glorie'	20 to 40 m	8 to 12 m
Gleditsia triacanthos	15 to 25 m	8 to 10 m
Gleditsia triacanthos inermis	15 to 25 m	8 to 10 m
Gymnocladus dioicus	15 to 20 m	8 to 15 m
Juglans nigra	20 to 30 m	20 to 30 m
Liriodendron tulipifera	25 to 35 m	12 to 20 m
Platanus acerifolia	25 to 30 m	15 to 25 m
Populus alba 'Nivea'	20 to 35 m	12 to 20 m
Populus balsamifera	10 to 25 m	8 to 12 m
Populus berolinensis	20 to 25 m	8 to 10 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
Populus canadensis 'Robusta'	30 to 35 m	12 to 15 m
Populus canescens	20 to 25 m	15 to 20 m
Populus nigra	20 to 30 m	15 to 20 m
Populus nigra 'Italica'	25 to 30 m	2 to 5 m
Pseudotsuga menziesii caesia	30 to 40 m	7 to 10 m
Quercus cerris	20 to 30 m	8 to 15 m
Quercus frainetto	20 to 30 m	10 to 15 m
Quercus petraea	20 to 40 m	15 to 20 m
Quercus robur	30 to 40 m	15 to 25 m
Quercus rubra	20 to 30 m	10 to 15 m
Robinia pseudoacacia	15 to 20 m	7 to 12 m
Robinia pseudoacacia 'Sandraudiga'	15 to 25 m	8 to 12 m
Robinia pseudoacacia 'Semperflorens'	20 to 25 m	8 to 12 m
Salix alba	10 to 20 m	8 to 15 m
Salix alba 'Liempde'	25 to 40 m	8 to 10 m
Tilia cordata	20 to 30 m	10 to 20 m
Tilia europaea	25 to 40 m	10 to 15 m
Tilia europaea 'Pallida'	30 to 40 m	10 to 15 m
Tilia platyphyllos	30 to 40 m	15 to 25 m
Tilia platyphyllos 'Rubra'	30 to 40 m	20 m
Tilia tomentosa	25 to 30 m	20 m
Tilia tomentosa 'Brabant'	20 to 25 m	12 to 15 m
Ulmus carpinifolia	25 to 30 m	12 to 15 m
Ulmus glabra	30 to 40 m	15 to 20 m
Ulmus laevis	15 to 25 m	12 to 15 m
2. Medium-size trees (12/15-20 m)		
Acer campestre	3 to 20 m	5 to 12 m
Acer campestre 'Elsrijk'	8 to 12 m	4 to 6 m
Acer negundo varieties	10 to 20 m	5 to 10 m
Acer platanoides varieties	10 to 15 m	6 to 12 m
Acer rubrum	7 to 12 m	4 to 7 m
Acer rubrum 'Armstrong'	10 to 15 m	2 to 4 m
Acer saccharinum 'Pyramidale'	15 to 20 m	6 to 8 m
Acer saccharinum 'Wieri'	12 to 20 m	8 to 15 m
Aesculus flava 'Vestita'	15 to 20 m	8 to 15 m
Aesculus hippocastanum 'Baumannii'	18 to 20 m	8 to 12 m
Aesculus hippocastanum 'Pyramidalis'	12 to 15 m	6 to 8 m
Alnus cordata	8 to 15 m	3 to 6 m
Alnus incana	8 to 20 m	3 to 10 m
Alnus spaethii	12 to 15 m	6 to 10 m
Betula ermanii	15 to 20 m	6 to 10 m
Betula maximowicziana	15 to 20 m	8 to 12 m
Betula nigra	15 to 20 m	6 to 12 m
Betula pendula	8 to 30 m	6 to 8 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
Betula pendula 'Tristis'	8 to 30 m	6 to 8 m
Betula pubescens	5 to 15 m	3 to 5 m
Betula utilis	10 to 15 m	6 to 10 m
Carpinus betulus	5 to 15 m	4 to 8 m
Carpinus betulus 'Fastigiata'	10 to 15 m	5 to 8 m
Cercidiphyllum japonicum	8 to 15 m	4 to 10 m
Corylus colurna	12 to 20 m	6 to 8 m
Davidia involucrata vilmoriniana	6 to 15 m	4 to 8 m
Euodia hupehensis	6 to 12 m	6 to 12 m
Fagus sylvatica 'Asplenifolia'	15 to 20 m	8 to 12 m
Fagus sylvatica 'Pendula'	15 to 20 m	10 to 20 m
Fagus sylvatica 'Purpurea Pendula'	8 to 10 m	4 to 6 m
Fraxinus angustifolia 'Raywood'	15 to 20 m	7 to 10 m
Fraxinus excelsior 'Diversifolia'	20 m	8 to 10 m
Fraxinus excelsior 'Geesink'	15 to 20 m	10 to 15 m
Gleditsia triacanthos 'Skyline'	12 to 15 m	5 to 8 m
Gymnocladus dioicus	15 to 20 m	8 to 15 m
Juglans regia	10 to 20 m	8 to 15 m
Liquidambar styraciflua	12 to 20 m	4 to 8 m
Liriodendron tulipifera 'Fastigiatum'	15 to 20 m	5 to 7 m
Nyssa sylvatica	15 to 20 m	8 to 12 m
Ostrya carpinifolia	10 to 15 m	8 to 12 m
Paulownia tomentosa	8 to 15 m	8 to 15 m
Phellodendron amurense	10 to 12 m	10 to 15 m
Pinus contorta	10 to 20 m	4 to 6 m
Pinus peuce	10 to 20 m	4 to 6 m
Pinus schwerinii	12 to 15 m	7 to 10 m
Populus lasiocarpa	10 to 15 m	6 to 10 m
Populus simonii	12 to 18 m	6 to 10 m
Populus tremula	10 to 30 m	6 to 10 m
Populus tremula 'Erecta'	10 to 18 m	1 to 2 m
Prunus avium	15 to 20 m	8 to 12 m
Pterocarya fraxinifolia	15 to 25 m	8 to 25 m
Pyrus calleryana 'Bradford'	8 to 15 m	6 to 9 m
Pyrus calleryana 'Chanticleer'	7 to 12 m	4 to 5 m
Pyrus communis	5 to 15 m	5 to 10 m
Quercus coccinea	15 to 25 m	8 to 15 m
Quercus macranthera	10 to 20 m	6 to 10 m
Quercus palustris	15 to 25 m	10 to 15 m
Quercus robur 'Fastigiata'	15 to 20 m	2 to 5 m
Robinia 'Casque Rouge'	5 to 7 m	5 to 6 m
Robinia pseudoacacia varieties	15 to 20 m	7 to 12 m
Salix alba	10 to 20 m	8 to 15 m
Salix alba 'Tristis'	15 to 20 m	15 to 20 m
Salix fragilis	5 to 15 m	6 to 8 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
Sophora japonica	15 to 20 m	12 to 15 m
Sophora japonica 'Regent'	10 to 15 m	10 to 12 m
Sorbus aucuparia	5 to 15 m	4 to 8 m
Sorbus aucuparia 'Edulis'	12 to 15 m	5 to 7 m
Sorbus domestica	10 to 15 m	8 to 10 m
Sorbus intermedia 'Brouwers'	8 to 10 m	4 to 6 m
Sorbus torminalis	8 to 15 m	6 to 8 m
Sorbus vulgaris	10 to 18 m	4 to 6 m
Tilia americana 'Nova'	17 to 20 m	12 to 20 m
Tilia cordata 'Erecta'	15 to 20 m	5 to 10 m
Tilia cordata 'Greenspire'	15 m	6 to 12 m
Tilia euchlora	15 to 18 m	7 to 10 m
Tilia flavescens 'Glenleven'	15 to 20 m	8 to 12 m
Ulmus hollandica 'Lobel'	12 to 15 m	6 to 8 m
Zelkova serrata	15 to 20 m	8 to 12 m
3. Small trees (7-12/15 m)		
Acer campestre 'Elsrijk'	8 to 12 m	4 to 6 m
Acer ginnala	5 to 8 m	4 to 10 m
Acer griseum	5 to 8 m	4 to 5 m
Acer japonicum 'Aconitifolium'	3 to 4 m	2 to 4 m
Acer neglectum 'Annae'	8 to 12 m	6 to 10 m
Acer palmatum varieties	4 to 6 m	2 to 5 m
Acer pensylvanicum	5 to 7 m	3 to 8 m
Acer platanoides 'Globosum'	4 to 6 m	3 to 5 m
Acer rubrum	7 to 12 m	4 to 7 m
Acer rubrum 'Armstrong'	10 to 15 m	2 to 4 m
Acer rufinerve	4 to 7 m	2 to 4 m
Aesculus carnea 'Briotii'	8 to 15 m	6 to 10 m
Aesculus hippocastanum 'Umbraculifera'	4 to 5 m	3 to 5 m
Alnus cordata	8 to 15 m	3 to 6 m
Alnus incana 'Aurea'	8 to 10 m	4 to 7 m
Amelanchier 'Ballerina'	5 to 8 m	3 to 5 m
Amelanchier laevis	3 to 8 m	3 to 5 m
Amelanchier lamarckii	5 to 8 m	3 to 5 m
Aralia elata	3 to 7 m	3 to 4 m
Betula albosinensis	6 to 10 m	4 to 6 m
Betula pendula 'Youngii'	5 to 7 m	3 to 4 m
Betula pubescens	5 to 15 m	3 to 5 m
Buxus sempervirens	1 to 6 m	2 to 3 m
Catalpa bignonioides	8 to 12 m	4 to 8 m
Catalpa bignonioides 'Aurea'	6 to 8 m	5 to 8 m
Catalpa bignonioides 'Nana'	4 to 6 m	2 to 4 m
Cercidiphyllum japonicum	8 to 15 m	4 to 10 m
Cercis siliquastrum	4 to 6 m	4 to 6 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
Cornus nuttallii 'Eddie's White Wonder'	4 to 5 m	3 to 5 m
Cornus alternifolia	4 to 8 m	4 to 6 m
Cornus controversa	6 to 10 m	4 to 6 m
Cornus florida	5 to 10 m	3 to 5 m
Cornus florida rubra	5 to 10 m	3 to 5 m
Cornus kousa	4 to 7 m	3 to 4 m
Cornus kousa chinensis	5 to 8 m	4 to 5 m
Cornus mas	3 to 8 m	3 to 6 m
Cornus nuttallii	4 to 6 m	2 to 5 m
Crataegus coccinea	5 to 9 m	4 to 6 m
Crataegus laevigata 'Paul's Scarlet'	3 to 10 m	3 to 5 m
Crataegus lavalleyi 'Carrieri'	5 to 10 m	3 to 6 m
Crataegus monogyna	2 to 10 m	2 to 5 m
Crataegus monogyna 'Compacta'	3 to 4 m	1,5 to 3 m
Crataegus monogyna 'Stricta'	5 to 6 m	1 to 2 m
Crataegus persimilis 'Splendens'	5 to 7 m	3 to 5 m
Crataegus prunifolia 'MacLeod'	5 to 7 m	3 to 8 m
Davidia involucrata vilmoriniana	6 to 15 m	4 to 8 m
Elaeagnus angustifolia	6 to 8 m	4 to 6 m
Euodia hupehensis	6 to 12 m	6 to 12 m
Fagus sylvatica 'Purpurea Pendula'	8 to 10 m	4 to 6 m
Fraxinus excelsior 'Nana'	4 to 8 m	2 to 4 m
Fraxinus excelsior 'Pendula'	8 to 10 m	6 to 10 m
Fraxinus ornus	6 to 10 m	3 to 6 m
Fraxinus ornus 'Anita'	6 to 8 m	3 to 5 m
Halesia carolina	5 to 6 m	5 to 6 m
Hippophae rhamnoides	3 to 10 m	2 to 3 m
Ilex aquifolium	2 to 10 m	2 to 4 m
Ilex aquifolium 'Alaska'	2 to 3 m	1 to 1,5 m
Ilex aquifolium 'J.C. van Tol'	6 to 8 m	3 to 4 m
Koelreuteria paniculata	6 to 8 m	4 to 8 m
Laburnum anagyroides	5 to 7 m	3 to 4 m
Laburnum watereri 'Vossii'	5 to 7 m	3 to 4 m
Lonicera maackii	4 to 6 m	4 to 8 m
Magnolia kobus	8 to 10 m	4 to 6 m
Magnolia loebneri 'Leonard Messel'	4 to 6 m	3 to 4 m
Magnolia loebneri 'Merrill'	4 to 6 m	3 to 4 m
Magnolia soulangiana	3 to 8 m	3 to 5 m
Malus varieties	6 to 8 m	4 to 6 m
Malus floribunda	5 to 8 m	4 to 8 m
Malus sylvestris	5 to 10 m	4 to 6 m
Malus toringo sargentii 'Samling'	6 to 8 m	6 to 10 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
Malus toringo sargentii 'Veredlung'	7 to 10 m	4 to 6 m
Malus tschonoskii	8 to 15 m	2 to 6 m
Morus alba	10 to 15 m	4 to 6 m
Morus nigra	6 to 10 m	6 to 10 m
Nothofagus antarctica	4 to 8 m	3 to 4 m
Parrotia persica	5 to 10 m	5 to 7 m
Phellodendron amurense	10 to 12 m	10 to 15 m
Prunus avium 'Plena'	7 to 12 m	4 to 6 m
Prunus cerasifera 'Nigra'	5 to 7 m	3 to 5 m
Prunus fruticosa 'Globosa'	3 to 5 m	2 to 3 m
Prunus gondouinii 'Schnee'	3 to 5 m	3 to 5 m
Prunus hillieri 'Spire'	6 to 8 m	1,5 to 3 m
Prunus lusitanica	5 to 7 m	3 to 6 m
Prunus maackii 'Amber Beauty'	5 to 12 m	5 to 8 m
Prunus mahaleb	3 to 12 m	6 to 8 m
Prunus padus	3 to 10 m	4 to 8 m
Prunus padus 'Watereri'	3 to 10 m	4 to 8 m
Prunus sargentii	5 to 12 m	4 to 8 m
Prunus schmittii	4 to 6 m	2 to 3 m
Prunus serotina	5 to 20 m	5 to 10 m
Prunus serrulata	4 to 10 m	2 to 6 m
Prunus serrula	5 to 7 m	5 to 7 m
Prunus serrulata varieties	4 to 7 m	3 to 5 m
Prunus subhirtella varieties	3 to 6 m	3 to 5 m
Prunus triloba	1 to 3 m	1 to 2 m
Prunus yedoensis	5 to 12 m	5 to 7 m
Pyrus calleryana varieties	8 to 15 m	4 to 9 m
Pyrus communis	5 to 15 m	5 to 10 m
Pyrus communis 'Beech Hill'	8 to 10 m	3 to 5 m
Pyrus regelii	5 to 9 m	3 to 4 m
Pyrus salicifolia	4 to 7 m	3 to 4 m
Quercus pontica	4 to 6 m	2 to 4 m
Quercus turneri 'Pseudoturneri'	5 to 10 m	5 to 8 m
Rhamnus catharticus	2 to 8 m	2 to 4 m
Rhus glabra	3 to 6 m	3 to 6 m
Rhus typhina	3 to 10 m	3 to 5 m
Robinia 'Casque Rouge'	5 to 7 m	5 to 6 m
Robinia pseudoacacia 'Frisia'	6 to 10 m	5 to 8 m
Robinia pseudoacacia 'Umbraculifera'	4 to 6 m	4 to 6 m
Salix acutifolia 'Pendulifolia'	4 to 6 m	4 to 6 m
Salix caprea	3 to 13 m	3 to 5 m
Salix caprea 'Mas'	3 to 8 m	3 to 5 m
Salix caprea 'Pendula'	1,5 to 3 m	1 to 2 m
Salix daphnoides 'Praecox'	5 to 8 m	3 to 5 m
Salix elaeagnos	2 to 6 m	3 to 6 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
Salix fragilis	5 to 15 m	6 to 8 m
Salix matsudana 'Tortuosa'	4 to 12 m	4 to 6 m
Salix smithiana	4 to 6 m	4 to 6 m
Salix viminalis	2 to 10 m	4 to 8 m
Sophora japonica 'Pendula'	5 to 8 m	5 to 8 m
Sorbus 'Joseph Rock'	6 to 8 m	3 to 4 m
Sorbus americana	5 to 10 m	4 to 6 m
Sorbus aria varieties	6 to 12 m	4 to 8 m
Sorbus aucuparia	5 to 15 m	4 to 8 m
Sorbus aucuparia 'Fastigiata'	5 to 7 m	2 to 4 m
Sorbus aucuparia 'Sheerwater Seedling'	6 to 10 m	4 m
Sorbus decora	6 to 10 m	4 to 6 m
Sorbus domestica	10 to 15 m	8 to 10 m
Sorbus hybrida 'Gibbsii'	5 to 7 m	3 to 4 m
Sorbus intermedia 'Brouwers'	8 to 10 m	4 to 6 m
Sorbus serotina	5 to 10 m	5 to 8 m
Sorbus thuringiaca 'Fastigiata'	5 to 8 m	3 to 4 m
Sorbus torminalis	8 to 15 m	6 to 8 m
Sorbus vilmorinii	3 to 6 m	3 to 5 m
Stewartia pseudocamellia	4 to 6 m	4 to 6 m
Tilia cordata 'Rancho'	9 to 12 m	4 to 6 m
Ulmus carpinifolia 'Wredei'	8 to 10 m	3 to 4 m
Ulmus glabra 'Exoniensis'	7 to 10 m	3 to 4 m
4. Large shrubs (3-5/7 m)		
Acer ginnala	5 to 8 m	4 to 10 m
Acer griseum	5 to 8 m	4 to 5 m
Acer japonicum 'Aconitifolium'	3 to 4 m	2 to 4 m
Acer palmatum	4 to 6 m	2 to 5 m
Acer palmatum 'Atropurpureum'	3 to 4 m	2 to 3 m
Acer palmatum 'Osakazuki'	3 to 5 m	3 to 5 m
Acer pennsylvanicum	5 to 7 m	3 to 8 m
Acer rufinerve	4 to 7 m	2 to 4 m
Acer shirasawanum 'Aureum'	3 to 4 m	3 to 4 m
Aesculus parviflora	3 to 6 m	2 to 6 m
Amelanchier 'Ballerina'	5 to 8 m	3 to 5 m
Amelanchier laevis	3 to 8 m	3 to 5 m
Amelanchier lamarckii	5 to 8 m	3 to 5 m
Aralia elata	3 to 7 m	3 to 4 m
Aralia elata 'Variegata'	3 to 4 m	2 to 3 m
Berberis julianae	2 to 4 m	2 to 3 m
Berberis ottawensis 'Superba'	3 to 4 m	2 to 4 m
Buxus sempervirens	1 to 6 m	2 to 3 m
Caragana arborescens	3 to 5 m	2 to 3 m
Cercis siliquastrum	4 to 6 m	4 to 6 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
Chionanthus virginicus	3 to 5 m	3 to 5 m
Clerodendron trichotomum fargesii	2 to 3 m	2 to 4 m
Cornus alternifolia	4 to 8 m	4 to 6 m
Cornus controversa	6 to 10 m	4 to 6 m
Cornus florida	5 to 10 m	3 to 5 m
Cornus florida rubra	5 to 10 m	3 to 5 m
Cornus kousa	4 to 7 m	3 to 4 m
Cornus kousa chinensis	5 to 8 m	4 to 5 m
Cornus mas	3 to 8 m	3 to 6 m
Cornus nuttallii	4 to 6 m	2 to 5 m
Cornus sanguinea	1 to 8 m	2 to 4 m
Corylus species and varieties	2 to 6 m	2 to 6 m
Cotinus coggygria	3 to 5 m	3 to 5 m
Cotoneaster bullatus	3 to 5 m	2 to 3 m
Cotoneaster salicifolius floccosus	3 to 4 m	2 to 3 m
Cotoneaster watereri	3 to 4 m	3 to 4 m
Cotoneaster watereri 'Cornubia'	3 to 7 m	3 to 4 m
Crataegus coccinea	5 to 9 m	4 to 6 m
Crataegus laevigata	2 to 5 m	3 to 6 m
Crataegus laevigata Paul's Scarlet	3 to 10 m	3 to 5 m
Crataegus lavalley 'Carrierei'	5 to 10 m	3 to 6 m
Crataegus monogyna	2 to 10 m	2 to 5 m
Deutzia magnifica	3 to 4 m	1 to 2 m
Deutzia scabra 'Plena'	3 to 4 m	2 to 3 m
Elaeagnus angustifolia	6 to 8 m	4 to 6 m
Elaeagnus commutata	3 to 4 m	3 to 4 m
Euonymus europaeus	2 to 6 m	2 to 4 m
Euonymus europaeus 'Red Cascade'	2 to 6 m	2 to 4 m
Euonymus planipes	4 to 5 m	4 to 5 m
Forsythia 'Spectabilis'	3 to 4 m	3 to 4 m
Halesia carolina	5 to 6 m	5 to 6 m
Hamamelis intermedia varieties	3 to 5 m	3 to 4 m
Hamamelis japonica	3 to 5 m	3 to 4 m
Hamamelis mollis	3 to 4 m	3 to 4 m
Hamamelis virginiana	5 to 6 m	3 to 5 m
Hippophae rhamnoides	3 to 10 m	2 to 3 m
Ilex altaclerensis 'Golden King'	3 to 4 m	3 to 4 m
Ilex species and varieties	2 to 10 m	2 to 4 m
Laburnum watereri 'Vossii'	5 to 7 m	3 to 4 m
Ligustrum ovalifolium	3 to 5 m	2 to 3 m
Ligustrum ovalifolium 'Aureum'	3 to 4 m	1,8 to 2 m
Ligustrum vulgare	2 to 5 m	2 to 4 m
Ligustrum vulgare 'Atrovirens'	3 to 4 m	2 to 4 m
Lonicera ledebourii	3 to 4 m	2 to 3 m
Lonicera maackii	4 to 6 m	4 to 8 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
Magnolia species and varieties	2 to 6 m	3 to 4 m
Magnolia loebneri 'Leonard Messel'	4 to 6 m	3 to 4 m
Magnolia loebneri 'Merrill'	4 to 6 m	3 to 4 m
Magnolia sieboldii	3 to 5 m	3 to 4 m
Magnolia soulangiana	3 to 8 m	3 to 5 m
Magnolia stellata	2 to 4 m	2 to 3 m
Magnolia stellata 'Royal Star'	2 to 4 m	2 to 3 m
Malus sylvestris	5 to 10 m	4 to 6 m
Malus toringo sargentii 'Veredlung'	2 to 4 m	2 to 4 m
Malus toringo sargentii 'Sämling'	7 to 10 m	4 to 6 m
Mespilus germanica	3 to 5 m	3 to 5 m
Nothofagus antarctica	4 to 8 m	3 to 4 m
Parrotia persica	5 to 10 m	5 to 7 m
Philadelphus inodorus grandiflorus	3 to 5 m	2 to 3 m
Photinia villosa	3 to 5 m	2 to 3 m
Phyllostachys species and varieties	3 to 7 m	3 to 7 m
Prunus 'Accolade'	5 to 8 m	3 to 5 m
Prunus cerasifera	5 to 7 m	3 to 5 m
Prunus cerasifera 'Nigra'	5 to 7 m	3 to 5 m
Prunus laurocerasus varieties	2 to 4 m	2 to 6 m
Prunus lusitanica	5 to 7 m	3 to 6 m
Prunus mahaleb	3 to 12 m	6 to 8 m
Prunus padus	3 to 10 m	4 to 8 m
Prunus padus 'Watereri'	3 to 10 m	4 to 8 m
Prunus sargentii	5 to 12 m	4 to 8 m
Prunus schmittii	4 to 6 m	2 to 3 m
Prunus serotina	5 to 20 m	5 to 10 m
Prunus serrulata	4 to 10 m	2 to 6 m
Prunus serrula	5 to 7 m	5 to 7 m
Prunus serrulata varieties	4 to 7 m	3 to 5 m
Prunus subhirtella varieties	3 to 6 m	3 to 5 m
Prunus yedoensis	5 to 12 m	5 to 7 m
Ptelea trifoliata	4 to 6 m	4 to 6 m
Quercus pontica	4 to 6 m	2 to 4 m
Quercus turneri 'Pseudoturneri'	5 to 10 m	5 to 8 m
Rhamnus catharticus	2 to 8 m	2 to 4 m
Rhamnus frangula	2 to 7 m	2 to 4 m
Rhododendron varieties	4 to 6 m	3 to 5 m
Rhus glabra	3 to 6 m	3 to 6 m
Rhus typhina	3 to 10 m	3 to 5 m
Robinia hispida 'Macrophylla'	1,5 to 3 m	1 to 2 m
Rosa moyesii	3 to 5 m	3 to 4 m
Salix acutifolia 'Pendulifolia'	4 to 6 m	4 to 6 m
Salix caprea	3 to 13 m	3 to 5 m
Salix caprea 'Mas'	3 to 8 m	3 to 5 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
Salix cinerea	3 to 6 m	3 to 5 m
Salix daphnoides 'Praecox'	5 to 8 m	3 to 5 m
Salix daphnoides pomeranica	3 to 6 m	2 to 4 m
Salix elaeagnos	2 to 6 m	3 to 6 m
Salix fragilis	5 to 15 m	6 to 8 m
Salix matsudana 'Tortuosa'	4 to 12 m	4 to 6 m
Salix purpurea	2 to 10 m	2 to 6 m
Salix sachalinensis 'Sekka'	2 to 3 m	2 to 3 m
Salix smithiana	4 to 6 m	4 to 6 m
Salix triandra	2 to 4 m	3 to 8 m
Salix viminalis	2 to 10 m	4 to 8 m
Sambucus canadensis 'Aurea'	3 to 5 m	2 to 4 m
Sambucus canadensis 'Maxima'	3 to 5 m	2 to 4 m
Sambucus nigra	2 to 7 m	3 to 5 m
Sambucus racemosa	2 to 4 m	2 to 4 m
Sorbus aria varieties	6 to 12 m	4 to 8 m
Sorbus decora	6 to 10 m	4 to 6 m
Sorbus koehneana	2 to 4 m	2 to 4 m
Sorbus vilmorinii	3 to 6 m	3 to 5 m
Staphylea colchica	3 to 5 m	2 to 4 m
Stewartia pseudocamellia	4 to 6 m	4 to 6 m
Stranvaesia davidiana	2 to 5 m	2 to 4 m
Syringa chinensis	3 to 4 m	3 to 4 m
Syringa josikaea	3 to 5 m	3 to 4 m
Syringa prestoniae 'Elinor'	3 to 4 m	3 to 4 m
Syringa reflexa	3 to 4 m	3 to 5 m
Syringa swegiflexa	3 to 4 m	3 to 4 m
Syringa vulgaris varieties	3 to 5 m	3 to 5 m
Tamarix parviflora	3 to 5 m	2 to 3 m
Viburnum lantana	2 to 5 m	2 to 4 m
Viburnum opulus	2 to 5 m	2 to 5 m
Viburnum rhytidophyllum	3 to 7 m	3 to 4 m
5. Normal shrubs 7 medium shrubs (1,5-3m)		
Acer palmatum varieties	1 to 3 m	1 to 3 m
Amelanchier ovalis	1 to 3 m	2 to 3 m
Aronia melanocarpa 'Viking'	1 to 2 m	1,5 to 2 m
Aucuba japonica	2 to 2,5 m	1,5 to 2 m
Berberis species and varieties	1,5 to 3 m	1 to 4 m
Buddleja varieties	2 to 3 m	2 to 3 m
Buxus sempervirens 'Bullata'	2 to 3 m	2 to 3 m
Callicarpa bodinieri giraldii 'Profusion'	2 to 3 m	1,5 to 2 m
Calycanthus floridus	2 to 3 m	1,5 to 2 m
Chaenomeles species and varieties	1 to 3 m	1 to 3 m
Clethra alnifolia	1,5 to 3 m	1 to 2 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
<i>Colutea arborescens</i>	1 to 3 m	1 to 3 m
<i>Cornus</i> species and varieties	2 to 3 m	3 to 5 m
<i>Corylus avellana</i> 'Contorta'	2 to 4 m	2 to 4 m
<i>Corylopsis spicata</i>	1,5 to 3 m	2 to 3 m
<i>Cotinus coggygia</i> 'Royal Purple'	2 to 4 m	2 to 3 m
<i>Cotoneaster acutifolius</i>	1,5 to 3 m	1,5 to 2 m
<i>Cotoneaster dielsianus</i>	1,5 to 2 m	1,5 to 2 m
<i>Cotoneaster divaricatus</i>	1,5 to 3 m	1,5 to 2 m
<i>Cotoneaster franchetii</i>	2 to 3 m	2 to 3 m
<i>Cotoneaster multiflorus</i>	2 to 4 m	2 to 3 m
<i>Cotoneaster watereri</i> 'Pendulus'	2 to 3 m	1 to 2 m
<i>Cytisus praecox</i> varieties	1 to 2 m	1 to 2 m
<i>Cytisus scoparius</i> im Sorten	0,5 to 5 m	1 to 2 m
<i>Decaisnea fargesii</i>	2 to 5 m	1,5 to 2 m
<i>Deutzia</i> species and varieties	1,1 to 3 m	1 to 1,5 m
<i>Elaeagnus multiflora</i>	2 to 3 m	2 to 3 m
<i>Elaeagnus pungens</i> 'Maculata'	1 to 2 m	1 to 2 m
<i>Enkianthus campanulatus</i>	2,5 to 4 m	1,5 to 3 m
<i>Euonymus alatus</i>	2 to 3 m	2 to 3 m
<i>Euonymus hamiltonianus</i> ssp. <i>sieboldianus</i>	2 to 3 m	2 to 4 m
<i>Euonymus phellomanus</i>	1 to 3 m	1 to 3 m
<i>Exochorda macrantha</i> 'The Bride'	1 to 1,8 m	1 to 1,5 m
<i>Fargesia murielae</i>	2 to 3 m	2 to 3 m
<i>Forsythia</i> 'Lynwood'	2,5 to 3 m	2 to 3 m
<i>Forsythia suspensa fortunei</i>	2 to 3 m	2 to 3 m
<i>Fothergilla major</i>	1,5 to 2,5 m	1 to 3 m
<i>Hamamelis intermedia</i> and varieties	2 to 5 m	2 to 4 m
<i>Hedera helix</i> 'Arborescens'	1,5 to 2 m	1,5 to 2 m
<i>Hitocus</i> species and varieties	1,5 to 3 m	1 to 1,5 m
<i>Holodiscus discolor ariifolius</i>	2 to 3 m	2 to 3 m
<i>Hydrangea aspera</i> ssp. <i>strigosa</i>	1 to 2 m	1 to 2 m
<i>Hydrangea paniculata</i> 'Grandiflora'	2 to 3 m	2 to 3 m
<i>Hydrangea sargentiana</i>	1,5 to 2 m	1,5 to 2 m
<i>Ilex aquifolium</i> 'Alaska'	2 to 3 m	1 to 1,5 m
<i>Ilex crenata</i>	2 to 4 m	1 to 2 m
<i>Ilex meserveae</i> varieties	2 to 4 m	1,5 to 2 m
<i>Ilex verticillata</i>	2 to 3 m	2 to 3 m
<i>Kalmia latifolia</i>	2 to 3 m	1 to 3 m
<i>Kerria japonica</i> 'Pleniflora'	1,5 to 2 m	1,5 to 2,5 m
<i>Kolkwitzia amabilis</i>	2 to 3 m	2 to 3 m
<i>Ligustrum obtusifolium regelianum</i>	1 to 2 m	1,5 to 3 m
<i>Lonicera korolkowii zabelii</i>	1,5 to 3 m	1,5 to 2 m
<i>Lonicera ledebourii</i>	3 to 4 m	2 to 3 m
<i>Lonicera tatarica</i>	2 to 4 m	2 to 3 m
<i>Lonicera xylosteum</i>	1 to 3 m	1,5 to 3 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
Lonicera xylosteoides 'Clavey's Dwarf'	1 to 3 m	1 to 2 m
Lycium barbarum	2 to 3 m	2 to 3 m
Magnolia liliiflora	2 to 4 m	2 to 3 m
Magnolia stellata	2 to 4 m	2 to 3 m
Magnolia stellata 'Royal Star'	2 to 4 m	2 to 3 m
Mahonia bealei	1,5 to 3 m	1 to 2 m
Malus toringo sargentii 'Veredlung'	2 to 4 m	2 to 4 m
Osmanthus heterophyllus	2 to 3 m	2 to 3 m
Philadelphus 'Schneesturm'	2 to 2,5 m	1 to 2 m
Philadelphus 'Virginal'	3 to 4 m	1 to 2 m
Philadelphus coronarius	2 to 4 m	2 to 3 m
Phyllostachys aurea	3 to 7 m	3 to 7 m
Phyllostachys humilis	3 to 7 m	3 to 7 m
Physocarpus opulifolius	2,5 to 4 m	3 to 4 m
Pieris japonica	1,5 to 4 m	2 to 3 m
Pieris japonica 'White Cascade'	1,5 to 2,5 m	1,2 to 2 m
Prunus kurilensis 'Brilliant'	1,5 to 2,5 m	1,5 to 2 m
Prunus laurocerasus varieties	2 to 4 m	2 to 5 m
Prunus spinosa	1 to 4 m	2 to 4 m
Prunus triloba	1 to 3 m	1 to 2 m
Pseudosasa japonica	1,5 to 3 m	2 to 4 m
Pyracantha species and varieties	1,5 to 2,5 m	1,5 to 4 m
Rhododendron Hybriden	1 to 3,5 m	1,5 to 3 m
Rhododendron - Azalea	1,5 to 2,5	1,5 to 2,5
Rhododendron albrechtii	1 to 3 m	1,5 to 2 m
Rhododendron calophytum	2 to 3 m	2 to 3 m
Rhododendron luteum	2 to 4 m	1,5 to 2,5 m
Rhododendron schlippenbachii	1,5 to 3 m	2 to 3 m
Rhododendron vaseyi	1,5 to 2 m	1,5 to 2 m
Rhus typhina 'Dissecta'	2 to 4 m	2 to 4 m
Ribes aureum	1 to 2 m	1 to 2 m
Ribes divaricatum	2 to 3 m	2 to 3 m
Ribes sanguineum varieties	1,5 to 2 m	1,5 to 2 m
Rosa: - Park and shrub roses	1 to 3 m	1 to 2 m
- Bedding roses	0,4 to 1 m	1 to 1,5 m
- Climbing roses	2 to 6 m	0,3 to 3 m
- Ground cover roses	0,4 to 0,8 m	1 to 1,5 m
- Clear stem roses	1 to 1,5 m	1 to 1,5 m
Rosa arvensis	0,5 to 2 m	1 to 2 m
Rosa canina	1 to 3 m	2 to 3 m
Rosa glauca	1 to 3 m	2 to 3 m
Rosa hugonis	1,5 to 2 m	2 to 2,5 m
Rosa moyesii	3 to 5 m	3 to 4 m
Rosa multiflora	1,5 to 3 m	2 to 3 m
Rosa multibracteata	1,7 to 2,5 m	1,5 to 2 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
Rosa omeiensis pteracantha	1,5 to 2 m	1,5 to 2 m
Rosa repens alba	0,4 to 0,6 m	1 to 2 m
Rosa rubiginosa	2 to 3 m	2 to 3 m
Rosa rugosa	1 to 2 m	1 to 2 m
Rosa rugosa alba	1 to 2 m	1 to 2 m
Rosa rugotida	0,7 to 1 m	1 to 1,5 m
Rubus fruticosus	1 to 3 m	1 to 3 m
Rubus odoratus	1,5 to 2,5 m	1,5 to 2 m
Salix aurita	0,5 to 3 m	0,5 to 2 m
Salix balsamifera mas	1 to 2 m	1,5 to 2 m
Salix caprea 'Pendula'	1,5 to 3 m	1 to 2 m
Salix sachalinensis 'Sekka'	2 to 3 m	2 to 3 m
Sorbaria sorbifolia	1 to 3 m	2 to 4 m
Spiraea arguta	1,5 to 2 m	1 to 2 m
Spiraea cinerea 'Grefsheim'	1,5 to 2 m	1 to 2 m
Spiraea nipponica	1,5 to 3 m	2 to 3 m
Spiraea vanhouttei	1,5 to 2,5 m	2 to 3 m
Stranvaesia davidiana	2 to 5 m	2 to 4 m
Symphoricarpos albus laevigatus	1,5 to 2 m	2 to 3 m
Symphoricarpos chenaultii	1,5 to 2 m	2 to 2,5 m
Syringa vulgaris varieties	4 to 5 m	2 to 5 m
Tamarix ramosissima	2 to 3 m	2 to 3 m
Ulex europaeus	0,5 to 2 m	1 to 2 m
Vaccinium corymbosum	1 to 2 m	1 to 2 m
Viburnum species and varieties	1 to 4 m	2 to 3 m
Weigela varieties	1,5 to 3 m	2 to 3 m
Weigela florida	2 to 3 m	2 to 3 m
6. Small shrubs (0,5-1,5 m)		
Acanthopanax sieboldianus	1 to 2 m	1 to 2 m
Acer palmatum 'Dissectum Garnet'	1 to 2m	1 to 2 m
Aronia melanocarpa	0,5 to 2 m	1 to 2 m
Berberis candidula	0,4 to 0,8 m	0,8 to 1,2 m
Berberis species and varieties	0,8 to 2 m	0,8 to 2 m
Buxus sempervirens species and varieties	0,6 to 6 m	0,6 to 3 m
Caryopteris clandonensis varieties	0,8 to 1,2 m	0,8 to 1 m
Ceanothus delilianus varieties	1 to 2 m	1 to 1,5 m
Ceanothus pallidus varieties	1 to 1,5 m	1 to 1,5 m
Chaenomeles species and varieties	1 to 1,5 m	1 to 3 m
Cornus stolonifera 'Kelsey'	0,7 to 1 m	0,8 to 1,5 m
Corylopsis pauciflora	1,2 to 1,5 m	1,5 to 2 m
Cotoneaster dammeri 'Coral Beauty'	0,5 to 0,8 m	0,8 to 1,2 m
Cotoneaster dammeri 'Skogholm'	1,2 to 1,5 m	1 to 2 m
Cotoneaster horizontalis	1,2 to 1,5 m	2 to 3 m
Cotoneaster sternianus	1 to 2 m	1 to 2 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
<i>Cytisus beanii</i>	0,4 to 0,8 m	1 to 2 m
<i>Cytisus nigricans</i> 'Cyni'	0,6 to 0,8 m	0,5 to 0,6 m
<i>Cytisus praecox</i> varieties	1 to 2 m	1 to 2 m
<i>Cytisus scoparius</i> varieties	0,5 to 5 m	1 to 2 m
<i>Daphne burkwoodii</i> 'Somerset'	0,5 to 1,2 m	1 to 2 m
<i>Daphne mezereum</i> 'Rubra Select'	1,5 to 12 m	1 to 1,5 m
<i>Daphne mezereum</i> alba	1 to 1,2 m	0,8 to 1 m
<i>Deutzia gracilis</i>	0,5 to 0,8 m	0,8 to 1 m
<i>Deutzia hybrida</i> 'Mont Rose'	1,5 to 2 m	1 to 1,5 m
<i>Deutzia kalmii</i> flora	1,5 to 2 m	1 to 1,5 m
<i>Deutzia lemoinei</i> 'Boule De Neige'	1 to 3 m	1 to 2,5 m
<i>Deutzia magnifica</i>	3 to 4 m	1 to 2 m
<i>Deutzia rosea</i>	1 to 1,5 m	1 to 1,5 m
<i>Deutzia scabra</i> 'Candidissima'	1 to 3 m	1 to 2,5 m
<i>Deutzia scabra</i> 'Plena'	3 to 4 m	2 to 3 m
<i>Deutzia scabra</i> 'Pride of Rochester'	0,5 to 1,5 m	0,8 to 1,5 m
<i>Elaeagnus ebbingei</i>	1 to 2 m	1 to 2 m
<i>Elaeagnus pungens</i> 'Maculata'	1 to 2 m	1 to 2 m
<i>Escallonia</i> 'Donard Seedling'	1 to 1,5 m	1 to 1,5 m
<i>Euonymus alatus</i> 'Compactus'	1 to 1,2 m	1 to 1,2 m
<i>Euonymus fortunei</i> varieties	0,1 to 0,7 m	0,3 to 2 m
<i>Exochorda macrantha</i> 'The Bride'	1 to 1,8 m	1 to 1,5 m
<i>Fargesia murielae</i> 'Simba'	1,5 to 1,8 m	1,5 to 1,8 m
<i>Forsythia ovata</i> 'Tetragold'	1 to 1,5 m	1,2 to 1,5 m
<i>Fothergilla gardenii</i>	0,75 to 1 m	1 to 1,5 m
<i>Genista tinctoria</i>	0,3 to 1 m	0,3 to 0,8 m
<i>Hedera colchica</i> varieties	1 to 2 m	1 to 2 m
<i>Hedera helix</i> 'Arborescens'	1,5 to 2 m	1,5 to 2 m
<i>Hydrangea arborescens</i> varieties	1 to 2,5 m	1 to 2 m
<i>Hydrangea aspera</i> ssp. <i>strigosa</i>	1 to 2 m	1 to 2 m
<i>Hydrangea quercifolia</i>	1 to 2 m	1 to 2 m
<i>Hydrangea serrata</i> varieties	1 to 1,5 m	1 to 2 m
<i>Hypericum</i> 'Hidcote'	0,7 to 1,3 m	1 to 1,2 m
<i>Hypericum androsaemum</i>	0,6 to 1 m	0,6 to 1 m
<i>Hypericum kalmianum</i> 'Gemo'	0,6 to 1 m	0,8 to 1,2 m
<i>Hypericum patulum</i> henryi	0,8 to 1,2 m	0,8 to 1 m
<i>Ilex crenata</i> varieties	0,5 to 2 m	0,5 to 2 m
<i>Ilex meserveae</i> varieties	2 to 4 m	1,5 to 2 m
<i>Kalmia angustifolia</i> 'Rubra'	0,5 to 1 m	0,5 to 1 m
<i>Kalmia latifolia</i>	2 to 3 m	1 to 3 m
<i>Kalmia latifolia</i> 'Ostbo Red'	0,5 to 1,2 m	0,5 to 1,2 m
<i>Kerria japonica</i>	0,8 to 2 m	0,8 to 1,5 m
<i>Ledum palustre</i>	0,5 to 1 m	0,5 to 1 m
<i>Lespedeza thunbergii</i>	1 to 2 m	1 to 2 m
<i>Leucothoe walteri</i>	0,6 to 1,5 m	0,8 to 1,2 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
Ligustrum delavayanum	1 to 2 m	1 to 2 m
Lonicera acuminata	0,5 to 3 m	0,8 to 1,2 m
Lonicera caerulea	0,5 to 1,5 m	1 to 2 m
Lonicera nitida varieties	1 to 1,5 m	1 to 1,5 m
Lonicera pileata	0,8 to 1 m	1 to 1,2 m
Mahonia aquifolium	0,6 to 1,2 m	0,6 to 1,2 m
Mahonia aquifolium 'Apollo'	0,6 to 1,2 m	0,6 to 1,2 m
Malus 'Tina'	1 to 2 m	1 to 2 m
Microbiota decussata	0,4 to 0,8 m	1,5 to 2 m
Myrica gale	0,5 to 1,5 m	0,5 to 1,5 m
Paeonia suffruticosa varieties	0,6 to 1 m	0,6 to 1 m
Perovskia abrotanoides	1 to 1,5 m	1 to 1,5 m
Philadelphus varieties'	0,8 to 1,5 m	1 to 2 m
Photinia fraseri 'Red Robin'	1,2 to 1,5 m	1,2 to 1,5 m
Pieris floribunda	1 to 2 m	1,5 to 2 m
Pieris japonica 'Red Mill'	1,2 to 2 m	1,2 to 1,5 m
Pleioblastus humilis	0,7 to 1,2 m	2 to 4 m
Potentilla varieties	0,6 to 1,2 m	0,8 to 1,5 m
Prunus cistena	1,2 to 1,5 m	1,2 to 1,5 m
Prunus laurocerasus 'Cherry Brandy'	0,6 to 0,8 m	2 to 3 m
Prunus laurocerasus 'Otto Luyken'	1 to 1,5 m	2 to 3 m
Prunus tenella	0,6 to 1,5 m	1 to 2 m
Prunus tenella 'Fire Hill'	0,5 to 1,7 m	2 to 3 m
Pyracantha 'Red Cushion'	0,5 to 0,8 m	0,8 to 1 m
Rhododendron yakushimanum hybrids	0,6 to 1,5 m	0,8 to 1,5 m
Rhododendron - Azalea, Japanese Azaleas	0,3 to 0,5	0,3 to 0,8 m
Rhododendron canadense	0,6 to 1,2 m	1 to 1,5 m
Rhododendron ferrugineum	0,7 m	1 m
Rhododendron impeditum 'Blue Tit Magor'	0,8 to 1,2 m	0,5 to 1 m
Rhododendron impeditum 'Gristede'	0,5 to 1 m	0,5 to 0,8 m
Rhododendron minus	0,8 to 1,5 m	0,8 to 1,5 m
Rhododendron russatum 'Azurwolke'	0,6 to 0,8 m	0,6 to 0,8 m
Rhodotypos scandens	1 to 2 m	1 to 2 m
Ribes alpinum 'Schmidt'	1 to 1,5 m	1 to 2 m
Ribes sanguineum varieties	1,5 to 2 m	1,5 to 2 m
Beetrosen	0,4 to 1 m	1 to 1,5 m
Bodendeckerrosen	0,4 to 0,8 m	1 to 1,5 m
Rosa blanda	0,2 to 0,8 m	2 to 3 m
Rosa canina 'Kiese'	1,5 m	2 to 3 m
Rosa carolina	0,5 to 1,2 m	1,2 to 1,5 m
Rosa gallica	0,2 to 1 m	1 to 2 m
Rosa nitida	0,5 to 1 m	1 to 1,5 m
Rosa pimpinellifolia	0,5 to 1,5 m	1 to 2 m
Rosa repens 'Alba'	0,4 to 0,6 m	1 to 2 m
Rosa rugosa 'Dagmar Hastrup'	0,8 to 1 m	1 to 2 m

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1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
Rosa rugosa 'Hansa'	1 to 2 m	1 to 1,5 m
Rosa rugosa 'Max Graf'	1 to 2 m	1 to 2 m
Rosa rugotida	0,7 to 1 m	1 to 1,5 m
Rubus idaeus	0,5 to 2 m	1 to 1,5 m
Salix hastata 'Wehrhahnii'	1 to 1,2 m	1 to 1,5 m
Salix helvetica	0,3 to 1,2 m	0,8 to 1,2 m
Salix lanata	0,6 to 1,2 m	0,8 to 1 m
Salix purpurea 'Nana'	0,5 to 1,5 m	3 m
Salix purpurea 'Pendula'	0,5 to 0,8 m	1,5 m
Salix repens nitida	0,5 to 0,8 m	1 to 1,5 m
Salix rosmarinifolia	1 to 1,5 m	1 to 2 m
Sasa veitchii	0,3 to 0,8 m	2 to 4 m
Skimmia japonica	0,8 to 1 m	1 to 1,5 m
Skimmia japonica 'Rubella'	0,6 to 1 m	0,6 to 1,5 m
Spiraea species and varieties	0,5 to 1,5 m	0,5 to 2 m
Stephanandra incisa	1,2 to 1,5 m	1,2 to 1,5 m
Stephanandra incisa 'Crispa'	0,4 to 0,8 m	1 to 1,5 m
Stephanandra tanakae	1,2 to 1,5 m	1,2 to 1,5 m
Symphoricarpos chenaultii 'Hancock'	0,8 to 1,2 m	1 to 1,5 m
Symphoricarpos doorenbosii 'Magic Berry'	0,8 to 1 m	0,8 to 1 m
Symphoricarpos orbiculatus	1 to 1,5 m	1 to 2 m
Syringa meyeri 'Palibin'	0,8 to 1,2 m	0,8 to 1,2 m
Syringa microphylla 'Superba'	1 to 1,5 m	1 to 2 m
Vaccinium corymbosum	1 to 2 m	1 to 2 m
Viburnum carlesii	1,2 to 1,5 m	1,2 to 1,5 m
Viburnum carlesii 'Aurora'	1 to 1,5 m	1 to 1,5 m
Viburnum plicatum 'Watanabe'	1 to 1,5 m	1 to 1,5 m
Viburnum tinus	1 to 1,5 m	1,5 to 2 m
Viburnum tinus 'Eve Price'	1 to 1,5 m	1 to 1,5 m
Vinca major	0,5 to 0,8 m	0,5 to 0,8 m
7. Dwarf shrubs (0,1-0,5m)		
Arctostaphylos uva-ursi	0,2 to 0,3 m	0,6 to 1 m
Berberis buxifolia 'Nana'	0,3 to 0,5 m	0,3 to 0,5 m
Berberis thunbergii varieties	0,3 to 0,6 m	0,4 to 0,6 m
Buxus sempervirens 'Blauer Heinz'	0,6 to 1 m	0,6 to 1 m
Buxus sempervirens 'Handsworthiensis'	0,6 to 1 m	0,6 to 1 m
Buxus sempervirens arborescens	0,6 to 1 m	0,6 to 1 m
Buxus sempervirens 'Suffruticosa'	0,6 to 1 m	0,6 to 1 m
Calluna vulgaris varieties	0,2 to 0,7 m	0,2 to 0,5 m
Caragana arborescens 'Pendula'	1 to 3 m	1 to 1,5 m
Cotoneaster adpressus	0,2 to 0,5 m	0,5 to 0,8 m
Cotoneaster dammeri varieties	0,2 to 0,5 m	0,4 to 1 m
Cotoneaster microphyllus 'Cochleatus'	0,3 to 0,5 m	0,3 to 0,8 m
Cotoneaster microphyllus 'Streibs Findling'	0,1 to 0,2 m	0,2 to 0,3 m

Groups according to size and growth rates - 1

A. Deciduous plants

Genus/species/variety	Height	Width
Cotoneaster praecox	0,4 to 0,8 m	1 to 1,5 m
Cotoneaster salicifolius 'Herbstfeuer'	0,2 to 0,5 m	1 to 1,5 m
Cotoneaster salicifolius 'Parkteppich'	0,3 to 0,5 m	0,8 to 1 m
Cotoneaster watereri 'Pendulus'	2 to 3 m	1 to 2 m
Cytisus Arten	0,2 to 0,8 m	0,2 to 2 m
Daboecia species and varieties	0,2 to 0,5 m	0,3 to 0,4 m
Daphne cneorum	0,1 to 0,4 m	0,4 to 0,8 m
Empetrum nigrum	0,1 to 0,5 m	0,4 to 0,6 m
Erica carnea varieties	0,1 to 0,3 m	0,3 to 0,5 m
Erica cinerea varieties	0,2 to 0,6 m	0,2 to 0,6 m
Erica darleyensis varieties	0,2 to 0,4 m	0,2 to 0,4 m
Erica vagans varieties	0,2 to 0,5 m	0,4 to 0,8 m
Euonymus fortunei varieties	0,1 to 0,7 m	0,3 to 1,5 m
Gaultheria procumbens	0,1 to 0,2 m	0,2 to 0,4 m
Gaultheria shallon	0,2 to 1 m	0,8 to 1 m
Genista lydia	0,3 to 0,5 m	0,5 to 1 m
Genista radiata	0,4 to 0,8 m	0,5 to 1 m
Genista sagittalis	0,1 to 0,2 m	0,2 to 0,5 m
Genista tinctoria	0,3 to 1 m	0,3 to 0,8 m
Genista tinctoria 'Plena'	0,3 to 0,8 m	0,3 to 0,8 m
Hebe ochracea	0,3 to 0,6 m	0,5 to 1 m
Hypericum moserianum	0,3 to 0,5 m	0,3 to 0,6 m
Ilex crenata varieties	1 to 1,5 m	1,5 to 2 m
Kalmia latifolia	2 to 3 m	1 to 3 m
Kalmia latifolia 'Ostbo Red'	0,5 to 1,2 m	0,5 to 1,2 m
Lavandula angustifolia varieties	0,4 to 0,5 m	0,4 to 0,5 m
Ledum palustre	0,5 to 1 m	0,5 to 1 m
Ligustrum vulgare 'Lodense'	0,4 to 1 m	0,5 to 0,8 m
Pernettya mucronata varieties	0,6 to 1 m	0,6 to 1 m
Potentilla fruticosa mandshurica	0,3 to 0,5 m	0,6 to 1 m
Rhododendron 'Radistrotum'	0,2 to 0,3 m	0,3 to 0,5 m
Rhododendron camtschaticum	0,2 to 0,3 m	0,3 to 0,5 m
Rhododendron carolinianum varieties	0,3 to 1 m	0,6 to 1 m
Rhododendron impeditum varieties	0,1 to 0,4 m	0,5 to 1 m
Rhododendron kelticum	0,1 to 0,2 m	0,2 to 0,4 m
Rhododendron radicans	0,1 to 0,2 m	0,2 to 0,4 m
Rhododendron Repens hybrids	0,4 to 0,6 m	0,8 to 1,3 m
Rhododendron Yakushmanum hybrids	0,4 to 0,6 m	1 to 1,2 m
Rhododendron Azalea hybrids	0,3 to 0,5 m	0,3 to 0,5 m
Rubus calycinoides	0,1 to 0,2 m	0,5 to 1 m
Salix grahamii	0,2 to 0,3 m	0,6 to 1 m
Salix helvetica	0,3 to 1,2 m	0,8 to 1,2 m
Salix repens argentea	0,3 to 0,5 m	0,5 to 1 m

continued on next page

1 - Groups according to size and growth rates

continued

A. Deciduous plants

Genus/species/variety	Height	Width
<i>Sasa veitchii</i>	0,3 to 0,8 m	2 to 4 m
<i>Spiraea betulifolia</i> 'Tor'	0,5 to 1 m	1 to 1,5 m
<i>Spiraea decumbens</i>	0,2 to 0,3 m	0,4 to 0,5 m
<i>Spiraea japonica</i> 'Little Princess'	0,5 m	0,9 m
<i>Stephanandra incisa</i> 'Cripsa'	0,4 to 0,8 m	1 to 1,5 m
<i>Vaccinium macrocarpon</i>	0,1 to 0,3 m	0,5 to 0,8 m
<i>Vaccinium vitis-idaea</i>	0,2 to 0,3 m	0,2 to 0,3 m
<i>Viburnum davidii</i>	0,3 to 1 m	1 to 1,5 m
8. Semi-shrubs (base lignified, shoots not)		
<i>Ceanothus</i> varieties	1-1,5 (2)	1-1,5
<i>Clematis durandii</i>	1,2-1,5	1-1,5
<i>Clematis texensis</i> varieties	1-1,5	1-1,5
<i>Lavandula angustifolia</i> varieties	0,3-0,5	0,3-0,5
9. Climbers		
see no. 50, Climbers		

B. Conifers

Genus/species/variety	Height	Width
1. Large trees (20-40 m)		
<i>Abies concolor</i>	20 to 25 m	4 to 8 m
<i>Abies homolepis</i>	20 to 25 m	4 to 6 m
<i>Abies nordmanniana</i>	25 to 40 m	5 to 8 m
<i>Cedrus atlantica</i> 'Glauca'	15 to 40 m	6 to 10 m
<i>Cedrus deodara</i>	15 to 20 m	6 to 10 m
<i>Cedrus libani</i>	15 to 20 m	6 to 10 m
<i>Cupressocyparis leylandii</i>	15 to 25 m	2 to 5 m
<i>Ginkgo biloba</i>	15 to 30 m	10 to 15 m
<i>Larix decidua</i>	25 to 50 m	4 to 10 m
<i>Larix kaempferi</i>	25 to 30 m	8 to 10 m
<i>Metasequoia glyptostroboides</i>	20 to 35 m	6 to 8 m
<i>Picea abies</i>	25 to 60 m	6 to 10 m
<i>Picea omorika</i>	15 to 35 m	2 to 3 m
<i>Picea orientalis</i>	20 to 30 m	4 to 8 m
<i>Picea pungens</i>	15 to 25 m	6 to 8 m
<i>Picea sitchensis</i>	20 to 25 m	6 to 10 m
<i>Pinus jeffreyi</i>	20 to 25 m	8 to 12 m
<i>Pinus nigra</i>	20 to 40 m	6 to 12 m
<i>Pinus ponderosa</i>	15 to 25 m	6 to 10 m
<i>Pinus strobus</i>	15 to 40 m	6 to 10 m
<i>Pinus sylvestris</i>	10 to 30 m	5 to 10 m

Groups according to size and growth rates - 1

B. Conifers

Genus/species/variety	Height	Width
<i>Pinus wallichiana</i>	15 to 30 m	6 to 12 m
<i>Pseudotsuga menziesii caesia</i>	30 to 40 m	7 to 10 m
<i>Sequoiadendron giganteum</i>	25 to 35 m	10 to 12 m
<i>Sequoia sempervirens</i>	6 to 12 m	3 to 4 m
<i>Taxodium distichum</i>	20 to 30 m	4 to 10 m
2. Medium-size trees (12/15-20 m)		
<i>Abies procera</i> 'Glauca'	15 to 18 m	4 to 6 m
<i>Abies veitchii</i>	15 to 18 m	4 to 6 m
<i>Cedrus deodara</i>	15 to 20 m	6 to 10 m
<i>Cedrus libani</i>	15 to 20 m	6 to 10 m
<i>Picea breweriana</i>	10 to 15 m	4 to 6 m
<i>Picea pungens</i>	15 to 25 m	6 to 8 m
<i>Picea pungens</i> 'Hoopsii'	10 to 15 m	3 to 4 m
<i>Picea pungens</i> 'Koster'	10 to 20 m	3 to 5 m
<i>Picea pungens</i> 'Oldenburg'	15 to 20 m	6 to 8 m
<i>Picea pungens glauca</i>	10 to 20 m	6 to 8 m
<i>Pinus banksiana</i>	12 to 15 m	6 to 10 m
<i>Pinus cembra</i>	15 to 20 m	2 to 4 m
<i>Pinus contorta</i>	10 to 20 m	4 to 6 m
<i>Pinus peuce</i>	10 to 20 m	4 to 6 m
<i>Pinus schwerinii</i>	12 to 15 m	7 to 10 m
<i>Taxus baccata</i>	5 to 18 m	5 to 10 m
<i>Thuja occidentalis</i>	15 to 20 m	3 to 5 m
<i>Thuja plicata</i> 'Excelsa'	8 to 20 m	3 to 7 m
<i>Tsuga canadensis</i>	12 to 25 m	4 to 10 m
3. Small trees (7-12/15 m)		
<i>Abies koreana</i>	5 to 8 m	2 to 3 m
<i>Araucaria araucana</i>	5 to 10 m	3 to 6 m
<i>Cedrus</i> species and varieties	5 to 12 m	3 to 10 m
<i>Chamaecyparis lawsonia</i> varieties	4 to 10 m	1 to 4 m
<i>Chamaecyparis nootkatensis</i> 'Pendula'	8 to 15 m	3 to 5 m
<i>Chamaecyparis pisifera</i> varieties	5 to 8 m	3 to 4 m
<i>Cupressocyparis leylandii</i> 'Castlewellan Gold'	7 to 12 m	2 to 4 m
<i>Juniperus chinensis</i> 'Keteleeri'	2 to 10 m	1 to 3 m
<i>Juniperus virginiana</i> 'Canaertii'	5 to 7 m	2 to 4 m
<i>Juniperus virginiana</i> 'Glauca'	6 to 10 m	2 to 4 m
<i>Larix kaempferi</i> 'Diana'	3 to 8 m	2 to 3 m
<i>Larix kaempferi</i> 'Pendula'	7 to 10 m	2 to 3 m
<i>Picea abies</i> varieties	3 to 8 m	1 to 5 m
<i>Picea omorika</i> varieties	4 to 10 m	1 to 3 m
<i>Picea orientalis</i> varieties	8 to 15 m	4 to 7 m
<i>Picea pungens</i> varieties	10 to 20 m	3 to 8 m
<i>Pinus aristata</i>	2 to 6 m	1 to 2,5 m

continued on next page

1 - Groups according to size and growth rates

continued

B. Conifers

Genus/species/variety	Height	Width
Pinus contorta	10 to 20 m	4 to 6 m
Pinus contorta 'Compacta'	2 to 15 m	2 to 6 m
Pinus densiflora 'Pumila'	2 to 3 m	1 to 3 m
Pinus leucodermis	6 to 15 m	3 to 6 m
Pinus leucodermis 'Compact Gem'	6 to 10 m	3 to 6 m
Pinus mugo	4 to 8 m	2 to 4 m
Pinus nigra varieties	4 to 6 m	2 to 3 m
Pinus parviflora 'Glauca'	5 to 15 m	4 to 8 m
Pinus peuce	10 to 20 m	4 to 6 m
Pinus strobus 'Radiata'	3 to 5 m	2 to 3 m
Pinus sylvestris varieties	4 to 10 m	1 to 2 m
Pinus wallichiana 'Densa Hill'	5 to 7 m	1 to 2 m
Pseudolarix amabilis	8 to 15 m	4 to 8 m
Sciadopitys verticillata	5 to 10 m	3 to 4 m
Sequoia sempervirens	6 to 12 m	3 to 4 m
Taxus baccata	5 to 18 m	5 to 10 m
Taxus baccata varieties	2 to 8 m	1 to 8 m
Thuja occidentalis varieties	3 to 8 m	1 to 2 m
Thuja plicata varieties	8 to 15 m	3 to 7 m
Thuja standishii	8 to 10 m	4 to 6 m
Thujopsis dolabrata	5 to 8 m	4 to 6 m
Tsuga diversifolia	5 to 10 m	3 to 4 m
Tsuga mertensiana	8 to 15 m	2 to 4 m
Tsuga mertensiana 'Glauca'	8 to 12 m	2 to 4 m
4. Large shrubs (3-5/7 m)		
Cedrus atlantica varieties	5 to 12 m	3 to 8 m
Cedrus deodara 'Pendula'	3 to 5 m	3 to 5 m
Chamaecyparis species and varieties	4 to 10 m	1 to 3 m
Cryptomeria japonica	6 to 8 m	2 to 3 m
Cryptomeria japonica Cristata	6 to 8 m	2 to 3 m
Cryptomeria japonica Elegans Viridis	6 to 8 m	2 to 3 m
Juniperus species and varieties	2 to 4 m	1 to 3 m
Larix kaempferi 'Diana'	3 to 8 m	2 to 3 m
Picea abies 'Acrocona'	3 to 6 m	1 to 5 m
Picea abies 'Inversa'	3 to 8 m	1 to 4 m
Picea abies 'Little Gem'	3 to 8 m	1 to 4 m
Picea abies 'Maxwellii'	3 to 8 m	1 to 4 m
Picea abies 'Nidiformis'	1 to 5 m	1 to 4 m
Picea abies 'Pygmaea'	3 to 5 m	1 to 4 m
Picea abies 'Virgata'	3 to 8 m	1 to 4 m
Pinus aristata	2 to 6 m	1 to 2,5 m
Pinus contorta 'Compacta'	2 to 15 m	2 to 6 m
Pinus densiflora 'Pumila'	2 to 3 m	1 to 3 m
Pinus mugo varieties	4 to 5 m	2 to 4 m
Pinus strobus 'Radiata'	3 to 5 m	2 to 3 m
Pinus sylvestris 'Watereri'	3 to 5 m	3 to 5 m

Groups according to size and growth rates - 1

B. Conifers

Genus/species/variety	Height	Width
Taxus species and varieties	2 to 8 m	1 to 8 m
Thuja species and varieties	3 to 8 m	1 to 2 m
Thujopsis dolabrata	5 to 8 m	4 to 6 m
Tsuga canadensis 'Pendula'	3 to 4 m	3 to 4 m
Tsuga diversifolia	5 to 10 m	3 to 4 m
Tsuga mertensiana 'Glauca'	8 to 12 m	2 to 4 m
5. Normal shrubs / medium shrubs (1,5-3 m)		
Juniperus media 'Pfitzeriana Aurea'	2 to 4 m	2 to 6 m
Pinus mugo mughus	2 to 5 m	2 to 5 m
Taxus baccata 'Washingtonii'	1,5 to 5 m	1 to 8 m
Taxus cuspidata 'Nana'	1 to 3 m	3 to 7 m
6. Small shrubs (0,5-1,5 m)		
Chamaecyparis obtusa 'Nana Gracilis'	1 to 2 m	1 to 2 m
Chamaecyparis pisifera 'Boulevard'	2 to 4 m	1 to 2 m
Juniperus communis varieties	0,3 to 0,8 m	1,5 to 3 m
Juniperus media 'Old Gold'	1 to 2 m	2 to 3 m
Juniperus sabina varieties	0,5 to 1,5 m	2 to 3 m
Juniperus virginiana 'Grey Owl'	2 to 3 m	3 to 5 m
Picea abies varieties	1 to 5 m	0,5 to 4 m
Picea pungens 'Glauca Globosa'	1 to 3 m	1 to 3 m
Pinus densiflora 'Pumila'	2 to 3 m	1 to 3 m
Pinus mugo varieties	4 to 5 m	2 to 4 m
Pinus parviflora 'Negishi'	1 to 1,5 m	0,8 to 1,5 m
Pinus pumila varieties	1 to 3 m	1 to 2 m
Pinus strobus 'Macopin'	1 to 1,5 m	1 to 1,5 m
Pinus strobus 'Radiata'	3 to 5 m	2 to 3 m
Taxus baccata 'Repandens'	0,5 to 0,7 m	2 to 3 m
Taxus cuspidata 'Nana'	1 to 3 m	3 to 7 m
Taxus media 'Brownii'	2 to 3 m	3 to 4 m
Thuja occidentalis 'Tiny Tim'	0,5 to 1 m	0,8 to 1,5 m
7. Dwarf shrubs (0,1-0,5 m)		
Juniperus communis 'Repanda'	0,3 to 0,5 m	1,5 to 2 m
Juniperus horizontalis varieties	0,2 to 0,7 m	1,5 to 3 m
Juniperus sabina varieties	0,5 to 1,5 m	2 to 3 m
Juniperus squamata varieties	0,3 to 0,8 m	1,5 to 3 m
Picea abies 'Pumila Glauca'	0,4 to 0,6 m	1 to 1,5 m
Picea glauca 'Echiniformis'	0,3 to 2 m	0,5 to 2 m
Pinus mugo 'Mops'	0,3 to 2 m	0,5 to 2 m
Taxus baccata 'Repandens'	0,5 to 0,7 m	2 to 3 m
Thuja occidentalis 'Tiny Tim'	0,5 to 1 m	0,8 to 1,5 m

2 - Street trees

Index of all varieties and species available as standards.

Acer campestre	Catalpa bignonioides
Acer campestre 'Elsrijk'	Catalpa bignonioides 'Nana'
Acer negundo	
Acer platanoides	Cercidiphyllum japonicum
Acer platanoides 'Cleveland'	
Acer platanoides 'Columnare'	Cornus mas
Acer platanoides 'Deborah'	
Acer platanoides 'Drummodii'	Corylus colurna
Acer platanoides 'Emerald Queen'	
Acer platanoides 'Eurostar'	Crataegus lavalleyi 'Carrierei'
Acer platanoides 'Faassen's Black'	Crataegus laevigata 'Paul's Scarlet'
Acer platanoides 'Farlake's Green'	Crataegus monogyna
Acer platanoides 'Globosum'	Crataegus monogyna 'Stricta'
Acer platanoides 'Royal Red'	Crataegus coccinea
Acer platanoides 'Schwedleri'	Crataegus crus galli
Acer pseudoplatanus	
Acer pseudoplatanus 'Erectum'	Fagus sylvatica
Acer pseudoplatanus 'Negenia'	Fagus sylvatica 'Atropunicea'
Acer rubrum	Fagus sylvatica 'Pendula'
Acer rubrum 'Armstrong'	Fagus sylvatica 'Purpurea'
Acer rubrum 'October Glory'	Fagus sylvatica 'Purpurea Pendula'
Acer rubrum 'Red Sunset'	Fagus sylvatica 'Swat Magret'
Acer rubrum 'Scanlon'	
Acer saccharinum	Fraxinus angustifolia 'Raywood'
Acer saccharinum 'Wieri'	Fraxinus excelsior
Acer saccharinum 'Pyramidale'	Fraxinus excelsior 'Atlas'
	Fraxinus excelsior 'Diversifolia'
Aesculus carnea 'Briotii'	Fraxinus excelsior 'Geessink'
Aesculus hippocastanum	Fraxinus excelsior 'Jaspidea'
Aesculus hippocastanum 'Baumannii'	Fraxinus excelsior 'Nana'
Aesculus hippocastanum 'Umbraculifera'	Fraxinus excelsior 'Pendula'
Aesculus hippocastanum 'Pyramidalis'	Fraxinus excelsior 'Westhof's Glorie'
	Fraxinus ornus
Ailanthus altissima	
	Gleditsia triacanthos
Alnus cordata	Gleditsia triacanthos inermis
Alnus glutinosa	Gleditsia triacanthos 'Shademaster'
Alnus incana	Gleditsia triacanthos 'Skyline'
Alnus spaethii	Gleditsia triacanthos 'Sunburst'
Amelanchier lamarckii	Juglans regia
Betula nigra	Liquidambar styraciflua
Betula pendula	
Betula pendula 'Dalecarlica'	Liriodendron tulipifera
Betula pendula 'Fastigiata'	Liriodendron tulipifera 'Fastigiatum'
Betula pendula 'Tristis'	
Betula pendula 'Youngii'	Magnolia kobus
Betula utilis	Magnolia soulangiana
Carpinus betulus	Malus 'Charlottae'
Carpinus betulus 'Columnaris'	Malus 'Eleyi'
Carpinus betulus 'Fastigiata'	Malus 'Hillieri'
Carpinus betulus 'Frans Fontaine'	
	Malus 'Hopa'
Castanea sativa	Malus 'John Downie'

Malus 'Liset'	Pyrus communis 'Beech Hill'
Malus 'Nicoline'	Pyrus regelii
Malus 'Professor Sprenger'	
Malus 'Profusion'	Quercus cerris
Malus 'Red Sentinel'	Quercus coccinea
Malus 'Royalty'	Quercus frainetto
Malus 'Rudolph'	Quercus palustris
Malus 'Tina'	Quercus petraea
Malus 'Striped Beauty'	Quercus robur
Malus 'Van Eseltine'	Quercus robur 'Fastigiata'
Malus floribunda	Quercus robur 'Fastigiata Koster'
Malus sylvestris	Quercus rubra
Malus tschonoskii	
	Robinia 'Casque Rouge'
Ostrya carpinifolia	Robinia pseudoacacia
	Robinia pseudoacacia 'Bessoniana'
Paulownia tomentosa	Robinia pseudoacacia 'Frisia'
	Robinia pseudoacacia 'Sandraudiga'
Parrotia persica	Robinia pseudoacacia 'Semperflorens'
	Robinia pseudoacacia 'Umbraculifera'
Platanus acerifolia	Robinia pseudoacacia 'Monophylla'
Populus alba 'Nivea'	Salix alba
Populus balsamifera	Salix alba 'Belders'
Populus berolinensis	Salix alba 'Liempde'
Populus canescens	Salix alba 'Tristis'
Populus canadensis 'Robusta'	Salix alba 'Tristis Resistenta'
Populus nigra	
Populus nigra 'Italica'	Sophora japonica
Populus tremula	Sophora japonica 'Regent'
Populus tremula 'Erecta'	
	Sorbus aria 'Lutescens'
Prunus 'Accolade'	Sorbus aria 'Magnifica'
Prunus avium	Sorbus aria 'Majestica'
Prunus avium 'Plena'	Sorbus aucuparia
Prunus cerasifera 'Nigra'	Sorbus aucuparia 'Edulis'
Prunus fruticosa 'Globosa'	Sorbus aucuparia 'Fastigiata'
Prunus gondouinii 'Schnee'	Sorbus aucuparia 'Sheerwater Seedling'
Prunus maackii	Sorbus hybrida 'Gibbsii'
Prunus maackii 'Amber Beauty'	Sorbus intermedia
Prunus padus	Sorbus intermedia 'Brouwers'
Prunus padus 'Watereri'	Sorbus serotina
Prunus sargentii	Sorbus thuringiaca 'Fastigiata'
Prunus schmittii	Sorbus vilmorinii
Prunus serrula	
Prunus serrula 'Amanogawa'	Tilia americana 'Nova'
Prunus serrula 'Kiku-shidare-zakura'	Tilia cordata
Prunus serrula 'Kanzan'	Tilia cordata 'Erecta'
Prunus serrula 'Pink Perfection'	Tilia cordata 'Greenspire'
Prunus serrula 'Shimidsu-Sakura'	Tilia cordata 'Rancho'
Prunus serrula 'Shirofugen'	Tilia euchlora
Prunus subhirtella 'Autumnalis'	Tilia europaea
Prunus subhirtella 'Autumnalis Rosea'	Tilia europaea 'Pallida'
Prunus subhirtella 'Fukubana'	Tilia flavescens 'Glenleven'
Prunus yedoensis	Tilia platyphyllos
Pyrus calleryana 'Bradford'	Tilia platyphyllos 'Rubra'
Pyrus calleryana 'Chanticleer'	Tilia tomentosa

continued on next page

2 - Street trees

continued

Tilia tomentosa 'Brabant'

Ulmus carpinifolia
Ulmus carpinifolia 'Wredei'
Ulmus glabra
Ulmus glabra 'Exoniensis'
Ulmus hollandica 'Commelin'

Ulmus hollandica 'Dodoens'
Ulmus hollandica 'Groeneveld'
Ulmus hollandica 'Plantijn'
Ulmus hollandica 'Lobel'
Ulmus laevis

Zelkova serrata

3 - Height and crown diameter of 30-year-old trees

These are average sizes which are far exceeded in especially favourable areas but also fall far short in extreme conditions. Initial growth between 60-180 cm a year in the first decade cannot necessarily be projected for the next decades as the growth rate does not by any means remain constant. It should also be kept in mind that the large trees will not yet have reached their maximum sizes, while the growth of small trees is already complete.

A further group of trees, usually the medium-size, are among the fastest-growing and shortest-lived. After 30 years, they are already in their final stage and begin their dying phase.

Plant names	Height	Diameter
Acer campestre	8 to 11 m	5 to 12 m
Acer campestre 'Elsrijk'	6 to 10 m	4 to 6 m
Acer ginnala	5 to 8 m	4 to 8 m
Acer neglectum 'Annae'	6 to 8 m	5 to 8 m
Acer negundo	8 to 14 m	5 to 16 m
Acer negundo 'Aureo-variegatum'	5 to 8 m	5 to 7 m
Acer negundo 'Odessanum'	6 to 10 m	5 to 8 m
Acer negundo 'Variegatum'	5 to 7 m	5 to 6 m
Acer platanoides	10 to 13 m	9 to 13 m
Acer platanoides 'Globosum'	5 to 8 m	4 to 6 m
Acer platanoides 'Schwedleri'	8 to 10 m	6 to 9 m
Acer pseudoplatanus	12 to 15 m	10 to 12 m
Acer pseudoplatanus 'Erectum'	10 to 13 m	6 to 8 m
Acer pseudoplatanus 'Negenia'	12 to 15 m	6 to 8 m
Acer rubrum	8 to 10 m	5 to 10 m
Acer rufinerve	5 to 7 m	3 to 4 m
Acer saccharinum	15 to 19 m	12 to 20 m
Aesculus carnea 'Briotii'	7 to 11 m	6 to 9 m
Aesculus hippocastanum	10 to 13 m	8 to 12 m
Aesculus hippocastanum 'Baumannii'	8 to 12 m	7 to 9 m
Ailanthus altissima	10 to 12 m	9 to 13 m
Alnus cordata	9 to 12 m	3 to 6 m
Alnus glutinosa	9 to 12 m	6 to 9 m
Alnus incana	6 to 10 m	3 to 10 m
Alnus spaethii	8 to 11 m	5 to 8 m
Amelanchier lamarckii	5 to 8 m	3 to 5 m
Betula nigra	10 to 13 m	8 to 12 m

Height and crown diameter of 30-year-old trees - 3

Plant names	Height	Diameter
Betula papyrifera	14 to 16 m	13 to 15 m
Betula pendula	12 to 17 m	8 to 12 m
Betula pendula 'Youngii'	5 to 7 m	4 to 6 m
Betula pubescens	5 to 10 m	3 to 8 m
Betula utilis	6 to 14 m	8 to 10 m
Carpinus betulus	10 to 13 m	8 to 12 m
Carpinus betulus 'Fastigiata'	9 to 12 m	8 to 10 m
Castanea sativa	12 to 15 m	8 to 12 m
Catalpa bignonioides	6 to 8 m	5 to 7 m
Catalpa bignonioides 'Nana'	4 to 6 m	2 to 4 m
Cercidiphyllum japonicum	7 to 10 m	4 to 8 m
Cornus alternifolia	4 to 6 m	4 to 6 m
Cornus controversa	6 to 8 m	4 to 6 m
Cornus florida	4 to 6 m	3 to 5 m
Cornus kousa	4 to 7 m	3 to 4 m
Cornus kousa chinensis	5 to 8 m	4 to 5 m
Corylus colurna	9 to 13 m	6 to 10 m
Crataegus coccinea	5 to 7 m	3 to 6 m
Crataegus laevigata 'Paul's Scarlet'	3 to 8 m	3 to 6 m
Crataegus lavalleyi	5 to 10 m	3 to 8 m
Crataegus monogyna	5 to 8 m	3 to 5 m
Crataegus monogyna 'Stricta'	4 to 6 m	1 to 2 m
Crataegus persimilis 'Splendens'	5 to 7 m	3 to 5 m
Davidia involucreta vilmoriniana	5 to 8 m	6 to 8 m
Elaeagnus angustifolia	5 to 8 m	3 to 6 m
Fagus sylvatica	10 to 14 m	8 to 11 m
Fagus sylvatica 'Atropunicea'	8 to 12 m	8 to 10 m
Fraxinus excelsior	12 to 16 m	10 to 13 m
Fraxinus excelsior 'Altena'	12 to 14 m	8 to 10 m
Fraxinus excelsior 'Diversifolia'	7 to 10 m	6 to 9 m
Fraxinus excelsior 'Nana'	4 to 8 m	2 to 4 m
Fraxinus excelsior 'Westhofs Glorie'	12 to 15 m	8 to 11 m
Fraxinus ornus	6 to 10 m	4 to 6 m
Fraxinus ornus 'Anita'	6 to 8 m	3 to 5 m
Ginkgo biloba	8 to 10 m	4 to 8 m
Gleditsia triacanthos	9 to 13 m	6 to 10 m
Gleditsia triacanthos 'Inermis'	8 to 13 m	6 to 10 m
Gleditsia triacanthos 'Skyline'	8 to 12 m	5 to 8 m
Juglans regia	8 to 13 m	6 to 12 m
Koelreuteria paniculata	6 to 10 m	4 to 8 m
Laburnum watereri 'Vossii'	5 to 6 m	3 to 4 m
Liquidambar styraciflua	6 to 10 m	5 to 8 m
Liriodendron tulipifera	12 to 14 m	9 to 12 m
Lonicera maackii	4 to 6 m	4 to 6 m
Magnolia kobus	8 to 10 m	8 to 10 m
Magnolia soulangiana	3 to 8 m	3 to 6 m
Malus floribunda	5 to 8 m	4 to 8 m

continued on next page

3 - Height and crown diameter of 30-year-old trees

continued

Plant names	Height	Diameter
Malus scheideckeri 'Hillieri'	5 to 8 m	4 to 8 m
Malus sieboldii 'Wintergold'	5 to 8 m	4 to 8 m
Malus sylvestris	5 to 12 m	5 to 10 m
Malus toringo sargentii 'Tina'	5 to 12 m	5 to 10 m
Malus tschonoskii	8 to 12 m	4 to 6 m
Malus zumi 'Prof. Sprenger'	8 to 12 m	4 to 6 m
Parrotia persica	7 to 10 m	5 to 8 m
Platanus acerifolia	12 to 16 m	11 to 16 m
Populus alba 'Nivea'	12 to 18 m	10 to 16 m
Populus balsamifera	12 to 15 m	7 to 9 m
Populus berolinensis	12 to 16 m	6 to 9 m
Populus canadensis 'Robusta'	15 to 20 m	11 to 14 m
Populus canescens	12 to 18 m	10 to 14 m
Populus nigra 'Italica'	15 to 20 m	3 to 4 m
Populus simonii	12 to 15 m	6 to 10 m
Populus tremula	14 to 17 m	8 to 10 m
Populus tremula 'Erecta'	10 to 14 m	2 to 4 m
Prunus 'Accolade'	5 to 8 m	4 to 6 m
Prunus avium	10 to 13 m	7 to 11 m
Prunus avium 'Plena'	5 to 9 m	5 to 8 m
Prunus cerasifera 'Nigra'	4 to 7 m	3 to 5 m
Prunus fruticosa 'Globosa'	3 to 5 m	2 to 4 m
Prunus hillieri 'Spire'	5 to 8 m	2 to 3 m
Prunus padus	6 to 11 m	5 to 8 m
Prunus sargentii	6 to 12 m	4 to 8 m
Prunus serrulata 'Amanogawa'	5 to 7 m	2 to 3 m
Prunus serrulata 'Kanzan'	6 to 10 m	5 to 7 m
Prunus serrulata 'Kiku-shidare-zakura'	4 to 6 m	3 to 4 m
Prunus serrulata 'Okumiyako'	3 to 4 m	2 to 4 m
Prunus serrulata 'Shirofugen'	6 to 9 m	4 to 5 m
Prunus subhirtella 'Autumnalis'	4 to 5 m	3 to 5 m
Prunus subhirtella 'Fukubana'	3 to 6 m	2 to 4 m
Prunus triloba	2 to 3 m	2 to 3 m
Prunus yedoensis	5 to 7 m	5 to 7 m
Pterocarya fraxinifolia	10 to 13 m	10 to 18 m
Pyrus calleryana 'Chanticleer'	7 to 10 m	4 to 5 m
Pyrus salicifolia	4 to 5 m	3 to 4 m
Quercus cerris	8 to 12 m	6 to 8 m
Quercus coccinea	10 to 12 m	7 to 10 m
Quercus frainetto	12 to 14 m	8 to 12 m
Quercus palustris	10 to 13 m	6 to 12 m
Quercus petraea	10 to 14 m	8 to 12 m
Quercus robur	13 to 16 m	9 to 12 m
Quercus robur 'Fastigiata'	10 to 13 m	6 to 8 m
Quercus rubra	10 to 15 m	7 to 12 m
Rhus typhina	5 to 8 m	4 to 6 m
Robinia pseudoacacia	10 to 16 m	7 to 18 m

Height and crown diameter of 30-year-old trees - 3

Plant names	Height	Diameter
Robinia pseudoacacia 'Bessoniana'	10 to 14 m	5 to 10 m
Robinia pseudoacacia 'Sandraudiga'	10 to 14 m	7 to 10 m
Robinia pseudoacacia 'Semperflorens'	10 to 16 m	7 to 11 m
Robinia pseudoacacia 'Tortuosa'	8 to 10 m	5 to 8 m
Robinia pseudoacacia 'Umbraculifera'	4 to 6 m	4 to 6 m
Robinia pseudoacacia 'Unifolia'	8 to 13 m	5 to 8 m
Salix alba	10 to 20 m	8 to 15 m
Salix alba 'Liempde'	12 to 20 m	6 to 10 m
Salix alba 'Tristis'	12 to 18 m	10 to 15 m
Salix caprea	6 to 8 m	4 to 5 m
Salix daphnoides 'Praecox'	5 to 8 m	3 to 5 m
Salix matsudana 'Tortuosa'	8 to 10 m	6 to 8 m
Sophora japonica	9 to 13 m	9 to 12 m
Sophora japonica 'Regent'	9 to 13 m	8 to 10 m
Sorbus aria 'Magnifica'	8 to 12 m	4 to 6 m
Sorbus aria 'Majestica'	8 to 12 m	4 to 6 m
Sorbus aucuparia	5 to 10 m	4 to 9 m
Sorbus aucuparia 'Edulis'	8 to 12 m	5 to 10 m
Sorbus aucuparia 'Fastigiata'	5 to 7 m	4 to 6 m
Sorbus aucuparia 'Sheerwater Seedling'	6 to 10 m	3 to 4 m
Sorbus hybrida 'Gibbsii'	5 to 7 m	3 to 4 m
Sorbus intermedia 'Brouwers'	8 to 10 m	4 to 6 m
Sorbus thuringiaca 'Fastigiata'	5 to 8 m	3 to 4 m
Sorbus vilmorinii	3 to 6 m	3 to 5 m
Sorbus vulgaris	8 to 11 m	4 to 10 m
Tilia cordata	12 to 16 m	9 to 13 m
Tilia cordata 'Erecta'	9 to 12 m	5 to 10 m
Tilia cordata 'Greenspire'	10 to 13 m	7 to 10 m
Tilia euchlora	12 to 15 m	6 to 10 m
Tilia europaea 'Pallida'	11 to 16 m	9 to 13 m
Tilia platyphyllos	11 to 16 m	11 to 14 m
Tilia platyphyllos 'Rubra'	12 to 16 m	10 to 13 m
Tilia tomentosa	10 to 13 m	12 to 14 m
Tilia tomentosa 'Brabant'	10 to 14 m	8 to 10 m
Tilia vulgaris	10 to 15 m	8 to 13 m
Ulmus carpinifolia 'Wredei'	8 to 10 m	3 to 4 m
Ulmus hollandica 'Lobel'	10 to 13 m	5 to 6 m
Ulmus laevis	10 to 12 m	9 to 12 m

4 - Bizarre habits

This is a group of plants with unique branching habits that produce wonderful effects when the leaves have fallen. They should be planted as lone specimens in front of a neutral background where they are not overshadowed by larger, more conspicuous plants lest their picturesque effects be lost. Their partners should be shrubs or low perennials that are clearly smaller.

Genus/species/variety	Height in m	Width in m	Habit
1. Deciduous plants			
<i>Corylus avellana</i> 'Contorta'	2-4	2-4	twigs twisted like corkscrews
<i>Euonymus phellomanus</i>	1-3	1-3	asymmetrical with wing-shaped dorky shoots
<i>Nothofagus antarctica</i>	4-6	3-4	twigs twisted, asymmetrical habit
<i>Robinia pseudoacacia</i> 'Tortuosa'	12-15	6-8	asymmetrical crown, twisted twigs
<i>Salix matsudana</i> 'Tortuosa'	4-8	4-6	spiralling, twisted branches and twigs
<i>Salix sachalinensis</i> 'Sekka'	2-3	2-4	belt-like, somewhat twisted and twigs
<i>Ulmus carpinifolia</i> 'Wredei'	8-10	3-4	asymmetrical funnel crown, leaves twisted
2. Conifers			
<i>Abies procera</i> 'Glauca'	15-18	4-6	asymmetrical habit, several shoots
<i>Chamaecyparis obtusa</i> 'Nana Gracilis'	2-3	1-2	twigs like fans or shells
<i>Cryptomeria japonica</i> 'Cristata'	6-8	2-3	twigs tips fanned out
<i>Larix kaempferi</i> 'Diana'	5-8	2-3	twigs twisted like corkscrews
<i>Picea abies</i> 'Acrocona'	3-5	2-4	conspicuous cones
<i>Picea abies</i> 'Inversa'	5-8	1-2	twigs asymetrically twigs
<i>Picea abies</i> 'Virgata'	12-15	4-6	bizare-asymmetrical twigs
<i>Picea orientalis</i> 'Nutans'	8-12	5-7	bracnhes in various growth direction
<i>Picea omorika</i> 'Pendula'	8-10	1-2	hanging branches, twisted twigs

5 - Conical crowns

Most conical trees develop gradually in the course of their growth from slender, symmetrically conical figures to extended, sometimes even round-crown trees with deeply set crowns. Some varieties and species do not develop round crowns with age but retain their conical habits, merely becoming broader.

Genus/species/variety	Height in m	Width in m	Habit
1. Deciduous trees			
<i>Acer campestre</i> 'Elsrijk'	8-12	4-6	broadly ovoid
<i>Acer platanoides</i> 'Eurostar'	12-15	5-6	broadly ovoid
<i>Acer pseudoplatanus</i> 'Negenia'	20-25	6-8	domed-ovoid
<i>Acer rubrum</i> (einstämmig) varieties	7-12	4-7	broadly conical to ovoid
<i>Acer rufinerve</i>	4-7	2-4	asymmetrical broadly conical
<i>Alnus cordata</i>	8-15	3-6	broadly conical to ovoid
<i>Alnus incana</i> (einstämmig) varieties	8-12	3-6	asymmetrical broadly conical

Genus/species/variety	Height in m	Width in m	Habits when old
Alnus spaethii	12-15	6-8	asymmetrical, conical
Betula ermanii	15-20	6-8	broadly conical
Betula maximowicziana	15-20	8-12	asymmetrical broadly conical
Carpinus betulus 'Quercifolia'	15-25	6-10	domed, broadly ovoid
Cornus controversa	6-8	4-6	broadly conical to round
Corylus colurna	12-15	6-8	broadly conical to round
Fagus sylvatica varieties	15-25	10-15	domed to round crown
Fraxinus angustifolia 'Raywood'	15-20	7-10	broadly ovoid
Fraxinus excelsior varieties	20-25	10-15	broadly conical to ovoid
Gleditsia triacanthos 'Skyline'	12-15	5-8	loosely broadly conical
Ilex aquifolium (einstämmig)	5-10	3-4	broadly conical to ovoid
Liquidambar styraciflua	10-15	4-8	asymmetrical, conical
Liriodendron tulipifera 'Fastigiatum'	15-20	5-7	broadly vase-shaped
Malus 'Evereste'	4-6	3-5	broadly conical
Malus tschonoskii	8-12	3-5	broadly ovoid
Nyssa sylvatica	15-20	8-12	flattened crown
Populus berolinensis	20-25	8-10	asymmetrically domed
Prunus avium	15-20	8-12	broadly ovoid to round
Prunus hillieri 'Spire'	6-8	2-3	broadly conical to round
Prunus schmittii	6-12	3-4	broadly conical
Pyrus calleryana varieties	7-9	4-5	loosely and broadly conical
Pyrus communis	5-15	5-10	domed crown
Quercus coccinea	15-20	8-12	open, loosely asymmetrical
Robinia pseudoacacia 'Monophylla'	10-15	6-8	slenderly ovoid, domed
Robinia pseudoacacia 'Sandraudiga'	15-20	8-12	asymmetrical broadly conical
Salix alba 'Liempde'	25-30	8-10	conical to domed
Sophora japonica 'Regent'	10-15	10-12	expansively ovoid
Sorbus aria varieties	6-12	4-6	broadly conical
Sorbus aucuparia 'Sheerwater Seedling'	6-10	3-4	compact ovoid
Sorbus hybrida 'Gibbsii'	5-7	3-4	broadly conical
Sorbus intermedia varieties	8-10	4-6	extended
Sorbus thuringiaca 'Fastigiata'	5-8	3-4	broadly conical
Tilia cordata 'Greenspire'	12-15	6-12	broadly conical
Tilia cordata 'Rancho'	9-12	4-6	compact, conical
Tilia euchlora	15-18	7-10	domed and overhanging
Tilia flavescens 'Glenleven'	15-20	8-12	loosely ovoid
Tilia europaea 'Pallida'	30-40	10-15	domed to round crown
Ulmus-Hybriden	12-15	5-6	broadly conical to flattened
2. Conifers			
Abies species and varieties	5-8/25-30	2-3/8-10	broadly conical to abgeplattet
Araucaria araucana	5-7	3-4	asymmetrically domed
Chamaecyparis species and varieties	3-4/8-10	1-2/2-4	broadly conical
Juniperus species and varieties	1-2/6-8	1-2/2-4	asymmetrical, loose
Larix varieties	25-30	8-10	broadly conical
Metasequoia glyptostroboides	20-30	6-8	loose, conical

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5 - Conical crown

continued

Genus/species/variety	Height in m	Width in m	Habits when old
Picea species and varieties	1-2/25-40	1-2/6-8	loose, conical
Pinus species and varieties	2-6/20-30	1-2/6-10	asymmetrical, conical
Pseudolarix amabilis	8-12	4-8	loosely asymmetrical
Pseudotsuga menziesii in Formen	30-40	7-10	extendedly asymmetrical
Sciadopitys verticillata	5-8	3-4	loosely conical
Sequoidadendron giganteum	25-35	10-12	allway conical
Taxodium distichum	20-25	5-8	loosely conical
Taxus baccata 'Dovastoniana'	6-8	4-6	loosely conical
Taxus baccata 'Overeynderi'	3-5	2-4	broadly ovoid
Taxus media varieties	3-5	2-4	loosely reaching in all directions
Thuja species and varieties	3-5/15-20	1-2/3-5	compact conical
Thujopsis dolabrata	5-10	4-8	broadly conical
Tsuga varieties	5-8/12-15	3-4/5-8	loosely asymmetrical

6 - Small trees with round crowns

Round-headed trees are without exception slow-growing small trees. They form a densely branched, compact crown that gradually becomes more flattened with age, i.e. the crowns are wider than tall when old. Only then is corrective pruning necessary. Otherwise, cutting is only necessary when the crown loses its shape and falls apart. It is not necessary to prune the trees every year.

Genus/species/variety	Height in m	Width in m	Flowers
Acer platanoides 'Globosum'	5-8	3-5	yellow
Aesculus hippocastanum 'Umbraculifera'	5-7	4-6	white
Catalpa bignonioides 'Nana'	4-6	2-3	none
Fraxinus excelsior 'Nana'	3-5	2-3	none
Prunus fruticosa 'Globosa'	3-5	2-3	white
Robinia pseudoacacia 'Umbraculifera'	4-6	4-6	none
Pinus densiflora 'Umbraculifera'	2-3	1,5-2,5	none

Columnar crowns - 7

Columnar deciduous trees are without exception cultivars as no slender tree types occur in the wild. A slender crown can be seen in young trees that want to grow up between older trees as quickly as possible. Once they have reached light, they begin to grow wider as is typical for their species. Similar behaviour, though not as pronounced, can be seen in almost all columnar trees: they change their appearance as they age, initially growing slender-columnar, and gradually widening into conical or ovoid crowns. Some even develop almost round crowns.

The naturally slender conifers behave in much the same manner. Their initially extremely slender habit gradually becomes cylindrical or even vase-shaped to barrel-shaped.

Genus/species/variety	Height in m	Width in m
1. Deciduous trees		
Acer platanoides 'Columnare'	8-10	3-4
Acer pseudoplatanus 'Erectum'	15-20	6-8
Acer rubrum 'Armstrong'	10-15	2-4
Acer saccharinum 'Pyramidale'	15-20	6-8
Aesculus hippocastanum 'Pyramidalis'	12-15	6-8
Betula pendula 'Fastigiata'	15-20	4-6
Carpinus betulus 'Columnaris'	8-12	6-10
Carpinus betulus 'Fastigiata'	10-15	6-1
Carpinus betulus 'Frans Fontaine'	5-8	3-4
Carpinus betulus 'Fastigiata Monument'	4-6	1-1,5
Fagus sylvatica 'Dawyck'	15-25	3-6
Fagus sylvatica 'Dawyck Gold'	4-8	2-3
Malus 'van Eseltine'	4-6	3-4
Malus tschonoskii	8-12	2-4
Populus nigra 'Italica'	25-30	4-8
Populus tremula 'Erecta'	10-15	2-3
Prunus hillieri 'Spire'	6-8	2-3
Prunus serrulata 'Amanogawa'	4-7	1-4
Pyrus communis 'Beech Hill'	8-10	3-5
Quercus robur 'Fastigiata'	25-30	6-10
Robinia pseudoacacia 'Pyramidalis'	6-10	5-8
Salix alba 'Liempde'	15-20	3-6
Sorbus aria 'Majestica'	6-12	4-6
Sorbus aucuparia 'Fastigiata'	5-7	2-4
Sorbus aucuparia 'Sheerwater Seedling'	6-10	3-4
Sorbus thuringiaca 'Fastigiata'	5-8	3-4
Tilia cordata 'Erecta'	15-18	5-10
Ulmus hollandica 'Lobel'	12-15	4-6

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7 - Columnar crowns

continued

Genus/species/variety	Height in m	Width in m
2. Conifers		
<i>Chamaecyparis lawsonia</i> 'Alumigld'	6-8	2-3
<i>Chamaecyparis lawsonia</i> 'Alumii'	8-10	2-4
<i>Chamaecyparis lawsonia</i> 'Columnaris'	5-10	1-2
<i>Chamaecyparis lawsonia</i> 'Columnaris Glauca'	5-8	1-2
<i>Chamaecyparis lawsonia</i> 'Ellwoodii'	2-4	1-1,5
<i>Chamaecyparis lawsonia</i> 'Ellwood's Gold'	2-3	0,5-1,5
<i>Chamaecyparis lawsonia</i> 'Kelleriis Gold'	6-8	2-3
<i>Chamaecyparis lawsonia</i> 'Lane'	4-7	2-3
<i>Cupressocyparis leylandii</i>	15-25	2-3
<i>Cupressocyparis leylandii</i> 'Castellewan Gold'	7-12	2-4
<i>Juniperus chinensis</i> 'Keteleeri'	8-10	1,5-2
<i>Juniperus chinensis</i> 'Spartan' (= <i>J. virginiana</i> 'Helle')	1,5-3	0,8-1,2
<i>Juniperus communis</i> 'Hibernica'	3-4	1-2
<i>Juniperus communis</i> 'Meyer'	3-5	1-1,5
<i>Juniperus communis</i> 'Suecica'	3-4	1-1,5
<i>Juniperus chinensis</i> 'Blaauw'	1,5-2,5	1-2
<i>Juniperus virginiana</i> 'Glauca'	6-8	2-4
<i>Juniperus scopulorum</i> 'Skyrocket'	5-7	0,5-1
<i>Picea omorika</i>	20-25	2-4
<i>Pinus mugo</i> 'Columnaris'	2-3	0,8-1,2
<i>Pinus nigra pyramidata</i>	5-8	2-3
<i>Pinus sylvestris</i> 'Fastigiata'	4-7	1-2
<i>Taxus baccata</i> 'Fastigiata'	5-7	2-5
<i>Taxus baccata</i> 'Fastigiata Aureomarginata'	2-4	2-3
<i>Taxus baccata</i> 'Fastigiata Robusta'	3-8	1-2
<i>Taxus media</i> 'Hicksii'	3-5	2-4
<i>Thuja occidentalis</i> 'Columna'	5-8	1-2
<i>Thuja occidentalis</i> 'Holmstrup'	3-4	0,8-1,5
<i>Thuja occidentalis</i> 'Smaragd'	3-5	1-2

8 - Umbrella crowns

Crowns that spread out like umbrellas are only found among fully grown trees. Young trees initially have an ovoid, conical or vase-shaped structure. Their originally slender crowns spread out with time into flatly extended to overhanging twig umbrellas.

Umbrella crowns are recommended along paths and as deciduous trees for tucked away, protected benches or small areas that need shade. Underplanting over broad areas is quite possible as only light shade is cast under the crowns.

Genus/species/variety	Height in m	Width in m	Flower colour	Habit development
1. Deciduous trees				
Acer ginnala	5-6	4-10	white	always extended
Amelanchier lamarckii	5-8	3-5	white	standards have broad habits
Aralia elata	3-5	2-3	white	several stems, extended
Aralia elata 'Variegata'	3-4	2-3	white	loosely umbrella-shaped
Betula nigra	15-20	6-8	-	asymmetrical umbrella-shaped
Betula pendula 'Youngii'	5-7	3-4	-	overhanging umbrella
Cercis siliquastrum	4-6	4-6	pink	always extended
Clerodendron trichotomum	2-3	2-3	white	loosely umbrella-shaped
Crataegus lavalley 'Carrieri'	5-8	3-5	white	asymmetrical umbrella-shaped
Crataegus crus galli	5-7	3-5	white	crown flattened
Euodia hupehensis	6-12	6-10	white	somewhat umbrella-shaped
Gleditsia triacanthos	15-25	8-10	white	asymmetrical umbrella-shaped
Hamamelis virginiana	4-7	3-5	yellow	umbrella-shaped as small tree
Koelreuteria paniculata	6-8	4-8	yellow	initially round crown
Lonicera maackii	4-6	4-6	white	always extended
Magnolia loebneri 'Leonard Messel'	3-6	3-8	pink-white	extremely broad
Malus 'Hillieri'	4-8	4-6	pink	initially domed
Mespilus germanica	3-5	3-5	white	broadly extended
Parrotia persica	5-7	5-7	reddish	umbrella-shaped standard
Paulownia tomentosa	8-15	8-15	blue	initially broadly round
Phellodendron amurense	10-12	10-12	greenish	spread out greatly
Prunus avium 'Plena'	7-12	4-6	white	initially round crown
Prunus sargentii	5-7	4-6	pink	initially conical
Prunus serrulata 'Kanzan'	7-10	4-6	pink	initially funnel-shaped
Prunus serrulata 'Shimidsu'	2-3	2-4	white	flatly umbrella shaped
Prunus subhirtella 'Fukubana'	2-4	2-4	pink	initially broadly funnel-shaped
Quercus pontica	4-6	3-4	-	only hints of umbrella crown
Rhus typhina	3-5	3-5	green	bizarre umbrella crown
Robinia pseudoacacia 'Tortuosa'	12-15	6-8	white	bizarre, somewhat umbrella-shaped
Sophora japonica 'Pendula'	5-8	5-8	-	overhanging umbrella
Sorbus serotina	5-10	5-8	white	initially conical
Sorbus vilmorinii	3-6	3-5	white	funnel to umbrella crown
2. Conifers				
Araucaria araucana	5-7 (10)	3-4	-	flattened when old
Cedrus libani	15-20	6-15	-	flat like a board
Pinus densiflora 'Pumila'	2-3	1,5-2,5	-	compact umbrella crown
Pinus nigra	20-25	6-10	-	flattened when old
Pinus sylvestris	10-30	5-10	-	asymmetrical umbrella-shaped
Pinus sylvestris 'Norske Typ'	8-12	6-8	-	asymmetrical umbrella-shaped

9 - Draping plants

Plants with overhanging, draping shoots are occasionally sought out for special beds, such as those on along tops of walls and stairways, in pots on balconies, on embankments or in roof gardens as overhanging curtains.

In exposed areas, sensitivities typical of the species can turn into true weaknesses. Plants in such areas are more sensitive to heat, drought, and frost and thus more susceptible to pests.

The length of the draping is only reached under optimal conditions and are not comparable to the shrub size the plant would reach in a bed on level ground.

Note:

The plants are planted diagonal to the slope, not upright as in normal beds.

Genus/species/variety	Length of drapping in m	Genus/species/variety	Length of drapping in m
1. Deciduous plants			
Buddleja alternifolia	2-3	Spiraea thunbergii	0,5-1,2
Betula pendula 'Youngii'	3-5	Spiraea trilobata	1-1,5
Cotoneaster dammeri 'Cardinal'	0,5-1,2	Spiraea vanhouttei	1-1,5
Cotoneaster dammeri 'Coral Beauty'	1,2-2	Stephanandra incisa 'Crispa'	0,5-1,5
Cotoneaster dammeri radicans	0,5-0,7	Symphoricarpos chenaultii 'Hancock'	1-3
Cotoneaster dammeri 'Skogholm'	2-5	Tamarix parviflora	1-2
Cotoneaster dammeri 'Winterjuwel'	1,2-2	Vaccinium macrocarpon	0,3-0,8
Cytisus beanii	0,5-0,8		
Cytisus decumbens	0,3-0,5	2. Climbers	
Cytisus kewensis	0,5-1	Akebia quinata	1-2
Daphne cneorum	0,3-0,5	Aristolochia macrophylla	2-3
Deutzia kalmiiiflora	0,5-1	Celastrus orbiculatus	2-3
Euonymus fortunei 'Coloratus'	0,8-1,5	Clematis species and varieties	1-3
Euonymus fortunei 'Dart's Blanket'	1-2	Hedera colchica	1-2
Euonymus fortunei radicans	0,8-1,5	Hedera helix	2-5
Forsythia 'Lynwood'	2-3	Hydrangea petiolaris	1-2
Forsythia 'Spectabilis'	2-3	Jasminum nudiflorum	2-5
Forsythia suspensa fortunei	3-5	Lonicera species and varieties	1-3
Jasminum nudiflorum	2-5	Parthenocissus quinquefolia varieties	4-6
Lespedeza thunbergii	2-4	Polygonum aubertii (= Fallopia)	2-3
Lycium barbarum	3-4	Rosa - climbers	1-2
Potentilla 'Goldfinger'	0,3-0,8	Rubus fruticosus	1-2
Potentilla 'Goldstar'	0,3-0,5	Rubus henryi	1-2
Potentilla 'Goldteppich'	0,3-0,8	Vitis coignetiae	2-4
Prunus subhirtella 'Pendula'	2-3		
Pyrus salicifolia	2-3	3. Conifers	
Rosa - bodendeckende Rosen	0,5-2	Cedrus atlantica 'Glauca Pendula'	2-4
Rosa arvensis	1-2	Cedrus deodara 'Pendula'	2-3
Rosa multibracteata	1-1,5	Juniperus communis 'Hornibrookii'	0,5-1
Rosa multiflora	1,2-3	Juniperus communis 'Repanda'	0,5-1
Rubus caesius	1-3	Juniperus horizontalis 'Prince of Wales'	1-1,5
Rubus calycinoides	0,5-1	Juniperus horizontalis 'Wiltonii'	0,5-1
Rubus fruticosus	2-3	Juniperus sabina 'Tamariscifolia'	0,5-1,
Salix caprea 'Pendula'	1-2	Taxus baccata 'Repandens'	0,3-0,5
Salix purpurea 'Pendula'	1-2	Tsuga canadensis 'Pendula'	1-2

Overhanging crown/weeping forms - 10

As a rule, the hanging varieties are specimens, i.e. plants that stand alone as they are useful for impressive plant imagery. They are troublesome when planted incorrectly, such as in high traffic zones.

Their special crowns require sufficient spacing from other plants their size or larger. Plant partners have to subordinate their development lest the hanging varieties lose their characteristic effects. Underplanting is difficult due to the shade; robust, shade-tolerant shrubs or perennials are recommended.

Genus/species/variety	Height in m	Width in m	Habit development / special characteristics
1. Deciduous plants			
Acer saccharinum 'Wieri'	12-15	8-15	branches and twigs asymmetrically overhanging
Betula pendula 'Darlecarlica'	15-20	6-8	branches and twigs loosely
Betula pendula 'Tristis'	10-22	6-8	twigs draping
Betula pendula 'Youngii'	5-7	3-5	umbrella crown, twigs hanging to the ground
Caragana arborescens 'Pendula'	1-3	1-1,5	twigs draping
Cotoneaster dammeri 'Skogholm'	1-1,5	1,5-2	draping 3-5m
Cotoneaster watereri 'Pendulus'	2-3	1-2	twigs draping
Fagus sylvatica 'Pendula'	15-20	15-20	main branches arching, twigs draped
Fagus sylvatica 'Purple Fountain'	7-11	4-5	loosely overhanging
Fagus sylvatica 'Purpurea Pendula'	8-12	4-6	arching-overhanging
Forsythia suspensa fortunei	2-3	2-3	twigs draping
Fraxinus excelsior 'Pendula'	8-10	6-8	umbrella crown, twigs draped
Prunus serrulata 'Kiku-shidare-zakura'	4-6	3-4	bell-shaped crown, twigs hanging limply
Pyrus salicifolia	4-7	3-4	loosely overhanging branches, twigs draped
Rosa - clear stems	1-1,5	1-1,5	twigs draping
Salix acutifolia 'Pendulifolia'	4-6	4-6	funnel crown, twigs liling
Salix caprea 'Pendula'	1-2	1-2	bell-shaped crown, twigs draped
Salix alba 'Tristis'	15-20	12-15	branches and twigs draped
Salix purpurea 'Pendula'	0,5-1	1-2	grows upright whenn cut radically
Sophora japonica 'Pendula'	5-8	5-8	twigs draping

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10 - Overhanging crown/weeping forms

continued

Genus/species/variety	Height in m	Width in m	Habit development / special characteristics
2. Conifers			
<i>Cedrus atlantica</i> 'Glauca Pendula'	5-8	5-8	crown asymmetrically extended
<i>Cedrus deodara</i> 'Pendula'	3-5	3-5	asymmetrical umbrella crown, twigs draped
<i>Chamaecyparis nootkatensis</i> 'Pendula'	8-12	3-5	crown asymmetrical conical, twigs draped
<i>Larix kaempferi</i> 'Pendula'	7-10	2-3	crown asymmetrical conical, tops and branches arching
<i>Picea abies</i> 'Inversa'	5-8	1-2	columnar. top, branches and twigs draped
<i>Picea breweriana</i>	10-15	4-6	not weeping, conical crown
<i>Picea omorika</i> 'Pendula'	8-10	1-2	branches horizontal, twigs draped
<i>Picea orientalis</i> 'Nutans'	8-12	5-7	branches dense, twisted-hanging
<i>Taxus baccata</i> 'Dovastoniana'	2-6	4-8	trained flat: twigs hanging
<i>Taxus baccata</i> 'Dovastonii Aurea'	3-5	2-5	branches horizontal, twigs overhanging
<i>Tsuga canadensis</i> 'Pendula'	3-4	3-4	compact and squat

11 - Fast-growing plants

Plants are not fast-growing for their entire lifespan but rather only for a limited period. Some species grow very little in the first 5 years and then begin to grow strongly for the next 10-20 years; others develop meter-long yearly shoots immediately after planting only to stagnate in growth afterwards. There are no set rules as to when a species should be considered fast-growing. The growth rate depends on soil conditions: heavy, nutritious, fresh to moist soil increases growth. The rate of growth should be seen in the context of similar species of the same genus or categories of use.

Fast growth often means: large-pore wood, short-lived elasticity with increasing brittleness and early signs of ageing.

Extremely fast-growing plants are also known to be the very shortest-lived species. It does not pay to treat such plants surgically after large branches have broken off or the stem has been wounded. In high traffic areas, damaged plants should be removed quickly. If a damaged plant is in a low traffic area and is not a danger or hindrance, fungi, insects, birds, small animals, etc. should be allowed to settle around it in the interest of preserving the biological cycle.

Note:

Only the length of the yearly shoots are listed; for the slow growth when old, see the individual listings. The brittleness only concerns older trees, not young plants still growing!

Genus/species/variety	Yearly shoots in cm	Life expectancy in years	Brittleness
1. Deciduous trees			
Acer ginnala	30-50	25-30	low
Acer negundo varieties	100-150	30-50	very high
Acer platanoides varieties	80-120	70-120	low
Acer pseudoplatanus varieties	80-130	150-400	none
Acer saccharinum varieties	80-120	40-80	very high
Ailanthus altissima	80-200	40-90	great
Alnus incana	30-60	40-50	moderate
Alnus spaethii	50-100	50-70	
Betula maximowicziana	60-80		low
Betula nigra	60-90	50-75	moderate
Betula papyrifera	45-70	60-75	low
Betula pendula	60-90	70-100	great
Cornus alba	80-150	20-30	low
Cornus stolonifera 'Flaviramea'	80-150	20-30	none
Cotoneaster dammeri 'Skogholm'	80-150	20-30	none
Forsythia intermedia varieties	80-120	25-40	low
Fraxinus excelsior	80-100	150-250	none
Fraxinus excelsior varieties	60-80		
Gleditsia triacanthos varieties	60-100	100-125	great
Juglans nigra	60-90	150-250	low
Liquidambar styraciflua	45-80	150-300	none
Liriodendron tulipifera	45-80	125-175	very high
Malus tschonoskii	30-50	50-75	low
Morus nigra	60-80	50-75	high
Paulownia tomentosa	100-200	40-60	high
Phyllostachys species and varieties	300-500	70-90	none
Platanus acerifolia	60-80	150-250	low
Populus alba and varieties	80-120	150-300	great
Populus balsamifera	100-150	60-75	very high
Populus berolinensis	60-100	60-80	very high
Populus canescens	80-100	60-80	very high
Populus canadensis 'Robusta'	100-150	50-70	very high
Populus simonii	60-80	30-50	very high
Populus tremula	60-80	30-50	very high
Prunus avium	50-60	60-80	moderate
Prunus serotina	45-75	125-175	low
Quercus coccinea	45-60	200-300	low
Quercus rubra	45-65	150-300	low
Quercus palustris	60-75	125-175	low
Rhus glabra	60-90	15-30	great
Rhus typhina	80-150	30-50	very high
Robinia pseudoacacia and varieties	60-150	75-100	great
Salix species and varieties	50/100/150	20-100	very high

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11 - Fast growing plants

continued

Genus/species/variety	Yearly shoots in cm	Life expectancy in years	Brittleness
Sambucus canadensis	80-120	15-20	great
Sophora japonica 'Regent'	60-80	50-100	great
Sorbus aucuparia	50-80	30-80	moderate
Symphoricarpos chenaultii 'Hancock'	80-120	25-40	none
Tilia americana 'Nova'	45-60	100-150	great
Tilia europaea 'Pallida'	40-70	200-300	moderate
Tilia flavescens 'Glenleven'	45-80		great
Ulmus carpinifolia	40-80	150-200	low
Ulmus glabra	50-90	150-200	low
2. Climbers			
Actinidia arguta	150-300		low
Actinidia chinensis	100-120		none
Akebia quinquefolia	80-150		none
Aristolochia macrophylla	150-200		none
Campsis radicans	150-300		low
Celastrus orbiculatus	70-300		low
Clematis vitalba	150-300		low
Lonicera henryi	100-300		none
Lonicera tellmanniana	80-150		none
Parthenocissus quinquefolia varieties	90-120		low
Parthenocissus tricuspidata 'Veitchii'	100-250		none
Polygonum aubertii	150-500		low
Rosa - Kletterrosen z.B. 'Albertine'	120-250		none
Vitis coignetiae	150-300		low
Wisteria floribunda	100-300		low
Wisteria sinensis	150-400	100-150	moderate
3. Conifers			
Larix decidua	40-70	400-600	none
Larix kaempferi	50-100	200-300	low
Metasequoia glyptostroboides	80-120	50-?	moderate
Pinus banksiana	60-90	40-60	great
Pinus nigra austriaca	60-90	300-500	none
Pinus strobus	50-70	150-250	low
Thuja occidentalis	35-60	200-400	great

Conspicuously flowering trees and shrubs - 12

Note:

Most trees flower only after they have reached a certain age and most begin to form flowers only after 10-15 years, i.e. if you do not want to wait years for flowers you will have to plant large specimens.

Only the main colours are listed; for colour nuances, see the detailed descriptions.

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
1. Large trees			
Acer platanoides varieties	yellow	F	IV
Aesculus hippocastanum	white		V
Betula maximowicziana	catkins		III-IV
Castanea sativa	white	(F)	VI/VII
Liriodendron tulipifera varieties	yellow		VI
Robinia pseudoacacia varieties	white	F	V/VIII
Tilia cordata	yellow	F	VI
Tilia platyphyllos varieties	yellow	F	V/VII
Tilia tomentosa varieties	yellow	F	VII
Tilia europaea varieties	yellow	F	VI
2. Medium-size trees			
Acer platanoides varieties	yellow	F	IV
Acer rubrum varieties	red	f	III/IV
Aesculus flava 'Vestita'	yellow		V-VI
Aesculus hippocastanum varieties	white, gefüllt		V
Alnus spaethii	catkins		II/III
Betula ermanii	catkins		IV
Betula maximowicziana	catkins		III-IV
Betula utilis	catkins		IV
Corylus colurna	yellow		III/IV
Davidia involucreta vilmoriniana	white		V/VI
Euodia hupehensis	white	(F)	VII/VIII
Gleditsia triacanthos varieties	white	f	VI/VII
Gymnocladus dioicus	white	f	VI
Paulownia tomentosa	blue	f	IV
Prunus avium	white	F	IV/V
Pyrus calleryana varieties	white	(F)	IV/V
Pyrus communis	white	(F)	IV
Robinia pseudoacacia varieties	white	F	V/VIII
Sophora japonica varieties	white		VII/VIII
Sorbus aucuparia varieties	white	(F)	V/
Sorbus domestica	white	(F)	V/VI
Sorbus intermedia	white	(F)	V/VI
Sorbus torminalis	white	(F)	V/VI
Tilia americana 'Nova'	yellow	F	VII
Tilia cordata varieties	yellow	F	VI

Explanation of symbols: F = pleasant, somewhat strong fragrance / (F) = pungent, somewhat unpleasant scent
f = slight fragrance / I-XII = Month of flowering (January to December)

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12 - Conspicuously flowering trees and shrubs

continued

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Tilia euchlora	yellow	F	VI
Tilia flavescens 'Glenleven'	yellow	F	VI/VII
3. Small trees			
Small trees have two basic types:			
<ul style="list-style-type: none"> - single-stem standards and - multi-stem, short-stem specimens that exceed the category "large shrubs" in size (cf. individual descriptions) 			
Acer ginnala	greenish white		V
Acer rubrum varieties	red	F	III/IV
Aesculus carnea 'Briotii'	red		V
Amelanchier laevis	white		IV
Amelanchier lamarckii varieties	white		IV
Aralia elata varieties	white		VIII/IX
Betula albosinensis	catkins		IV
Catalpa bignonioides varieties	white		VII
Cercis siliquastrum	pink	F	IV
Clerodendron trichotomum fargesii	white	F	VII/IX
Cornus alternifolia	white		VI
Cornus controversa	white		VI
Cornus florida varieties	white		V
Cornus florida rubra	pink		VI
Cornus kousa varieties	white		VI
Cornus nuttallii varieties	white		V/VI, VIII
Crataegus laevigata	white	(F)	V
Crataegus laevigata 'Paul's Scarlet'	pink, double		V/VI
Crataegus lavalleyi 'Carrierei'	white	(F)	VI
Crataegus monogyna varieties	pink	(F)	V
Crataegus coccinea	white	(F)	V
Crataegus crus galli	white		V
Davidia involucrata vilmoriniana	white		V/VI
Elaeagnus angustifolia	silvery yellow	F	VI
Euodia hupehensis	white	(F)	VII/VIII
Fraxinus ornus in Sorte	white	F	VI(VII)
Halesia carolina	white		IV/V
Koelreuteria paniculata	yellow		VIII
Laburnum anagyroides	yellow	F	V
Laburnum watereri 'Vossii'	yellow	F	V
Lonicera maackii	white	F	V/VI
Magnolia kobus	white	F	IV/V
Magnolia loebneri varieties	white, pink	F	IV(V)

Explanation of symbols: F = pleasant, somewhat strong fragrance / (F) = pungent, somewhat unpleasant scent
f = slight fragrance / I-XII = Month of flowering (January to December)

Conspicuously flowering trees and shrubs - 12

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Magnolia soulangiana varieties	pink	F	IV
Malus floribunda	pink-white	F	V
Malus varieties	white, pink	F	V
Malus sylvestris	white	F	IV/V
Malus toringo sargentii 'Sämling'	white	F	V
Malus tschonoskii	white	F	V
Malus 'Calocarpa'	silvery	F	V
Parrotia persica	orange		III/IV
Prunus avium 'Plena'	white, double		IV
Prunus cerasifera varieties	pink		IV
Prunus fruticosa 'Globosa'	white		IV
Prunus gondounii 'Schnee'	white	f	IV/V
Prunus hillieri 'Spire'	pink		IV
Prunus maackii varieties	white		V
Prunus padus varieties	pink	(F)-F	IV/V
Prunus sargentii	pink		IV
Prunus schmittii	pink-white		IV/V
Prunus serotina	white		VI
Prunus serrulata varieties	silvery, pink-white		IV
Prunus subhirtella varieties	pink, gefüllt		IV
Prunus yedoensis	white	F	IV
Pyrus calleryana varieties	white	(F)	IV
Pyrus communis varieties	white	(F)	IV/V
Pyrus regelii	white	(F)	IV
Robinia 'Casque Rouge'	crimson-red	f	VI
Robinia pseudoacacia varieties	white	F	VI
Salix caprea varieties	catkins	F	III/IV
Salix daphnoides varieties	catkins	F	II/III
Salix smithiana	catkins	F	III/IV
Sorbus americana	white	(F)	V/VI
Sorbus aria varieties	white	(F)	V
Sorbus arnoldiana	white	(F)	V
Sorbus aucuparia varieties	white	(F)	V
Sorbus decora	white	(F)	V/VI
Sorbus 'Joseph Rock'	white		V
Sorbus torminalis	white	(F)	V/VI
Stewartia pseudocamellia	white		VII/VIII
4. Large shrubs			
Acer ginnala	greenish white		V
Aesculus parviflora	white		VII/VIII
Amelanchier laevis	white	f	IV/V
Amelanchier lamarckii	white		IV
Amelanchier 'Ballerina'	white		IV/V

Explanation of symbols: F = pleasant, somewhat strong fragrance / (F) = pungent, somewhat unpleasant scent
f = slight fragrance / I-XII = Month of flowering (January to December)

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12 - Conspicuously flowering trees and shrubs

continued

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Aralia elata varieties	white		VIII/IX
Berberis julianae	yellow	(F)	V
Berberis ottawensis varieties	yellow	(F)	V
Buddleja davidii varieties	white, pink	F	VIII/IX
Caragana arborescens	yellow		V
Cercis siliquastrum	pink, carmine		IV
Chionanthus virginicus	white		VI
Clerodendron trichotomum fargesii	white	F	VII/VIII
Cornus alternifolia	white	(F)	V/VI
Cornus controversa	white		V/VI
Cornus florida varieties	white		V
Cornus florida rubra	pink		V/VI
Cornus kousa varieties + Formen	white, pink		VI
Cornus mas	yellow		III
Cornus nuttallii varieties	white		V/VI, VIII
Cornus sanguinea	white	(F)	V/VI
Corylus avellana	catkins		III
Corylus avellana 'Rotblättrige Zellernuß'	catkins		III
Corylus maxima 'Purpurea'	catkins		III
Cotinus coggygria varieties	greenish white		VI
Cotoneaster bullatus	white	(F)	V
Cotoneaster watereri 'Cornubia'	white	(F)	V
Crataegus laevigata	white	(F)	V
Crataegus laevigata 'Paul's Scarlet'	pink-red		V/VI
Crataegus lavalley 'Carrierei'	white	(F)	VI
Crataegus monogyna	white	(F)	V/VI
Crataegus coccinea	white	(F)	V
Deutzia magnifica	white		V/VI
Deutzia scabra varieties	pink-white		V/VI
Elaeagnus angustifolia	silbriggelb		V/VI
Elaeagnus commutata	silbriggelb		V
Forsythia intermedia varieties	yellow		III/IV
Halesia carolina	white		IV/V
Hamamelis intermedia varieties	yellow, orange, red	F	XII/II/III/IV
Hamamelis japonica	yellow	F	(I)II/III
Hamamelis mollis varieties	yellow, orange	F	XII/II/III
Hamamelis virginiana	yellow	f	XI/XII
Laburnum anagyroides	yellow		V
Laburnum watereri 'Vossii'	yellow	f	V
Lonicera maackii	white-light yellow	F	V/VI
Magnolia liliiflora varieties	crimson pink		IV
Magnolia loebneri varieties	white	F	IV/V
Magnolia sieboldii	white	F	VI/VII
Magnolia soulangiana varieties	pink-white	f	IV/V
Magnolia stellata varieties	white, pink	F	IV/V

Explanation of symbols: F = pleasant, somewhat strong fragrance / (F) = pungent, somewhat unpleasant scent
f = slight fragrance / I-XII = Month of flowering (January to December)

Conspicuously flowering trees and shrubs - 12

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Malus varieties	white, pink, red	F	V
Malus toringo sargentii 'Sämpling'	white	F	V
Mespilus germanica	white		V/VI
Parrotia persica	orange		III/IV
Philadelphus inodorus grandiflorus	white		V/VI
Philadelphus 'Virginal'	white	F	V/VI
Photinia villosa	white	(F)	VI
Prunus cerasifera varieties	pink		IV
Prunus laurocerasus varieties	white	(F)	V/VI/VII
Prunus lusitanica	white	(F)	VI
Prunus padus	white	(F)-F	IV
Prunus padus 'Watereri'	white	(F)-F	IVV
Prunus sargentii	pink	f	IV
Prunus 'Accolade'	pink		IV
Prunus serotina	white		VI
Prunus serrulata varieties	pink		IV/V
Prunus serrulata 'Kiku-shidare-zakura'	dark pink		V
Prunus subhirtella 'Autumnalis'	white		X/IV
Prunus subhirtella 'Autumnalis Rosea'	carmine pink		X/IV
Prunus subhirtella varieties	pink		III/IV
Prunus yedoensis	white	f	(II)IV
Ptelea trifoliata	yellow-green	f	VI
Pyracantha-Hybriden	white	(F)	V/VI
Rhododendron species and varieties	all		III/VI
Robinia hispida varieties	pink	F	VI
Rosa species and varieties	all	F	V
Salix acutifolia 'Pendulifolia'	catkins	f	(I/II)III
Salix aurita	catkins	f	III/IV
Salix caprea varieties	catkins	f	(II)III
Salix cinerea	catkins	f	III/IV
Salix daphnoides 'Praecox'	catkins	f	(XII)II/III
Salix sachalinensis 'Sekka'	catkins	f	IV
Salix smithiana	catkins	f	III/IV
Salix viminalis	catkins	f	III/IV
Sambucus canadensis varieties	white	(F)	VI/VII
Sambucus nigra	white	(F)	VI/VII
Sorbus koehneana	white	(F)	V/VI
Sorbus vilmorinii	white	(F)	V/VI
Staphylea colchica	white	f	V
Stewartia pseudocamellia	white		VII/VIII
Syringa chinensis varieties	purple-pink	F	IV/V
Syringa hyacinthiflora varieties	pink, crimson	F	IV/V
Syringa josikaea	violet	(F)	V/VI
Syringa prestoniae	crimson-red	(F)	V
Syringa reflexa	pink	(F)	VI/VII

Explanation of symbols: F = pleasant, somewhat strong fragrance / (F) = pungent, somewhat unpleasant scent
f = slight fragrance / I-XII = Month of flowering (January to December)

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12 - Conspicuously flowering trees and shrubs

continued

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Syringa swegiflexa	carmine pink	(F)	VI/VII
Syringa vulgaris	purple		V
Syringa vulgaris-hybrids	blue, purple, white, red, pink violet, double	F	V
Tamarix parviflora	pink		V/VI
Viburnum lantana	white	(F)	V
Viburnum opulus	white		V/VI
Viburnum opulus 'Roseum'	white		V/VI
Viburnum rhytidophyllum	white	(F)	V
5. Normal shrubs			
Amelanchier ovalis	white	(F)	V
Aronia melanocarpa 'Viking'	white		IV/V
Berberis julianae	yellow	(F)	V
Berberis ottawensis varieties	yellow	(F)	V
Berberis stenophylla	yellow	(F)	V
Berberis thunbergii varieties	yellow	(F)	V
Berberis vulgaris	yellow	(F)	V
Buddleja alternifolia	purple	F-(F)	VI
Buddleja davidii varieties	purple-blue, red, violet, white	F-(F)	VII/IX
Calycanthus floridus	red-brown	F	V/VI
Chaenomeles-Hybriden	white, pink, orange, red		IV/V
Chaenomeles speciosa	red-orange		III/IV
Clethra alnifolia	white	F	VII/IX
Colutea arborescens	yellow		V/IX
Corylopsis spicata	light yellow	F	IV
Cotinus coggygria 'Royal Purple'	pink		VI
Cotoneaster acutifolius	white-pink	(F)	IV/V
Cotoneaster multiflorus	white	(F)	V
Cotoneaster sternianus	white	(F)	V/VI
Cytisus scoparius varieties	yellow	(F)	V/VI
Cytisus Hybriden varieties	yellow, pink, red	(F)	V/VI
Deutzia hybrida 'Mont Rose'	pink		V/VI
Deutzia kalmiiiflora	light pink		V/VI
Deutzia lemoinei	white		V
Elaeagnus multiflora	light yellow	F	V
Enkianthus campanulatus	red-green		III/IV
Forsythia 'Lynwood'	yellow		IV/V
Forsythia suspensa fortunei	yellow		IV/V
Fothergilla major	white	F	IV/V
Hamamelis intermedia varieties	yellow, orange, red	F	XII/II/III/IV
Hibiscus syriacus varieties	blue, purple, red, carmine, white		VI/IX
Holodiscus discolor ariifolius	white		VI
Hydrangea macrophylla varieties	blue, red, white		VII/VIII

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Conspicuously flowering trees and shrubs - 12

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Hydrangea paniculata varieties	white, pink		VII/IX
Hydrangea sargentiana	white, light pink		VII/VIII
Kalmia latifolia	carmine pink		V/VI
Kerria japonica 'Pleniflora'	yellow		IV/V
Kolkwitzia amabilis	pink		VI
Lespedeza thunbergii	crimson pink		IX/X
Lonicera korolkowii zabelii	pink	F	VI
Lonicera ledebourii	yellow		VI/VII
Lonicera tatarica varieties	pink, white		V/VI
Lonicera xylosteum	white, light yellow	F	V
Magnolia liliiflora varieties	pink, white		IV/VI
Magnolia stellata varieties	white, pink	F	IV
Mahonia bealei	yellow	F	II/III
Malus toringo sargentii 'Veredlung'	white	F	IV
Osmanthus heterophyllus	white	F	IX/X
Philadelphus coronarius	white	F	V/VI
Philadelphus Hybriden varieties	white	F	VI/VII
Photinia fraseri 'Red Robin'	white	(F)	V/VI
Physocarpus opulifolius	pink-white		V/VII
Pieris japonica varieties	white, pink		(III)IV/V
Prunus kurilensis 'Brillant'	white		III/IV
Prunus laurocerasus varieties	white	(F)	V/VI(IX)
Prunus serrulata 'Shimidsu'	pink-white		V
Prunus spinosa	white	f	IV
Prunus triloba	pink, double		
Pyracantha Hybriden varieties	white	(F)	V/VI
Rhododendron species and varieties	all	F (some)	III/VI
Ribes aureum	yellow	F	IV/V
Ribes sanguineum varieties	carmine-red	(F)	IV
Rosa species and varieties	all	F (some)	V/XI
Rubus odoratus	red	f	VI/VIII
Salix aurita	catkins	f	IV
Sorbaria sorbifolia	white		VI/VII
Spiraea arguta	white	(F)	IV/V
Spiraea cinerea 'Grefsheim'	white	(F)	IV/V
Spiraea nipponica varieties	white		V/VII
Spiraea vanhouttei	white	(F)	V
Tamarix ramosissima	pink		VII/IX
Viburnum bodnantense 'Dawn'	pink	F	IX/IV
Viburnum burkwoodii	pink-white	F	IV/V
Viburnum carlcephalum	white	F	V
Viburnum farreri	pink-white	F	(X)III/IV
Viburnum plicatum varieties	white		V/VI
Viburnum 'Pragense'	white	f	V
Weigela Hybriden varieties	pink, red		V/VIII
Weigela florida varieties	pink, red		V/VI

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12 - Conspicuously flowering trees and shrubs

continued

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
6. Small shrubs			
Acanthopanax sieboldianus	greenish white		VI/VII
Aronia melanocarpa	white	(F)	V
Berberis - immergrüne Arten and varieties	yellow	(F)	V/VI
Caryopteris species and varieties	blue	f	VIII/IX
Ceanothus delilianus 'Gloire de Versailles'	blue		VII/XI
Ceanothus pallidus 'Marie Simon'	pink		VII/X
Chaenomeles japonica	orange-red		III/IV
Chaenomeles Hybriden (C. superba) varieties	white, red		(III)IV/V
Corylopsis pauciflora	yellow	F	(II)III/IV
Cotoneaster sternianus	white	(F)	V
Cytisus nigricans varieties	yellow	f	VII/VIII
Cytisus scoparius varieties	yellow, red, brown		V/VI
Daphne burkwoodii 'Somerset'	pink-white	F	V
Daphne mezereum varieties	carmine, white	F	(II)III/IV
Deutzia gracilis	white		V/VI
Deutzia rosea	pink-white		V
Elaeagnus ebbingei	white	F	IX/XI
Exocorda macrantha 'The Bride'	white	f	V/VI
Forsythia ovata 'Tetragold'	light yellow		III
Fothergilla gardenii	white	F	IV/V
Fothergilla major	white	F	IV/V
Genista tinctoria	yellow		VII/VIII
Hydrangea arborescens varieties	greenish white, white		VI/VIII
Hydrangea macrophylla	blue, red, white		VII/VIII
Hydrangea quercifolia	white		VI/VIII
Hydrangea serrata	crimson, purple, blue, pink		VII/VIII
Hypericum 'Hidcote'	yellow		VI/IX
Hypericum kalmianum varieties	yellow		VII/VIII
Hypericum patulum henryi	yellow		VII/IX
Kalmia angustifolia 'Rubra'	crimson pink		VI(VII)
Kalmia latifolia varieties	pink, red		V/VI
Kerria japonica	yellow		IV/V
Ledum palustre	white	F	V/VI
Lespedeza thunbergii	crimson pink		IX/X
Leucothoe walteri	white	f	V/VI
Lonicera japonica repens	weißgelb	F	VI/VII
Lonicera caerulea	white	f	IV/V
Mahonia aquifolium varieties	yellow		IV(V)
Paeonia suffruticosa varieties	white, pink	f	V/VI
Perovskia abrotanoides	purple-blue	F	VIII/IX
Philadelphus varieties	white	F	VI/VII
Pieris floribunda	white	f	IV/V
Pieris japonica varieties	white, pink		(III)IV/V

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Conspicuously flowering trees and shrubs - 12

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Potentilla fruticosa varieties	yellow, white, pink, red		(V)VI/X
Prunus cistena	pink		IV/V
Prunus laurocerasus varieties	white		V/VI(IX)
Prunus tenella varieties	pink	f	IV/V
Rhododendron species and varieties	all	F (some)	III/VI
Rhodotypos scandens	white		V/VI
Ribes sanguineum	carmine, red	(F)	IV/V
Rosa species and varieties	all	F (some)	V/XI
Salix caprea 'Pendula'	catkins	f	III/IV
Salix hastata 'Wehrhahnii'	catkins	f	III/IV
Salix helvetica	catkins	f	IV/V
Salix lanata	catkins	f	III/IV
Skimmia japonica varieties	white	F	V
Spiraea betulifolia varieties	white		VI
Spiraea bumalda varieties	carmine		VI/IX
Spiraea japonica varieties	pink, carmine		VI/VII
Spiraea nipponica varieties	white		V/VI
Spiraea prunifolia	white		V
Spiraea thunbergii	white	f	(III)IV
Spiraea trilobata	white		V/VI
Stephanandra tanakae	white		VI/VII
Syringa meyeri 'Palibin'	crimson	f	V/VI
Syringa microphylla 'Superba'	pink	(F)	V/VI(IX)
Syringa patula 'Miss Kim'	pink	F	V/VI
Ulex europaeus	yellow	f	IV/V
Viburnum carlesii varieties	pink-white	F	(IV)V
Viburnum plicatum varieties	white		VI/VII, X
Viburnum tinus	white, pink	f	IX/IV
Vinca major	blue		IV
7. Dwarf shrubs			
Berberis thunbergii varieties	yellow	(F)	V
Calluna vulgaris varieties	red, pink, white	f	VIII/IX
Cornus canadensis	white		V/VII
Cytisus beanii	yellow		V
Cytisus decumbens	yellow		V
Cytisus kewensis	cream white		V
Cytisus purpureus	pink, white		V/VI
Daboecia species and varieties	white, pink		VI/X
Daphne cneorum	carmine pink	F	V/VI
Deutzia gracilis	white		V
Erica carnea varieties	pink, red, white	f	XI-III/IV
Erica cinerea varieties	pink, red, carmine		VI/VIII
Erica darleyensis	white, pink, red		XI/IV

Explanation of symbols: F = pleasant, somewhat strong fragrance / (F) = pungent, somewhat unpleasant scent
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12 - Conspicuously flowering trees and shrubs

continued

Genus/species/variety	Flower colour / shape	Fragrance	Flowering time
Erica tetralix varieties	white, pink, red		VII/IX
Erica vagans varieties	pink, red		VII/IX
Genista lydia	yellow		VI
Genista radiata	yellow		VI
Genista sagittalis	yellow		V/VI
Genista tinctoria 'Plena'	yellow		VI
Hebe ochracea	white		VII/VIII
Hypericum moserianum	yellow		VII/IX
Kalmia latifolia varieties	pink, red		V/VI
Pernettya mucronata	white,		V/VI
Potentilla fruticosa varieties	yellow, pink, white, red		V/VI/IX
Rhododendron species and varieties	all	F (some)	III/VI
Rosa species and varieties	all	F (some)	V/IX
Salix repens argentea	catkins	f	IV
Spiraea betulifolia varieties	white		VI
Spiraea decumbens	white		VI
Spiraea japonica 'Albiflora'	white		VII/IX
Spiraea japonica 'Little Princess'	pink		VI/VII
Viburnum davidii	white	f	VI
Vinca minor varieties	blue, purple, crimson		IV/V/VI
8. Semi shrubs			
Ceanothus delilianus 'Gloire de Versailles'	blue	(F)	VII/X
Ceanothus pallidus 'Marie Simon'	pink		VII/X
Clematis texensis	pink		VI/X
Cornus canadensis	white		V/VII
Genista sagittalis	yellow		V/II
Hypericum calycinum	yellow		VII/IX
Hypericum moserianum	yellow		VII/X
Lavandula angustifolia varieties	blue, purple	F	VI/VII
Lespedeza thunbergii	crimson pink		IX/X
Pachysandra terminalis varieties	white		IV/V
Perovskia abrotanoides	purple-blue	F	VIII/X
Vinca minor	blue		IV/V(VII)
9. Climbers			
see table 51; categories of climbers			

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Flowering period calendar - 13

Flowering times are not constants; they vary according to region and change depending upon weather conditions, light, etc. Great delays and early starts can occur in spring and late autumn. Thus, some planned and hoped for colour combinations may not even appear. The flower duration and profusion of the various species also varies greatly and is dependent upon the weather.

Flowering time	Genus/species/variety	Flower colour
1. Large trees		
III-IV	Betula maximowicziana	catkins
IV	Acer platanoides varieties	yellow
V	Aesculus hippocastanum	white
V/VII	Tilia platyphyllos varieties	yellow
V/VIII	Robinia pseudoacacia varieties	white
VI	Liriodendron tulipifera varieties	yellow
VI	Tilia cordata	yellow
VI	Tilia europaea varieties	yellow
VI/VII	Castanea sativa	white
VII	Tilia tomentosa varieties	yellow
2. Medium sized trees		
II/III	Alnus spaethii	catkins
III/IV	Acer rubrum varieties	red
III/IV	Betula maximowicziana	catkins
III/IV	Corylus colurna	yellow
IV	Acer platanoides varieties	yellow
IV	Betula ermanii	catkins
IV	Betula utilis	catkins
IV	Paulownia tomentosa	blue
IV	Pyrus communis	white
IV/V	Prunus avium	white
IV/V	Pyrus calleryana varieties	white
V	Aesculus hippocastanum varieties	white, double
V/	Sorbus aucuparia varieties	white
V/VI	Davidia involucrata vilmoriniana	white
V/VI	Sorbus domestica	white
V/VI	Sorbus intermedia	white
V/VI	Sorbus torminalis	white
V/VIII	Robinia pseudoacacia varieties	white
V-VI	Aesculus flava 'Vestita'	yellow
VI	Gymnocladus dioicus	white
VI	Tilia cordata varieties	yellow
VI	Tilia euchlora	yellow
VI/VII	Gleditsia triacanthos varieties	white
VI/VII	Tilia flavescens 'Glenleven'	yellow
VII	Tilia americana 'Nova'	yellow
VII/VIII	Euodia hupehensis	white
VII/VIII	Sophora japonica varieties	white

Explanation of symbols: I-XII = Month of flowering (January to December)

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13 - Flowering period calendar

continued

Flowering time	Genus/species/variety	Flower colour
3. Small trees		
II/III	Salix daphnoides varieties	catkins
III/IV	Acer rubrum varieties	red
III/IV	Parrotia persica	orange
III/IV	Salix caprea varieties	catkins
III/IV	Salix smithiana	catkins
IV	Amelanchier laevis	white
IV	Amelanchier lamarckii varieties	white
IV	Betula albosinensis	catkins
IV	Cercis siliquastrum	pink
IV	Magnolia soulangiana varieties	pink
IV	Prunus avium 'Plena'	white, double
IV	Prunus cerasifera varieties	pink
IV	Prunus fruticosa 'Globosa'	white
IV	Prunus hillieri 'Spire'	pink
IV	Prunus sargentii	pink
IV	Prunus serrulata varieties	silvery, pink, double
IV	Prunus subhirtella varieties	pink, double
IV	Prunus yedoensis	white
IV	Pyrus calleryana varieties	white
IV	Pyrus regelii	white
IV(V)	Magnolia loebneri varieties	white, pink
IV/V	Halesia carolina	white
IV/V	Magnolia kobus	white
IV/V	Malus sylvestris	white
IV/V	Prunus gondounii 'Schnee'	white
IV/V	Prunus padus varieties	pink
IV/V	Prunus schmittii	pink-white
IV/V	Pyrus communis varieties	white
V	Acer ginnala	greenish white
V	Aesculus carnea 'Briotii'	red
V	Cornus florida varieties	white
V	Crataegus laevigata	white
V	Crataegus monogyna varieties	pink
V	Crataegus coccinea	white
V	Crataegus crus galli	white
V	Laburnum anagyroides	yellow
V	Laburnum watereri 'Vossii'	yellow
V	Malus floribunda	pink-white
V	Malus varieties	white, pink
V	Malus toringo sargentii 'Sämling'	white
V	Malus tschonoskii	white
V	Malus 'Calocarpa'	silvery
V	Prunus maackii varieties	white

Explanation of symbols: I-XII = Month of flowering (January to December)

Flowering period calendar - 13

Flowering time	Genus/species/variety	Flower colour
V	Sorbus aria varieties	white
V	Sorbus arnoldiana	white
V	Sorbus aucuparia varieties	white
V	Sorbus 'Joseph Rock'	white
V/VI	Crataegus laevigata 'Paul's Scarlet'	pink, double
V/VI	Davidia involucrata vilmoriniana	white
V/VI	Lonicera maackii	white
V/VI	Sorbus americana	white
V/VI	Sorbus decora	white
V/VI	Sorbus torminalis	white
V/VI, VIII	Cornus nuttallii varieties	white
VI	Cornus alternifolia	white
VI	Cornus controversa	white
VI	Cornus florida rubra	pink
VI	Cornus kousa varieties	white
VI	Crataegus lavalley 'Carrierei'	white
VI	Elaeagnus angustifolia	silver-yellow
VI	Prunus serotina	white
VI	Robinia 'Casque Rouge'	crimson-red
VI	Robinia pseudoacacia varieties	white
VI(VII)	Fraxinus ornus varieties	white
VII	Catalpa bignonioides varieties	white
VII/IX	Clerodendron trichotomum fargesii	white
VII/VIII	Euodia hupehensis	white
VII/VIII	Stewartia pseudocamellia	white
VIII	Koelreuteria paniculata	yellow
VIII/IX	Aralia elata varieties	white
4. Large shrubs		
(I)II/III	Hamamelis japonica	yellow
(I/II)III	Salix acutifolia 'Pendulifolia'	catkins
(II)III	Salix caprea varieties	catkins
(XII)II/III	Salix daphnoides 'Praecox'	catkins
III	Cornus mas	yellow
III	Corylus avellana	catkins
III	Corylus avellana 'Rotblättrige Zellernuß'	catkins
III	Corylus maxima 'Purpurea'	catkins
III/IV	Forsythia intermedia varieties	yellow
III/IV	Parrotia persica	orange
III/IV	Prunus subhirtella varieties	pink
III/IV	Salix aurita	catkins
III/IV	Salix cinerea	catkins
III/IV	Salix smithiana	catkins
III/IV	Salix viminalis	catkins

Explanation of symbols: I-XII = Month of flowering (January to December)

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13 - Flowering period calendar

continued

Flowering time	Genus/species/variety	Flower colour
III/VI	Rhododendron species and varieties	all
(III)IV	Prunus yedoensis	white
IV	Amelanchier lamarckii	white
IV	Cercis siliquastrum	pink, carmine
IV	Magnolia liliiflora varieties	crimson pink
IV	Prunus cerasifera varieties	pink
IV	Prunus padus	white
IV	Prunus sargentii	pink
IV	Prunus 'Accolade'	pink
IV	Salix sachalinensis 'Sekka'	catkins
IV/V	Amelanchier laevis	white
IV/V	Amelanchier 'Ballerina'	white
IV/V	Halesia carolina	white
IV/V	Magnolia loebneri varieties	white
IV/V	Magnolia soulangiana varieties	pink-white
IV/V	Magnolia stellata varieties	white, pink
IV/V	Prunus serrulata varieties	pink
IV/V	Syringa chinensis varieties	purple-pink
IV/V	Syringa hyacinthiflora varieties	pink, crimson
IVV	Prunus padus 'Watereri'	white
V	Acer ginnala	greenish white
V	Berberis julianae	yellow
V	Berberis ottawensis varieties	yellow
V	Caragana arborescens	yellow
V	Cornus florida varieties	white
V	Cotoneaster bullatus	white
V	Cotoneaster watereri 'Cornubia'	white
V	Crataegus laevigata	white
V	Crataegus coccinea	white
V	Elaeagnus commutata	silver-yellow
V	Laburnum anagyroides	yellow
V	Laburnum watereri 'Vossii'	yellow
V	Malus varieties	white, pink, red
V	Malus toringo sargentii 'Sämling'	white
V	Prunus serrulata 'Kiku-shidare-zakura'	dark pink
V	Rosa species and varieties	all
V	Staphylea colchica	white
V	Syringa prestoniae	crimson-red
V	Syringa vulgaris	purple
V	Syringa vulgaris-hybrids	blue, purple, white, red, pink violet, double
V	Viburnum lantana	white
V	Viburnum rhytidophyllum	white
V/VI	Cornus alternifolia	white
V/VI	Cornus controversa	white

Explanation of symbols: I-XII = Month of flowering (January to December)

Flowering period calendar - 13

Flowering time	Genus/species/variety	Flower colour
V/VI	<i>Cornus florida rubra</i>	pink
V/VI	<i>Cornus sanguinea</i>	white
V/VI	<i>Crataegus laevigata</i> 'Paul's Scarlet'	pink-red
V/VI	<i>Crataegus monogyna</i>	white
V/VI	<i>Deutzia magnifica</i>	white
V/VI	<i>Deutzia scabra</i> varieties	pink-white
V/VI	<i>Elaeagnus angustifolia</i>	silbriggelb
V/VI	<i>Lonicera maackii</i>	white-light yellow
V/VI	<i>Mespilus germanica</i>	white
V/VI	<i>Philadelphus inodorus grandiflorus</i>	white
V/VI	<i>Philadelphus</i> 'Virginal'	white
V/VI	<i>Pyracantha</i> -hybrids	white
V/VI	<i>Sorbus koehneana</i>	white
V/VI	<i>Sorbus vilmorinii</i>	white
V/VI	<i>Syringa josikaea</i>	violet
V/VI	<i>Tamarix parviflora</i>	pink
V/VI	<i>Viburnum opulus</i>	white
V/VI	<i>Viburnum opulus</i> 'Roseum'	white
V/VI, VIII	<i>Cornus nuttallii</i> varieties	white
V/VI/VII	<i>Prunus laurocerasus</i> varieties	white
VI	<i>Chionanthus virginicus</i>	white
VI	<i>Cornus kousa</i> varieties	white, pink
VI	<i>Cotinus coggygria</i> varieties	greenish white
VI	<i>Crataegus lavalleyi</i> 'Carrierei'	white
VI	<i>Photinia villosa</i>	white
VI	<i>Prunus lusitanica</i>	white
VI	<i>Prunus serotina</i>	white
VI	<i>Ptelea trifoliata</i>	yellow-green
VI	<i>Robinia hispida</i> varieties	pink
VI/VII	<i>Magnolia sieboldii</i>	white
VI/VII	<i>Sambucus canadensis</i> varieties	white
VI/VII	<i>Sambucus nigra</i>	white
VI/VII	<i>Syringa reflexa</i>	pink
VI/VII	<i>Syringa swegiflexa</i>	carmine pink
VII/VIII	<i>Aesculus parviflora</i>	white
VII/VIII	<i>Clerodendron trichotomum fargesii</i>	white
VII/VIII	<i>Stewartia pseudocamellia</i>	white
VIII/IX	<i>Aralia elata</i> varieties	white
VIII/IX	<i>Buddleja davidii</i> varieties	white, pink
X/IV	<i>Prunus subhirtella</i> 'Autumnalis'	white
X/IV	<i>Prunus subhirtella</i> 'Autumnalis Rosea'	carmine pink
XI/XII	<i>Hamamelis virginiana</i>	yellow
XII/II/III	<i>Hamamelis mollis</i> varieties	yellow, orange
XII/II/III/IV	<i>Hamamelis intermedia</i> varieties	yellow, orange, red

Explanation of symbols: I-XII = Month of flowering (January to December)

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13 - Flowering period calendar

continued

Flowering time	Genus/species/variety	Flower colour
5. Normal shrubs		
(XI)III/IV	<i>Viburnum farreri</i>	pink-white
II/III	<i>Mahonia bealei</i>	yellow
III/IV	<i>Chaenomeles speciosa</i>	red-orange
III/IV	<i>Enkianthus campanulatus</i>	rotgrün
III/IV	<i>Prunus kurilensis</i> 'Brillant'	white
III/VI	<i>Rhododendron</i> species and varieties	all
(III)IV/V	<i>Pieris japonica</i> varieties	white, pink
IV	<i>Corylopsis spicata</i>	light yellow
IV	<i>Magnolia stellata</i> varieties	white, pink
IV	<i>Malus toringo sargentii</i> 'Veredlung'	white
IV	<i>Prunus spinosa</i>	white
IV	<i>Ribes sanguineum</i> varieties	carmine-red
IV	<i>Salix aurita</i>	catkins
IV/V	<i>Aronia melanocarpa</i> 'Viking'	white
IV/V	<i>Chaenomeles</i> -hybrids	white, pink, orange, red
IV/V	<i>Cotoneaster acutifolius</i>	white-pink
IV/V	<i>Forsythia</i> 'Lynwood'	yellow
IV/V	<i>Forsythia suspensa fortunei</i>	yellow
IV/V	<i>Fothergilla major</i>	white
IV/V	<i>Kerria japonica</i> 'Pleniflora'	yellow
IV/V	<i>Ribes aureum</i>	yellow
	<i>Prunus triloba</i>	pink, double
IV/V	<i>Spiraea arguta</i>	white
IV/V	<i>Spiraea cinerea</i> 'Grefsheim'	white
IV/V	<i>Viburnum burkwoodii</i>	pink-white
IV/VI	<i>Magnolia liliiflora</i> varieties	pink, white
V	<i>Amelanchier ovalis</i>	white
V	<i>Berberis julianae</i>	yellow
V	<i>Berberis ottawensis</i> varieties	yellow
V	<i>Berberis stenophylla</i>	yellow
V	<i>Berberis thunbergii</i> varieties	yellow
V	<i>Berberis vulgaris</i>	yellow
V	<i>Cotoneaster multiflorus</i>	white
V	<i>Deutzia lemoinei</i>	white
V	<i>Elaeagnus multiflora</i>	light yellow
V	<i>Lonicera xylosteum</i>	white, light yellow
V	<i>Prunus serrulata</i> 'Shimidsu'	pink-white
V	<i>Spiraea vanhouttei</i>	white
V	<i>Viburnum carlcephalum</i>	white
V	<i>Viburnum plicatum</i> varieties	white
V	<i>Viburnum</i> 'Pragense'	white
V/IX	<i>Colutea arborescens</i>	yellow
V/VI	<i>Calycanthus floridus</i>	red-brown

Explanation of symbols: I-XII = Month of flowering (January to December)

Flowering period calendar - 13

Flowering time	Genus/species/variety	Flower colour
V/VI	Cotoneaster sternianus	white
V/VI	Cytisus scoparius varieties	yellow
V/VI	Cytisus hybrids	yellow, pink, red
V/VI	Deutzia hybrida 'Mont Rose'	pink
V/VI	Deutzia kalmiiflora	light pink
V/VI	Kalmia latifolia	carmine pink
V/VI	Lonicera tatarica varieties	pink, white
V/VI	Philadelphus coronarius	white
V/VI	Photinia fraseri 'Red Robin'	white
V/VI	Pyracantha hybrids	white
V/VI	Viburnum plicatum varieties	white
V/VI	Weigela florida varieties	pink, red
V/VI(IX)	Prunus laurocerasus varieties	white
V/VII	Physocarpus opulifolius	pink-white
V/VII	Spiraea nipponica varieties	white
V/VIII	Weigela hybrids varieties	pink, red
V/XI	Rosa species and varieties	all
VI	Buddleja alternifolia	purple
VI	Cotinus coggygria 'Royal Purple'	pink
VI	Holodiscus discolor ariifolius	white
VI	Kolkwitzia amabilis	pink
VI	Lonicera korolkowii zabelii	pink
VI/IX	Hibiscus syriacus varieties	blue, purple, red, carmine, white
VI/VII	Lonicera ledebourii	yellow
VI/VII	Philadelphus Hybriden varieties	white
VI/VII	Sorbaria sorbifolia	white
VI/VIII	Rubus odoratus	red
VII/IX	Buddleja davidii varieties	purple-blue, red, violet, white
VII/IX	Clethra alnifolia	white
VII/IX	Hydrangea paniculata varieties	white, pink
VII/IX	Tamarix ramosissima	pink
VII/VIII	Hydrangea macrophylla varieties	blue, red, white
VII/VIII	Hydrangea sargentiana	white, light pink
IX/IV	Viburnum bodnantense 'Dawn'	pink
IX/X	Lespedeza thunbergii	crimson pink
IX/X	Osmanthus heterophyllus	white
XII/II/III/IV	Hamamelis intermedia varieties	yellow, orange, red
6. Small shrubs		
(II)III/IV	Corylopsis pauciflora	yellow
(II)III/IV	Daphne mezereum varieties	carmine, white
III/IV	Chaenomeles japonica	orange-red
(III)IV/V	Chaenomeles hybrids (C. superba)	white, red
III	Forsythia ovata 'Tetragold'	light yellow

Explanation of symbols: I-XII = Month of flowering (January to December)

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13 - Flowering period calendar

continued

Flowering time	Genus/species/variety	Flower colour
(III)IV/V	Pieris japonica varieties	white, pink
III/VI	Rhododendron species and varieties	all
III/IV	Salix caprea 'Pendula'	catkins
III/IV	Salix hastata 'Wehrhahnii'	catkins
III/IV	Salix lanata	catkins
(III)IV	Spiraea thunbergii	white
IV/V	Fothergilla gardenii	white
IV/V	Fothergilla major	white
IV/V	Kerria japonica	yellow
IV/V	Lonicera caerulea	white
IV(V)	Mahonia aquifolium varieties	yellow
IV/V	Pieris floribunda	white
IV/V	Prunus cistena	pink
IV/V	Prunus tenella varieties	pink
IV/V	Ribes sanguineum	carmine, red
IV/V	Salix helvetica	catkins
IV/V	Ulex europaeus	yellow
(IV)V	Viburnum carlesii varieties	pink-white
V	Aronia melanocarpa	white
V/VI	Berberis - evergreen varieties	yellow
V	Cotoneaster sternianus	white
V/VI	Cytisus scoparius varieties	yellow, red, brown
V	Daphne burkwoodii 'Somerset'	pink-white
V/VI	Deutzia gracilis	white
V	Deutzia rosea	pink-white
V/VI	Exocorda macrantha 'The Bride'	white
V/VI	Kalmia latifolia varieties	pink, red
V/VI	Ledum palustre	white
V/VI	Leucothoe walteri	white
V/VI	Paeonia suffruticosa varieties	white, pink
(V)VI/X	Potentilla fruticosa varieties	yellow, white, pink, red
V/VI(IX)	Prunus laurocerasus varieties	white
V/VI	Rhodotypos scandens	white
V/XI	Rosa species and varieties	all
V	Skimmia japonica varieties	white
V/VI	Spiraea nipponica varieties	white
V	Spiraea prunifolia	white
V/VI	Spiraea trilobata	white
V/VI	Syringa meyeri 'Palibin'	crimson
V/VI(IX)	Syringa microphylla 'Superba'	pink
V/VI	Syringa patula 'Miss Kim'	pink
VI	Spiraea betulifolia varieties	white
VI/VII	Acanthopanax sieboldianus	greenish white
VI/VIII	Hydrangea arborescens varieties	greenish white, white
VI/VIII	Hydrangea quercifolia	white

Explanation of symbols: I-XII = Month of flowering (January to December)

Flowering period calendar - 13

Flowering time	Genus/species/variety	Flower colour
VI/IX	Hypericum 'Hidcote'	yellow
VI(VII)	Kalmia angustifolia 'Rubra'	crimson pink
VI/VII	Lonicera japonica repens	weißgelb
VI/VII	Philadelphus Hybriden varieties	white
VI/IX	Spiraea bumalda varieties	carmine
VI/VII	Spiraea japonica varieties	pink, carmine
VI/VII	Stephanandra tanakae	white
VI/VII, X	Viburnum plicatum varieties	white
IV	Vinca major	blue
VII/XI	Ceanothus delilianus 'Gloire de Versailles'	blue
VII/X	Ceanothus pallidus 'Marie Simon'	pink
VII/VIII	Cytisus nigricans varieties	yellow
VII/VIII	Genista tinctoria	yellow
VII/VIII	Hydrangea macrophylla	blue, red, white
VII/VIII	Hydrangea serrata	crimson, purple, blue, pink
VII/VIII	Hypericum kalmianum varieties	yellow
VII/IX	Hypericum patulum henryi	yellow
VIII/IX	Caryopteris species and varieties	blue
VIII/IX	Perovskia abrotanoides	purple-blue
IX/XI	Elaeagnus ebbingei	white
IX/X	Lespedeza thunbergii	crimson pink
IX/IV	Viburnum tinus	white, pink
7. Dwarf shrubs		
III/VI	Rhododendron species and varieties	all
IV	Salix repens argentea	catkins
IV/V/VI	Vinca minor varieties	blue, purple, crimson
V	Berberis thunbergii varieties	yellow
V/VII	Cornus canadensis	white
V	Cytisus beanii	yellow
V	Cytisus decumbens	yellow
V	Cytisus kewensis	cream white
V/VI	Cytisus purpureus	pink, white
VI/X	Daboecia species and varieties	white, pink
V/VI	Daphne cneorum	carmine pink
V	Deutzia gracilis	white
V/VI	Genista sagittalis	yellow
V/VI	Kalmia latifolia varieties	pink, red
V/VI	Pernettya mucronata	white,
V/VI/IX	Potentilla fruticosa varieties	yellow, pink, white, red
V/IX	Rosa species and varieties	all
VI/VIII	Erica cinerea varieties	pink, red, carmine
VI	Genista lydia	yellow
VI	Genista radiata	yellow

Explanation of symbols: I-XII = Month of flowering (January to December)

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13 - Flowering period calendar

continued

Flowering time	Genus/species/variety	Flower colour
VI	<i>Genista tinctoria</i> 'Plena'	yellow
VI	<i>Spiraea betulifolia</i> varieties	white
VI	<i>Spiraea decumbens</i>	white
VI/VII	<i>Spiraea japonica</i> 'Little Princess'	pink
VI	<i>Viburnum davidii</i>	white
VII/IX	<i>Erica tetralix</i> varieties	white, pink, red
VII/IX	<i>Erica vagans</i> varieties	pink, red
VII/VIII	<i>Hebe ochracea</i>	white
VII/IX	<i>Hypericum moserianum</i>	yellow
VII/IX	<i>Spiraea japonica</i> 'Albiflora'	white
VIII/IX	<i>Calluna vulgaris</i> varieties	red, pink, white
XI-III/IV	<i>Erica carnea</i> varieties	pink, red, white
XI/IV	<i>Erica darleyensis</i>	white, pink, red
8. Semi-shrubs		
IV/V	<i>Pachysandra terminalis</i> varieties	white
IV/V(VII)	<i>Vinca minor</i>	blue
V/VII	<i>Cornus canadensis</i>	white
V/II	<i>Genista sagittalis</i>	yellow
VI/VII	<i>Lavandula angustifolia</i> varieties	blue, purple
VI/X	<i>Clematis texensis</i>	pink
VII/X	<i>Ceanothus delilianus</i> 'Gloire de Versailles'	blue
VII/X	<i>Ceanothus pallidus</i> 'Marie Simon'	pink
VII/IX	<i>Hypericum calycinum</i>	yellow
VII/X	<i>Hypericum moserianum</i>	yellow
VIII/X	<i>Perovskia abrotanoides</i>	purple-blue

Explanation of symbols: I-XII = Month of flowering (January to December)

14 - Fragrant and aromatic plant

A distinction is made between fragrant and aromatic plants. Put simply, a fragrance is a scent that spreads by itself and is perceived as pleasant. For strong or repugnant fragrances, one usually speaks neutrally of smells or derogatorily of stench. Aromas occur when the proper plant part is rubbed, crushed, broken or roasted (in the sun) to release its ether oils or fruits or flowers bouquets.

Fragrances or aromas are not always perceived the same; opinions vary greatly, as the example of *Buxus sempervirens* shows: for some it is pungent-aromatic, for others simply repugnant. In addition, men and women vary considerably in their perceptions of scents. The weather and time of day also play an important role. Some plants are strongly fragrant in the evening, while they almost go unnoticed at noon—and vice versa. For more on this, see the individual descriptions.

Fragrant and aromatic plant - 14

Genus/species/variety	Fra-grance	Aroma	Genus/species/variety	Fra-grance	Aroma
1. Deciduous trees			Corylopsis varieties	F	
Acer platanoides	F		Cotoneaster varieties u. Sorten	(F)	
Acer rubrum	F		Crataegus species and varieties	(F)	
Ailanthus altissima	(F)	(AF)	Cytisus praecox	(F)	
Amelanchier varieties	(F)		Cytisus scoparius varieties	(F)	
Betula pendula		a	Daphne species and varieties	F	
Castanea sativa	(F)		Elaeagnus species and varieties	F	
Cercidiphyllum japonicum		AF	Erica species and varieties	f	
Cornus alternifolia	(F)		Fothergilla major	F	
Crataegus species and varieties	(F)		Gaultheria procumbens	F	AF
Elaeagnus angustifolia	F		Hamamelis species and varieties	F	
Fraxinus ornus	F		Hedera species and varieties	(F)	
Juglans regia	F	(AF)	Laburnum species and varieties	f	
Laburnum species and varieties	F		Leucothoe walteri	f	
Lonicera maackii	F		Ligustrum species and varieties	(F)	
Magnolia species and varieties	F		Lonicera japonica repens	F	
Malus species and varieties	F		Lonicera maackii	F	
Populus balsamifera		AF	Lonicera xylosteum	F	
Populus simonii		af	Magnolia species and varieties	F	
Prunus avium	F		Mahonia aquifolium	(F)	
Prunus padus	(F)	af	Mahonia bealei	F	
Pyrus species and varieties	(F)		Malus species and varieties	F	
Robinia species and varieties	F		Perovskia abrotanoides	(F)	(AF)
Salix species and varieties	F	af	Philadelphus species and varieties	F	
Sorbus species and varieties	(F)		Pieris species and varieties	f	
Tilia species and varieties	F		Prunus laurocerasus varieties	(F)	af
			Prunus spinosa	f	
			Prunus tenella	f	
2. Shrubs			Pyracantha varieties	(F)	
Amelanchier varieties	(F)		Rhododendron species and varieties	F	AF
Berberis species and varieties	(F)		Rhododendron - summergreen	F	
Buddleja species and varieties	(F)		Azalea varieties		
Buxus sempervirens varieties	(F)	(AF)	Ribes alpinum	f	af
Calluna vulgaris varieties	f		Ribes aureum	F	
Calycanthus floridus	F	af	Ribes sanguineum	(F)	(AF)
Ceanothus delilianus 'Gloire de Versaille'	(F)		Rosa species and varieties	F	
Cercis siliquastrum	f		Rosa rubiginosa	f	AF
Chaenomeles species and varieties	F		Rubus odoratus	f	
Chionanthus virginicus	f		Salix species and varieties	f	af
Clethra alnifolia	F		Sambucus nigra	(F)	(AF)
Cornus alternifolia	(F)		Skimmia japonica	F	
Cornus mas	f		Spiraea species and varieties	(F)	
Cornus sanguinea	(D)		Stranvaesia davidiana	(F)	

Explanation of symbols:

F = fragrance / (F) = pungent, somewhat unpleasant fragrance / f = slight fragrance / AF = aromatic foliage / (AF) = strong smelling foliage / af = slightly fragrant to aromatic foliage / T = fragrant or aromatic fruit

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14 - Fragrant and aromatic plant

continued

Genus/species/variety	Fra-grance	Aroma	Genus/species/variety	Fra-grance	Aroma
Syringa chinensis	F		Hydrangea petiolaris	f	
Syringa josikaea	(F)		Lonicera japonica repens	F	
Syringa microphylla	(F)		Lonicera carprifolium	F	
Syringa reflexa	(F)		Lonicera heckrottii	F	
Syringa swegiflexa	(F)		Rosa - climbers	F	
Syringa vulgaris varieties	F		Wisteria sinensis	F	
Viburnum burkwoodii	F				
Viburnum carlcephalum	F				
Viburnum carlesii	F		4. Conifers		
Viburnum davidii	(F)		Abies species and varieties		AF
Viburnum farreri	F		Cedrus species and varieties		af
Viburnum lantana	(F)		Chamaecyparis species and varieties		(AF)
Viburnum rhytidophyllum	(F)		Ginkgo biloba	F	
3. Climbers			Juniperus species and varieties	F	(AF)
Akebia quinata	f		Larix species and varieties		af
Actinidia arguta	f		Picea species and varieties		af
Clematis maximowicziana	(F)		Pinus species and varieties		AF
Clematis montana und Formen	F		Pseudotsuga menziesii caesia		af
Clematis vitalba	(F)		Thuja species and varieties		(AF)
Hedera species and varieties	(F)		Tsuga species and varieties		af

Explanation of symbols: F = fragrance / (F) = pungent, somewhat unpleasant fragrance / f = slight fragrance / AF = aromatic foliage / (AF) = strong smelling foliage / af = slightly fragrant to aromatic foliage / T = fragrant or aromatic fruit

15 - Four-season plants

This category includes plants that have splendid effects in more than one season. This does not mean that these are “ever-flowering” plants, which do not actually exist. Rather, these are plants with several climactic colours or shapes, for spectacular or sensational flowers, fruits, or fragrances cannot be expected in all seasons. The divisions into the four seasons should not be viewed too strictly as some colourful events may run parallel, i.e. flowers and colourful shoots, autumn colours and fruits, etc. Plants with exceptional flowers—such as Forsythia—that are of little interest after seasonal flowering are not listed. In addition, not all evergreen deciduous trees are listed as their long-lasting effects are taken for granted; see table 24 “Evergreen plants”.

Genus/species/variety	Pre-spring	Spring	Summer	Autumn	Winter
Acer ginnala	---	white flowers	red fruit wings	bright red autumn colours	persistent fruit wings, brown
Acer griseum	cinnamon-red bark	shoots reddish, flowers yellowish	---	orange-red in autumn	cinnamon-red bark
Acer japonicum 'Aconitifolium'	red flowers	filigree leaf shape	leaf shape	orange-red in autumn	---
Acer palmatum varieties	---	shoots colourful	ornamental leaf shapes	bright orange to red autumn colours	---

Genus species/variety	Pre-spring	Spring	Summer	Autumn	Winter
<i>Acer pensylvanicum</i>	white-striped bark, red buds	reddish shoots	---	yellow autumn colours	bark
<i>Acer rubrum</i>	red flowers, slight fragrance of honey	reddish shoots	red fruit wings	orange-red in autumn	bark
<i>Acer rufinerve</i>	white-striped bark, red buds	bronze-green shoots	white-striped bark	orange autumn colours, bark	bark
<i>Aesculus parviflora</i>	---	reddish shoots	white flowers	yellow autumn colours	---
<i>Alnus incana</i> 'Aurea'	orange-red catkins	yellow shoots	greenish-yellow leaves	yellow autumn colours	---
<i>Alnus spaethii</i>	reddish-yellow catkins	violet-red shoots	---	violet-red autumn colours	---
<i>Amelanchier laevis</i>	white flowers	reddish shoots	fruits blue-black	orange-red in autumn	---
<i>Amelanchier lamarckii</i>	white flowers	shoots grey	fruits blue-black	orange autumn colours	---
<i>Aronia</i> species and varieties	---	shoots red, flowers white	---	fruits reddish to black, red autumn colours	some with autumn colours
<i>Berberis ottawensis</i> varieties	---	shoots red, flowers yellow	leaves black-red	red autumn colours	fruits light red
<i>Berberis thunbergii</i> 'Atropurpurea' varieties	---	shoots red, flowers yellow	leaves red-brown	red autumn colours	fruits light red
<i>Betula</i> species and varieties	bark white, catkins yellow	shoots light green, fragrant	---	yellow autumn colours	white bark
<i>Cercidiphyllum japonicum</i>	reddish flowers	brown-red shoots	leaf shape	yellow-orange autumn colours	fragrant falling leaves
<i>Chaenomeles</i> hybrids	flowers partially appear	shoots reddish, flowers white, pink, and red	---	fruits bright yellow	persistent fruit
<i>Clematis</i> wild species	fruits silvery white	flowers partially appear	flowers		silvery syncarpy
<i>Cornus alba</i> varieties	red bark	reddish shoots	variegated leaves	reddish autumn colours	coloured bark
<i>Cornus kousa</i> varieties	---	flowers white to pink	fruits red	red autumn colours	---
<i>Cornus mas</i>	flowers yellow, slightly fragrant	---	fruits red	yellow-orange autumn colours	---
<i>Cornus nuttallii</i>	---	shoots light green, flowers white	some still flowering	yellow to orange autumn colours, fruits red	some still have fruit
<i>Cotnus coggygria</i> 'Royal Purple'	---	shoots black-red	cottony inflorescences, pink	bright red autumn colours	---
<i>Cotoneaster horizontalis</i>	shoots early, fresh green	flowers white with pink	---	scarlet autumn colours	red fruits, filigree branching

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15 - Four-season plants

continued

Genus/ species/variety	Pre-spring	Spring	Summer	Autumn	Winter
Cotoneaster multi- florus		white flowers	fruits red	yellow autumn colours	---
Cotoneaster prae- cox	shoots early, fresh green	pink-white flowers	fruits red	bright red autumn colours	---
Crataegus lavallei 'Carrierei'	---	white flowers	shiny green leaves	orange autumn colours	persistent fruit, orange-red
Crataegus coccinea	shoots early	white flowers	fruits redden early	orange autumn colours	
Crataegus prunifolia	---	white flowers	shiny green leaves	orange autumn colours	spectacular thorns
Elaeagnus pungens 'Maculata'	evergreen	shoots grey	leaves with yellow spots, evergreen	flowers white, strong vanilla fra- grance	occasional fruits, reddish, evergreen
Euonymus phello- manus	bark with corky strips	white flowers	---	plentiful fruit, red, orange autumn colours	bark with corky strips
Fothergilla species	---	white flowers, strong honey fra- grance	two-colour leaves, grey underneath	red autumn colours	---
Hamamelis species and varieties	flowers yellow or red, pleasant fra- grance	some still flowering	---	yellow or red autumn colours	flowering begins, yellow or red
Koelreuteria paniculata	---	reddish shoots	flowers yellow	orange-yellow autumn colours	fruits swollen like blisters
Magnolia species and varieties	flowers pink or white, strong fra- grance	shoots reddish, some still flowering	---	yellowish-brown autumn colours	silvery buds
Malus hybrids	---	flowers white, pink or carmine, fra- grance; reddish shoots	some have bronze leaves	fruits red or yellow	some still have fruit
Parrotia persica	reddish flowers	reddish shoots	---	orange-red in autumn	spotted bark
Photinia villosa	---	white flowers	---	red autumn colours, red fruits	some still have fruit
Photinia fraseri 'Red Robin'	evergreen	shoots bright red, flowers white	some still flowering, evergreen	evergreen	evergreen
Pieris japonica 'Forest Flame', 'Red Mill'	evergreen	shoots bright red to red-brown, flowers white	evergreen	evergreen	evergreen
Prunus avium	flowers white, slightly fragrant	shoots green-gol- den to bronze	fruits red or black	orange-yellow autumn colours	shiny red-brown bark
Prunus kurilensis 'Brillant'	white flowers	reddish green shoots	fruits shiny black	bright red autumn colours	---
Prunus hillieri 'Spire'	pink-white flowers	bronze-red shoots	---	orange-red in autumn	---

Genus/ species/variety	Pre-spring	Spring	Summer	Autumn	Winter
Prunus maackii varieties	shiny orange bark	white flowers	early fruits, black	reddish yellow autumn colours	bright bark
Prunus sargentii	flowers pink, bark shiny brown	brown-red shoots	---	red autumn colours	shiny brown bark
Prunus schmittii	shiny red-brown bark	flowers light pink	---	yellowish autumn colours	shiny red-brown bark
Prunus serrula	shiny mahogany- red bark	white flowers	---	yellow autumn colours	red bark
Prunus serrulata varieties	flowers white or pink, bark shiny brown	shoots reddish or green-golden	---	orange-yellow autumn colours	bark
Rhododendron (summer green Azaleas)	flowers brightly coloured, sweet fragrance	reddish shoots	---	orange autumn colours	---
Rosa species and varieties	---	flowers white, pink, red	some still flowering	yellow to orange autumn colours	persistent rose hips, red or orange
Salix acutifolia 'Pendulifolia'	yellow catkins, fra- grant, glaucous blue bark	bark	two-tone leaves, elegant leaf posi- tions	yellow autumn colours	blue glaucous bark
Salix daphnoides varieties	yellow catkins, fra- grant, glaucous blue-white bark	bark	two-tone leaves	yellow autumn colours	bark, some catkins
Salix sachalinensis 'Sekka'	catkins silvery to yellow, twigs like strips	fresh green shoots	---	yellow to green autumn colours	twigs like strips
Sorbus vilmorinii	---	white flowers	filigree foliage	red-brown autumn colours, pink fruits	---
Spiraea betulifolia varieties	---	early shoots, red- dish, white flowers	flowers	orange autumn colours	---
Stephanandra tana- kae	orange-brown twigs	shoots early	white flowers	orange-yellow autumn colours	orange-brown twigs
Viburnum bodnan- tense 'Dawn'	pink flowers, strong vanilla fragrance	shoots early, red- dish	---	brick-red in autumn	flowering begins, flowers pink to white, fragrance
Viburnum farreri	flowers pink-white, strong fragrance	green-golden shoots	---	crimson-red autumn colours	flowering begins, flowers pink-white
Viburnum opulus	fruits from previous year still persisting	white flowers	---	orange autumn colours, red fruits	fruits still persi- sting

16 - Plants with decorative fruit

Conspicuously coloured fruits generally appear at the end of July/August. The degree of ripeness depends on the weather conditions, which means the colours are not the same at the same time every year. Theoretically, berries, capsules, and pods may last for weeks, but in some years birds may bring a swift end to the decorative fruit.

Note:

For the poisonous of these plants, see special table 18; plants with poisonous fruit.

Genus/species/variety	Fruit colour / Fruit shape	Edibility
1. Deciduous trees		
Acer ginnala	red	
Acer palmatum	red	
Acer rubrum	red	
Aesculus hippocastanum	brown	inedible. pungent
Alnus cordata	green, blue	
Amelanchier varieties	blue-black	edible, sweet
Aralia elata	black	poisonous, bitter
Castanea sativa	brown	edible
Catalpa bignonioides	brown	
Clerodendron trichotomum	black-blue with red	inedible
Cornus controversa	black	inedible
Cornus florida	red	inedible
Cornus kousa varieties	red	tasteless
Cornus nuttallii	pink to	tasteless
Corylus colurna	bron clusters of fruit	tasteless
Crataegus lavalley 'Carrierei'	orange-red	mealy, sour
Elaeagnus angustifolia	yellow	sweet
Euodia hupehensis	red to black	inedible
Gleditsia triacanthos	brwon husks	
Ilex aquifolium varieties	red	poisonous
Koelreuteria paniculata	brown	
Liquidambar styraciflua	green hedgehog	inedible
Lonicera maackii	red	inedible
Magnolia species and varieties	red	inedible
Malus-Hybriden varieties	red, orange, yellow	edible, sour
Mespilus germanica	brown	edible, teigig
Morus varieties	red to black	edible, sweet
Ostrya carpinifolia	brown	inedible
Paulownia tomentosa	brown	inedible
Phellodendron amurense	black	inedible
Prunus avium	red, black	edible, sweet
Prunus cerasifera varieties	red	edible, sweet
Prunus mahaleb	black	bittersweet
Prunus serotina	black	bittersweet
Pterocarya fraxinifolia	green panicles	inedible
Rhus species and varieties	reddish spadix panicles	inedible
Sorbus species and varieties	many colours	bitter, tangy, sour

Plants with decorative fruit - 16

Genus/species/variety	Fruit colour / Fruit shape	Edibility
2. Shrubs		
Acanthopanax sieboldianus	black	poisonous
Acer palmatum	red	
Amelanchier species and varieties	blue-black	edible, sweet
Arctostaphylos uva-ursi	red	mealy-tasteless
Aronia species and varieties	red and black	edible, sweet
Aucuba japonica	red	poisonous
Berberis - sommergrün	red	sour, juicy
Berberis immergrün	blue-black	inedible
Callicarpa species and varieties	violet	inedible
Ceanothus species and varieties	brown umbels	inedible
Chaenomeles species and varieties	yellow	edible, aromatic
Chionanthus virginicus	black	inedible
Colutea arborescens	red-brown	poisonous
Cornus alba varieties	white	inedible
Cornus canadensis	red	tasteless
Cornus mas	red	edible, sour
Cornus sanguinea	black	inedible
Corylus varieties	brown	edible
Cotinus coggygria varieties	like wigs	inedible
Cotoneaster species and varieties	red, black	mealy, tasteless
Crataegus species and varieties	red	mealy
Decaisnea fargesii	blue	sticky-sweet
Elaeagnus species and varieties	silvery-brown-red	edible, sweet
Empetrum nigrum	black	edible, sour-bitter
Euonymus species and varieties	orange, red	very poisonous
Gaultheria procumbens	red	edible, aromatic
Gaultheria shallon	black	mealy
Hedera species and varieties	black	very poisonous
Hippophae rhamnoides	orange	edible, sweet-sour
Hydrangea arborescens varieties	brown withered umbels	
Ilex species and varieties	red	very poisonous
Ligustrum species and varieties	black	very poisonous
Lonicera species and varieties	red, black	inedible, poisonous
Lycium barbarum	orange-red	very poisonous
Mahonia aquifolium	blue-black	sour
Malus-Hybriden	red, orange, yellow	edible, sour
Pernettya mucronata varieties	white, pink, red	poisonous
Photinia villosa	red	mealy
Physocarpus opulifolius	brown capsules	
Prunus species and varieties	dark red, black	bittersweet
Prunus spinosa	blue-black	tangy
Ptelea trifoliata	yellow-green	extremely bitter
Pyracantha-Hybriden	red, orange, yellow	mealy
Rhamnus species and varieties	black	poisonous
Rhodotypos scandens	black	inedible
Rosa species and varieties	red, orange, black	edible, sweet

continued on next page

16 -Plants with decorative fruit

continued

Genus/species/variety	Fruit colour / Fruit shape	Edibility
Rubus varieties	black	edible, sweet
Sambucus nigra	black	edible, tangy
Sambucus racemosa	red	inedible raw
Skimmia japonica varieties	red	inedible
Stranvaesia davidiana	red	mealy
Symphoricarpos albus laevigatus	white	inedible
Symphoricarpos chenaultii	pink	inedible
Symphoricarpos doorenbosii	carmine, red	inedible
Symphoricarpos orbiculatus	pink-red	inedible
Vaccinium corymbosum	blue-black	edible, sweet
Vaccinium macrocarpon	red	edible, tangy
Vaccinium vitis-idaea varieties	red	edible, tangy
Viburnum davidii	blue	inedible
Viburnum lantana	red und black	poisonous
Viburnum opulus	red	inedible
Viburnum rhytidophyllum	red und black	inedible
Viburnum tinus	steel blue	inedible
3. Shrubs		
Celastrus orbiculatus	yellow und orange	very poisonous
Clematis species and varieties	silvery	poisonous
Hedera species and varieties	black	poisonous
Lonicera species and varieties	orange, red	poisonous
Lonicera henryi	black	poisonous
Parthenocissus species and varieties	blue-black	scratchy, inedible
Rosa - climbers	red	sour-sweet
4. Conifers		
Abies koreana	cones violet	
Abies procera 'Glauca'	large cones	
Cedrus atlantica 'Glauca'	cones	
Ginkgo biloba	yellow	strong smell
Juniperus species and varieties	blue-black	poisonous
Juniperus communis varieties	blue	tangy-aromatic
Picea abies 'Acrocona'	monstrous cones	
Picea omorika	cones	
Picea orientalis	decorative cones	
Picea pungens varieties	brown	
Pinus densiflora 'Pumila'	numerous cones	
Pinus parviflora varieties	numerous cones	
Pinus peuce	numerous cones	
Pinus strobus varieties	numerous cones	
Pinus wallichiana	numerous cones	
Taxus baccata	like berries, red	only husk is endible
Tsuga canadensis	decorative cones	
Tsuga mertensiana	violet-brown cones	

Plants with edible fruits – wild fruit - 17

This summary is intended for sites where the planting is selected so that the fruits are either useable raw or cooked. This does not mean that the berries, nuts, or capsules necessarily taste good. Fruits that taste repulsive or neutral but are theoretically edible were left out. The fruit-bearing plants are important as educational tools in schoolyards, as food for the self-sufficient and connoisseurs of wild fruit or simply to lure wild animals for observation.

Genus/species/variety	Edible/spezial characteristics
1. Deciduous plants	
Amelanchier species and varieties	raw, processed
Aronia species and varieties	raw, processed
Berberis vulgaris	processed, rich in vitamins
Castanea sativa	processed
Chaenomeles species and varieties	processed
Cornus mas	raw, processed, rich in vitamins
Corylus species and varieties	raw, processed
Crataegus lavallei 'Carrierei'	raw, processed
Crataegus coccinea	processed
Elaeagnus species and varieties	raw, processed
Empetrum nigrum	processed
Gaultheria procumbens	processed, strange-aromatic
Hippophae rhamnoides	raw, processed
Juglans regia	raw, processed
Lonicera caerulea	processed
Mahonia aquifolium	processed
Malus-hybrids	raw, processed, somewhat tangy
Mespilus germanica	processed
Morus species and varieties	raw, processed, rich in vitamins
Prunus avium	raw, processed
Prunus cerasifera varieties	raw, processed
Prunus spinosa	processed, very tangy
Ribes aureum	processed, very tangy
Rosa species and varieties	raw, processed, rich in vitamins
Rubus calycinoides	raw, processed
Rubus fruticosus	raw, processed
Rubus idaeus	raw, processed
Sambucus nigra	processed, only full ripe, rich in vitamins
Sambucus racemosa	only processed, very tangy
Sorbus aucuparia varieties	processed, very tangy, rich in vitamins
Sorbus arnoldiana varieties	processed, very tangy
Sorbus decora	processed, rich in vitamins
Sorbus domestica	processed
Sorbus torminalis	processed
Vaccinium corymbosum	raw, processed, rich in vitamins
Vaccinium macrocarpon	processed, rich in vitamins
Vaccinium vitis-idaea varieties	processed, rich in vitamins
2. Shrubs	
Actinidia species and varieties	raw, processed, rich in vitamins
Akebia quinata	raw
Rosa - Kletterrosen	raw, processed
3. Conifers	
Ginkgo biloba	processed, kernels roasted
Juniperus communis	processed/fermented
Pinus cembra	raw, processed, pine nuts
Taxus baccata	roh, only seed case, kernels poisonous

18 - Poisonous plants

This “list of poisonous plants” is only meant to provide orientation. It is not and cannot be exhaustive as our knowledge of chemical composition is quite insufficient. Many plants considered poisonous probably are not. Often, conspicuous berries and a foul smell lead to unjustified suspicion. The plants listed as slightly poisonous are only mentioned so that their poisonousness is not overestimated. Plant parts of many of these species would have to be eaten in large amounts to lead to strong symptoms. Many of them have such a repulsive taste—based on the samples tried by the author—that it is hardly imaginable that children would voluntarily eat more than a few berries.

The plants marked with +++ are extremely poisonous, and their inclusion in any landscape scheme should be carefully considered. The others will lead to diarrhoea, vomiting, dizziness or headaches if their plant parts are eaten. You should see a doctor in any case.

In critical cases, the following reference works are recommended:

- ROTH/ DAUNDERER/KORKMANN: Giftpflanzen - Pflanzengifte. Ecomed-Verlag, Landsberg - München, 1988
- FROHNE/PFÄNDER: Giftpflanzen. Wissensch. Verlagsgesellschaft Stuttgart, 1987
- Information centres for cases of poisoning are found in all major cities in the university and city clinics.

Genus/species/variety	Poisonous plants parts	Degree of poison	Taste
1. Deciduous plants			
Acanthopanax sieboldianus	whole plant	+	bitter
Aesculus species and varieties	unripe fruit, green fruit husks	(+)-+	tart, tangy
Ailanthus altissima	bark, seeds	+	bitter
Aralia elata and varieties	bark, seeds	+	repugnantly bittersweet
Aristolochia macrophylla	whole plant	+	unpleasant
Aucuba japonica	whole plant	+	bitter fruits
Berberis - blaifrüchtige Arten	roots, bark, berries	+	red fruits harmless
Buddleja davidii	leaves, seeds	(+)	empty
Buxus sempervirens varieties	whole plant	++	bitter
Calycanthus floridus	whole plant	(+)	aromatic
Caragana arborescens	whole plant	(+)	fruits empty
Catalpa bignonioides	whole plant	(+)	unpleasant
Celastrus orbiculatus	whole plant	+	berries bittersweet
Clematis species and varieties	whole plant	+	
Colutea arborescens	leaves, seeds	+	bitter
Cornus sanguinea	leaves, fruits	(+)	berries repugnantly bittersweet
Cotinus coggygria	whole plant	(+)	
Cytisus species and varieties	whole plant	+	Pods like beans
Daphne species and varieties	whole plant	+++ !	peppery hot
Euonymus species and varieties	whole plant	++	bitter
Fagus sylvatica	Bucheckern	(+)	like nuts
Genista species and varieties	whole plant	+	bitter
Gleditsia triacanthos and varieties	nur leaves	+	fruits edible
Gymnocladus dioicus	leaves, seeds	+	
Hedera species and varieties	whole plant	+	berries dry like paper, burningly bitter
Ilex species and varieties	whole plant	++	berries repugnantly tangy
Kalmia species and varieties	whole plant	+	unpleasant

Explanation of symbols: +++ = extremely poisonous / ++ = very poisonous / + = poisonous / (+) = slightly poisonous

Genus/species/variety	Poisonous plants parts	Degree of poison	Taste
Laburnum species and varieties	whole plant	+++	fruits like beans, sweet roots
Ledum palustre	whole plant	+	bitter-aromatic
Ligustrum species and varieties	whole plant	+	fruits repugnantly sweet
Liriodendron tulipifera	whole plant	+	fruits aromatic-bitter
Lonicera species and varieties	berries	(+)	fruits repugnantly sweetish-bitter
Lycium barbarum	whole plant	++	
Mahonia aquifolium	whole plant, except berries !	+	berries are processed into jelly in the USA
Myrica gale	whole plant	+	intensely aromatic
Pachysandra terminalis	whole plant	+	bitter
Paeonia suffruticosa varieties	whole plant	+	
Pernettya mucronata varieties	whole plant	+	
Pieris species and varieties	whole plant	+	
Prunus laurocerasus varieties	whole plant	+	fruit meat not poisonous! like sloe
Prunus serotina	whole plant, except cherries	+	cherries repugnantly bittersweet
Rhamnus species and varieties	whole plant	+	berries repugnantly bitter
Rhododendron species and varieties	whole plant	+--+	unpleasant
Rhus species and varieties	milky sap	+	corrosive
Robinia species and varieties	whole plant	++	bark and roots pleasantly sweetish
Sambucus species and varieties	whole plant, except ripe berries	(+)	do not use unripe fruit!
Skimmia japonica varieties	whole plant	(+)	aromatic
Sophora japonica	whole plant	++	
Symphoricarpos species and varieties	berries	(+)	slimy-empty
Ulex europaeus	whole plant	++	fruits like beans
Viburnum species and varieties	bark, leaves	+	berries bittersweet, no problems when cooked
Vinca species and varieties	whole plant	+	unpleasant
Wisteria species and varieties	whole plant	+	fruits like beans
2. Conifers			
Chamaecyparis species and varieties	whole plant	+	bitter-aromatic
Cupressocyparis species and varieties	whole plant	+	bitter
Juniperus horizontalis	whole plant	+++	bitter-aromatic
Juniperus media varieties	whole plant	+++	berries spicy, peppery hot
Juniperus sabina and varieties	whole plant	+++!	berries bitter-spicy
Juniperus virginiana varieties	whole plant	+++	berries bitter-spicy
Microbiota decussata	whole plant	+	bitter-aromatic
Taxus species and varieties	whole plant, except red seed case, but kernel poisonous!	+++	unpleasant

Explanation of symbols: +++ = extremely poisonous / ++ = very poisonous / + = poisonous / (+) = slightly poisonous

19 - Plants with leaf colours other than green

1. Red foliage (black-red, dark red, brown-red, bronze-red)

The chlorophyll is covered by the red cell pigment anthocyanine in plants with red foliage. These varieties behave much the same as the green varieties, though their final size is smaller.

Colour development:

The spring shoots are light, bright red; the leaf surface has a slight black-metallic shimmer. The chlorophyll is stronger in summer, giving the leaves a bronze-red to green mixture. Young leaves on the sunny side are reddest, while the older ones on the shady side are greenest. In the interest of an intense red hue, it pays to cut special red-foliage shrubs generously in spring.

Genus/species/variety	Leaf colour
1. Deciduous trees	
Acer griseum	brown-red shoots
Acer palmatum 'Atropurpureum'	crimson red
Acer platanoides 'Deborah'	red shoots
Acer platanoides 'Faassen's Black'	shiny black red
Acer platanoides 'Royla Red'	crimson-red
Acer platanoides 'Schwedleri'	red shoots
Acer neglectum 'Annae'	red shoots
Fagus sylvatica 'Atropunicea'	metallic copper-red
Fagus sylvatica 'Dawyck Purple'	crimson-brown
Fagus sylvatica 'Purple Fountain'	dark red to brown
Fagus sylvatica 'Purpurea Pendula'	black red
Fagus sylvatica 'Swat Margret'	black red
Malus 'Hopa'	red shoots
Malus 'Liset'	red shoots, later bronze
Malus 'Nicoline'	red shoots
Malus 'Profusion'	red shoots
Malus 'Rudolph'	red shoots
Prunus cerasifera 'Nigra'	black-red
Prunus serrulata varieties	shoots brown to dark red, later green
Robinia 'Casque Rouge'	shoots brown, later green
2. Deciduous shrubs	
Acer palmatum 'Dissectum Atropurpureum'	red-brown
Acer palmatum 'Dissectum Garnet'	shoots dark red
Aronia melanocarpa	shoots crimson-red
Berberis buxifolia 'Nana'	Shoots crimson-red
Berberis ottawensis 'Superba'	metallisch dark red
Berberis thunbergii 'Atropurpurea'	red shoots
Berberis thunbergii 'Atropurpurea Nana'	red shoots
Berberis thunbergii 'Bagatelle'	intense crimson-red
Berberis thunbergii 'Red Chief'	brown-red
Calluna vulgaris 'Boskoop'	copper-orange in winter, later orange-yellow

Plants with leaf colours other than green - 19

1. Red foliage

Genus/species/variety	Leaf colour
Calluna vulgaris 'Carmen'	brown in winter, later dark green
Calluna vulgaris 'County Wicklow'	bronze in winter, then grey-green
Calluna vulgaris ' J. H. Hamilton'	reddish in winter, then green
Calluna vulgaris 'Liebestraum'	bronze in winter, then grey
Calluna vulgaris 'Marlies'	bronze in winter, then dark green
Calluna vulgaris 'Sonnyboy'	orange in winter, then yellowish green
Calluna vulgaris 'Spring Torch'	orange-red starting in spring
Clematis montana 'Rubens'	red shoots
Cornus alba 'Kesselringii'	brown shoots, later bronze
Corylus avellana 'Rotblättrige Zellernuss'	red-brown
Corylus maxima 'Purpurea'	shiny black red
Cotinus coggygria 'Royal Purple'	metallic black-red
Erica cinerea 'Katinka'	bronze-red in winter
Erica cinerea 'Pink Ice'	bronze-red in winter
Euonymus fortunei 'Coloratus'	crimson-red on underside of leaf in winter
Euonymus fortunei 'Dart's Blanket'	crimson-red on underside of leaf in winter
Malus 'Eleyi'	reddish shoots, later dark green
Malus 'Makamik'	red shoots, later bronze
Malus 'Royalty'	dark red
Paeonia suffruticosa	shoots dark red
Pieris japonica 'Forest Flame'	shoots lbright red later bronze-green
Pieris japonica 'Red Mill'	shoots shiny bronze-red
Photinia fraseri 'Red Robin'	shoots light red, later bronze-green
Prunus cerasifera 'Nigra'	dark red
Prunus 'Trailblazer'	shoots green, later bronze
Prunus cistena	shoots dark red, later brown
Rosa glauca	red shoots, later bronze to blue
Spiraea bumalda 'Froebelli'	shoots bronze, later green
Spiraea bumalda 'Goldflame'	shoots bronze-red, later yellow-green
Spiraea japonica 'Golden Princess'	red shoots, then bronze-red
Weigela florida 'Purpurea'	shoots dark red, later brown-red
3. Conifers	
Microbiota decussata	brick-red in winter, green starting in spring

2. Yellow foliage (green-yellow, yellow spots, margins or stripes or pure yellow)

Colour development:

The new needles or leaves are a bright golden yellow in spring, losing their brightness in summer as the deep yellow turns a green-gold or yellow-green. The colour is best in sunny or lightly shady areas. In the shade, the yellow disappears. As there is considerably less chlorophyll in yellow leaves than in green ones, yellow varieties grow more slowly than green varieties and remain smaller. Yellow-foliage plants require a fresh to moist, cool area; dry soil and air and extreme frost conditions should be avoided.

continued on next page

19 - Plants with leaf colours other than green

continued

2. Yellow foliage

Genus/species/variety	Leaf colour
1. Deciduous trees	
Acer negundo 'Aureo-variegatum'	spotted
Acer negundo 'Odessanum'	shoots yellow, then green-yellow
Alnus incana 'Aurea'	yellow-green, later light green
Catalpa bignonioides 'Aurea'	shoots bright-yellow, later greenish yellow
Fagus sylvatica 'Dawyck Gold'	shoots golden yellow, then yellow-green
Fraxinus excelsior 'Jaspidea'	shoots yellow, then yellow-green
Gleditsia triacanthos 'Sunburst'	shoots bright yellow, then yellow-green
Robinia pseudoacacia 'Frisia'	shoots golden yellow, then yellow-green
Ulmus carpinifolia 'Wredei'	shoots golden yellow, then yellow-green
2. Shrubs	
Aucuba japonica 'Variegata'	yellow-spotted
Calluna vulgaris 'Gold Haze'	bright yellow in winter, then greenish yellow
Cornus alba 'Spaethii'	yellow margins
Corylus avellana 'Aurea'	shoots bright yellow, then yellow-green
Elaeagnus pungens 'Maculata'	yellow spots
Euonymus fortunei 'Emerald'n Gold'	yellow spots
Euonymus fortunei 'Sunspot'	yellow leaf centre
Hebe ochracea	yellow-green to golden yellow
Hedera colchica 'Dentata Variegata'	yellow to cream margins
Hedera helix 'Goldheart'	green margin, yellow centre
Ilex altaclarensis 'Golden King'	yellow margins
Ilex crenata 'Golden Gem'	shoots bright yellow, later green-yellow
Ligustrum ovalifolium 'Aureum'	yellow veins
Lonicera japonica 'Aureoreticulata'	shoots red, then golden yellow
Sambucus canadensis 'Aurea'	first golden yellow, then yellow-green
Spiraea bumalda 'Goldflame'	citrus-yellow
Spiraea japonica 'Goldmound'	cram-yellow to white
Weigela florida 'Nana Variegata'	cram-yellow to white margins
3. Conifers	
Cedrus atlantica 'Aurea'	yellow tips, otherwise yellow-green
Chamaecyparis lawsonia 'Alumigld'	golden yellow
Chamaecyparis lawsonia 'Ellwood's Gold'	deep golden yellow
Chamaecyparis lawsonia 'Golden Wonder'	green-yellow
Chamaecyparis lawsonia 'Kelleris Gold'	golden yellow
Chamaecyparis lawsonia 'Lane'	outside yellow, yellow-green inside
Chamaecyparis lawsonia 'Stewartii'	bright golden yellow
Chamaecyparis pisifera 'Filifera Aurea Nana'	golden yellow
Chamaecyparis pisifera 'Sungold'	golden yellow to yellowish green

Plants with leaf colours other than green - 19

2. Yellow foliage

Genus/species/variety	Leaf colour
<i>Chamaecyparis pisifera</i> 'Plumosa Aurea'	golden yellow
<i>Juniperus chinensis</i> 'Plumosa Aurea'	golden yellow
<i>Juniperus media</i> 'Old Gold'	yellow to yellow-green
<i>Juniperus media</i> 'Pfitzeriana Aurea'	shoots yellow
<i>Picea orientalis</i> 'Aurea'	yellow to yellow-green
<i>Taxus baccata</i> 'Aureovariegata'	yellow to light green
<i>Taxus baccata</i> 'Dovastonii Aurea'	yellow margins
<i>Taxus baccata</i> 'Fastigiata Aureomarginata'	bright golden yellow
<i>Taxus baccata</i> 'Semperaurea'	citrus yellow
<i>Taxus baccata</i> 'Summergold'	yellow margins
<i>Taxus baccata</i> 'Washingtonii'	first yellow, then light green
<i>Thuja occidentalis</i> 'Europe Gold'	shoots golden yellow, then yellow-green
<i>Thuja occidentalis</i> 'Sunkist'	initially yellow-green, later fresh green
<i>Thuja orientalis</i> 'Aurea'	golden yellow, bronze yellow in winter
<i>Thuja plicata</i> 'Aurescens'	yellow-green

3. White foliage (white spots, margins or stripes)

Note:

See details on the yellow-foliage plants. In addition to the chlorophyll, the yellow pigment is also missing. The colour is caused by colourless cell elements.

Genus/species/variety	Leaf colour
1. Deciduous trees	
<i>Acer negundo</i> 'Variegatum'	white spots
<i>Acer platanoides</i> 'Drummondii'	broad white leaf margins
<i>Aralia elata</i> 'Variegata'	cream white margins
2. Shrubs	
<i>Actinidia kolomikta</i>	first pink, then white leaf halves
<i>Aralia elata</i> 'Variegata'	cream white margins
<i>Cornus alba</i> 'Elegantissima'	white margins
<i>Euonymus fortunei</i> 'Emerald Gaiety'	white margins, somewhat. pink
<i>Euonymus fortunei</i> 'Variegatus'	white with pink spots
<i>Ilex aquifolium</i> 'Argentea Marginata'	white margins
<i>Pieris japonica</i> 'Variegata'	white margins
<i>Weigela florida</i> 'Nana Variegata'	grey to white margins

19 - Plants with leaf colours other than green

4. White or grey tomentose leaves

The leaves have the usual green hues, while the leaf laminae are only white or grey due to the dense layer of tomentose hairs, silvery-shiny scales or a waxy coating. These coverings serve to protect the leaves from evaporation, heat and cold.

Colour development:

During shooting, the young leaves have dense, conspicuous white hairs on both sides. Starting in late summer, the leaf organs are dull green on top and blue or grey-green only on the underside. It is normal for this colour to disappear; it comes back every year.

Genus/species/variety	Leaf colour
1. Deciduous trees	
<i>Acer saccharinum</i> and varieties	underside
<i>Acer rubrum</i>	underside
<i>Alnus incana</i>	shoots/underside
<i>Elaeagnus angustifolia</i>	both sides
<i>Hippophae rhamnoides</i>	both sides
<i>Malus tschonoskii</i>	shoots/underside
<i>Populus alba</i> 'Nivea'	shoots/underside
<i>Pyrus regelii</i>	shoots/underside
<i>Pyrus salicifolia</i>	both sides
<i>Salix alba</i> and varieties	both sides
<i>Salix caprea</i>	underside
<i>Salix smithiana</i>	underside
<i>Salix viminalis</i>	underside
<i>Sorbus aria</i> and varieties	shoots/underside
<i>Sorbus intermedia</i> and varieties	underside
<i>Sorbus thuringiaca</i> 'Fastigiata'	underside
<i>Tilia tomentosa</i> and varieties	shoots/underside
2. Shrubs	
<i>Buddleja alternifolia</i>	both sides
<i>Buddleja davidii</i> and varieties	shoots/underside
<i>Calluna vulgaris</i> varieties	both sides
<i>Caryopteris clandonensis</i> varieties	both sides
<i>Cotoneaster dielsianus</i>	underside
<i>Cotoneaster franchetii</i>	shoots/underside
<i>Cotoneaster multiflorus</i>	underside
<i>Cotoneaster salicifolius floccosus</i>	underside
<i>Cotoneaster sternianus</i>	shoots/underside
<i>Cotoneaster watereri</i> varieties	underside
<i>Elaeagnus angustifolia</i>	both sides
<i>Elaeagnus commutata</i>	both sides
<i>Elaeagnus ebbingei</i>	shoots/underside

Plants with leaf colours other than green - 19

4. White or grey tomentose leaves

Genus/species/variety	Leaf colour
Elaeagnus multiflora	underside
Erica tetralix varieties	shoots/underside
Hamamelis mollis	underside
Hippophae rhamnoides	both sides
Hydrangea sargentiana	shoots/underside
Lavandula angustifolia varieties	shoots/underside
Lycium barbarum	both sides
Perovskia abrotanoides	both sides
Potentilla fruticosa mandshurica	both sides
Salix acutifolia 'Pendulifolia'	underside
Salix aurita	underside
Salix caprea varieties	underside
Salix cinerea	shoots/underside
Salix daphnoides in Formen	underside
Salix elaeagnos	shoots/underside
Salix hastata 'Wehrhahnii'	underside
Salix lanata	both sides
Salix repens argentea	both sides
Salix rosmarinifolia	shoots/underside
Salix smithiana	underside
Salix viminalis	underside
Viburnum burkwoodii	underside
Viburnum carlcephalum	underside
Viburnum carlesii	underside
Viburnum lantana	shoots/underside
Viburnum rhytidophyllum	underside

5. Blue and blue-green to silver-grey foliage (blue needles, silvery blue, blue-green or grey)

The blue colours, especially on the needles of conifers, are caused by a dense wax coating that makes the green leaf organs appear strong blue or silvery blue. The colours are most intense on one-year shoots in full sunlight.

Genus/species/variety	Leaf/needle colour
1. Deciduous plants	
Berberis - immergrüne Arten and varieties	only leaf underside, blue, greyblue
Buxus sempervirens 'Blauer Heinz'	blue/bluish green
Rosa glauca	shoots bluish red, then blue-green
Salix acutifolia 'Pendula'	blue underneath
Salix daphnoides und Formen	blue underneath
Salix fragilis	blue underneath
Salix purpurea and varieties	blue underneath

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19 - Plants with leaf colours other than green

continued

5. Blue and blue-green to silver-grey foliage

Genus/species/variety	Leaf/needle colour
2. Conifers	
<i>Abies concolor</i>	bluish grey
<i>Abies koreana</i>	silvery white underneath
<i>Abies procera</i> 'Glauca'	silvery blue / blue
<i>Abies veitchii</i>	bluish white underneath
<i>Cedrus atlantica</i> varieties	silvery blue
<i>Cedrus deodara</i> 'Pendula'	blue-green
<i>Chamaecyparis lawsonia</i> 'Alumii'	blue/ bluishgreen
<i>Chamaecyparis lawsonia</i> 'Columnaris'	bluish grey
<i>Chamaecyparis lawsonia</i> 'Columnaris Glauca'	blue/bluish green
<i>Chamaecyparis lawsonia</i> 'Spek'	blue/bluish green
<i>Chamaecyparis lawsonia</i> 'Tharandtensis Caesia'	blue-green
<i>Chamaecyparis pisifera</i> 'Boulevard'	silvery blue
<i>Juniperus chinensis</i> 'Blue Alps'	silvery blue
<i>Juniperus communis</i> 'Hibernica'	bluish grey
<i>Juniperus communis</i> 'Suecica'	bluish grey
<i>Juniperus horizontalis</i> 'Andorra Compact'	grey-green/blue
<i>Juniperus horizontalis</i> 'Wiltonii'	intense blue
<i>Juniperus chinensis</i> 'Blaauw'	bluish grey
<i>Juniperus media</i> 'Hetzii'	bluish grey
<i>Juniperus sabina</i> 'Rockery Gem'	blue-green
<i>Juniperus sabina</i> 'Tamariscifolia'	blue-green
<i>Juniperus squamata</i> 'Blue Carpet'	intense blue
<i>Juniperus squamata</i> 'Blue Star'	intense-silvery blue
<i>Juniperus squamata</i> 'Meyeri'	silvery blue
<i>Juniperus virginiana</i> 'Glauca'	grey
<i>Juniperus virginiana</i> 'Grey Owl'	grey
<i>Juniperus scopulorum</i> 'Skyrocket'	grey/blue-green
<i>Picea abies</i> 'Pumila Glauca'	blue-green/green
<i>Picea glauca</i> 'Echiniformis'	blue-green
<i>Picea pungens</i> glauca	blue/bluish grey
<i>Picea pungens</i> 'Glauca Globosa'	silvery blue
<i>Picea pungens</i> 'Hoopsii'	intense blue to silvery blue
<i>Picea pungens</i> 'Koster'	silvery blue/blue-green
<i>Picea pungens</i> 'Oldenburg'	silvery blue
<i>Pinus cembra</i>	blue-green
<i>Pinus monticola</i> 'Ammerland'	silvery blue
<i>Pinus monticola</i> 'Skyline'	blue-green
<i>Pinus parviflora</i> 'Glauca'	silvery blue
<i>Pinus parviflora</i> 'Negishi'	bluish grey
<i>Pinus peuce</i>	bluish grey
<i>Pinus pumila</i> 'Glauca'	grey / blue-green
<i>Pinus schwerinii</i>	blue-green

Plants with leaf colours other than green - 19

5. Blue and blue-green to silver-grey foliage

Genus/species/variety	Leaf/needle colour
<i>Pinus strobus</i>	blue-green
<i>Pinus strobus</i> 'Macopin'	blue-green
<i>Pinus strobus</i> 'Radiata'	blue-green
<i>Pinus sylvestris</i>	grey-green
<i>Pinus sylvestris</i> 'Fastigiata'	blue-green
<i>Pinus sylvestris</i> 'Norske Typ'	bluish grey
<i>Pinus sylvestris</i> 'Watereri'	grey/blue-green
<i>Pinus wallichiana</i>	blue-green
<i>Pinus wallichiana</i> 'Densa Hill'	blue-green
<i>Pseudotsuga menziesii caesia</i>	grey-green
<i>Sequoiadendron giganteum</i> 'Glaucum'	bluish grey/blue
<i>Tsuga mertensiana</i>	grey/blue-green
<i>Tsuga mertensiana</i> 'Glauca'	silvery blue

Plants that shoot early - 20

Plants that shoot early in the year not only create a first atmosphere of spring, they also fulfill an important function in urban areas. Normally, plants in central Europe have foliage from the beginning/middle of May to the middle/end of October (including autumn colours), i.e. for some five to six months. Plants that shoot late—from the end of May to the beginning of June—only have foliage for four months. As the species that shoot especially early shorten the bare winter period considerably, these plants play an essential role. No exactly defined shooting period can be given since the early shooting plants are able to start developing their leaves several weeks early when early spring is mild.

Note:

Leaves that appear before the last late frost in the first third of May can be damaged by the frost. Indigenous plants are well adapted, and their leaves are seldom destroyed. Even when the shoots are killed by frost in April, the plants form new shoots after a short time, leaving not a trace of the original damage. This does not, however, apply for the flowers.

Genus/species/variety	Shoots	Colour of shoots
1. Deciduous trees		
<i>Aesculus flava</i> varieties	IV	light green
<i>Acer platanoides</i>	IV	green
<i>Acer rubrum</i>	IV	bronze-red
<i>Betula</i> species and varieties	IV	light green
<i>Cercidiphyllum japonicum</i>	A IV	red
<i>Malus toringo sargentii</i> 'Sämling'	IV	green
<i>Populus balsamifera</i>	A IV	yellow-green
<i>Populus berolinensis</i>	A IV	yellow-green
<i>Populus canadensis</i> varieties	IV	bronze-red
<i>Populus nigra</i> varieties	E VI/A V	yellow-green

Explanation of symbols: I-XII = Month from January to December / B = beginning of the month / E = end of the month

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20 - Plants that shoot early

continued

Genus/species/variety	Shoots	Colour of shoots
Populus simonii	E III/A IV	green
Prunus padus	E III/A IV	light green
Pterocarya fraxinifolia	IV	green
Pyrus species and varieties	(E III) A IV	green-silvery
Salix alba 'Tristis'	A IV	yellow-green
2. Shrubs		
Acanthopanax sieboldianus	A IV	green
Aesculus parviflora	E IV	bronze-red
Amelanchier species and varieties	IV	silvery grey to red
Berberis thunbergii varieties	E III/A IV	green
Buddleja davidii varieties	A IV	silvery
Caragana arborescens	A IV	light green
Chaenomeles species and varieties	A IV	bronze-red
Cotoneaster species and varieties	A IV	grey-green
Crataegus laevigata varieties	IV	green
Crataegus monogyna varieties	A IV	green
Crataegus coccinea	A IV	green
Cytisus beanii	IV	green
Cytisus kewensis	IV	grey-green
Decaisnea fargesii	IV	grey-green
Deutzia gracilis	A IV	green
Euonymus europaeus	A IV	green
Euonymus planipes	A IV	green
Hydrangea arborescens varieties	IV	green
Hydrangea macrophylla varieties	E III/A IV	green
Kerria japonica varieties	A IV	green
Ligustrum species and varieties	A IV	green
Lonicera species and varieties	E III/A IV	green
Malus species and varieties	IV	red
Paeonia suffruticosa varieties	E III/A IV	bronze-red
Philadelphus-Hybriden	IV	grey-green
Pieris japonica varieties	IV	red
Potentilla fruticosa varieties	E III/A IV	silvery green
Prunus - rotlaubige Sorten	IV	dark red
Prunus species and varieties	IV	green
Rhodotypos scandens	IV	green
Ribes species and varieties	E III/A IV	green
Rosa species and varieties	E III/A IV	red or green
Rosa glauca	IV	bluish
Rubus caesius	A IV	green
Salix balsamifera mas	A IV	light green
Sambucus nigra	E III/A IV	bronze-red
Sambucus racemosa varieties	IV	bronze-red
Sorbaria sorbifolia	E III/A IV	green to red
Spiraea species and varieties	E III/A IV	many colours

Explanation of symbols: I-XII = Month from January to December / B = beginning of the month / E = end of the month

Plants that shoot early - 20

Genus/species/variety	Shoots	Colour of shoots
Stephanandra species and varieties	IV	green
Symphoricarpos species and varieties	IV	green
Syringa species and varieties	IV	green
Viburnum lantana	IV	grey
Vinca species and varieties	E III/A IV	green
3. Shrubs		
Clematis species and varieties	IV	green or red
Hydrangea petiolaris	IV	green
Jasminum nudiflorum	IV	green
Lonicera species and varieties	E III/A IV	green or grey
Parthenocissus species and varieties	IV	bronze-red
4. Conifers		
Cedrus deodara varieties	IV	green
Larix decidua	A IV	light green
Larix kaempferi varieties	IV	blue-green
Metasequoia glyptostroboides	IV	light green

Explanation of symbols: I-XII = Month from January to December / B = beginning of the month / E = end of the month

Plants that shoot late - 21

Late-shooting plants form their leaf organs from the second half of May on, sometimes not until the beginning of June depending on the weather, some six to eight weeks later than the plants that shoot early. The delayed leaf development is not to be seen as a disadvantage in all cases: on benches in urban parks, the park visitors are hungry for sun in spring and thankful that the first rays are not blocked until the summer heat sets in. Along similar lines, the same could be said for trees near buildings, for the sun penetrates the rooms in the transitional seasons but are prevented from entering in summer by the foliage. Late-shooting plants are seldom damaged by late frost although occasional leaf loss that was subsequently compensated for has been observed. The new shoots are green as a rule; colourful mixtures as seen among the early-shooting plants are rare.

Note:

Only summer green plants are listed as the effect of late shoots has no considerable importance for the use and planning with evergreen deciduous trees and conifers.

Genus/species/variety	Colour of shoots
1. Bäume	
Ailanthus altissima	bronze-red
Castanea sativa	light green
Catalpa bignonioides	very late, and of May
Crataegus lavalley 'Carrierei'	green
Euodia hupehensis	light green
Fraxinus species and varieties	
Ginkgo biloba	light green

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21 - Plants that shoot late

continued

Genus/species/variety	Colour of shoots
Gleditsia triacanthos varieties	
Gymnocladus dioicus	bronze-red
Juglans nigra	
Juglans regia	aromatic
Liquidambar styraciflua	light green
Nyssa sylvatica	light green
Platanus acerifolia	grey
Prunus serotina	light green
Quercus species and varieties	light green or reddish
Robinia species and varieties	
Sophora japonica varieties	grey-green
2. Shrubs	
Callicarpa bodinieri varieties	
Chionanthus virginicus	
Clethra alnifolia	light green
Cotinus coggygria varieties	red to dark red
Hibiscus syriacus	light green
Hydrangea quercifolia	grey-green
Lespedeza thunbergii	light green
Ptelea trifoliata	light green, aromatic
3. Shrubs	
Campsis species and varieties	bronze-red
Celastrus orbiculatus	light green

22 - Plants with autumn colours

The decomposition of chlorophyll in autumn leaves behind xanthophyll and carotene, which are not dissolved. They cause the yellow or orange hues. The red pigments are due to anthocyanine, which is created in autumn by the changes in metabolism in the leaves. The tendency to autumn colours is genetic. Plants that lose their green or grey leaves cannot be brought to produce spectacular colours under even the most favourable conditions.

Note:

Autumn colours do not have set limits, but rather are determined by local conditions. Sunny areas further the colours, while the colours are very modest in the shade. The colours are enhanced in autumn by warm, sunny days followed by cool nights. The colours may sometimes be sparse if the autumn days are regularly mild and rainy. Colouring time depends on the weather and thus varies. The sequence of colour development is, however, almost always the same. *Acer rubrum*, for instance, principally turns colour first, followed by *Parthenocissus quinquefolia* in second position; this can happen in the last week of August or as late as mid-September. The other plants then follow with some delay.

Genus/species/variety	Main colour
1. Large trees	
Acer platanoides	yellow, orange
Acer pseudoplatanus varieties	yellow
Acer saccharinum	yellow, green-yellow
Aesculus hippocastanum	yellow
Betula species	yellow
Castanea sativa	yellow, yellow-brown
Fagus sylvatica varieties	yellow-orange, yellow-brown
Gleditsia triacanthos	yellow-green
Juglans nigra	yellow
Liriodendron tulipifera	yellow, yellow-brown
Pterocarya fraxinifolia	yellow-green
Populus nigra	yellow
Quercus robur	yellow-brown
Quercus rubra	orange-red
Tilia cordata	yellow
Tilia platyphyllos	yellow
Tilia europaea	yellow
Ulmus species and varieties	yellow
2. Medium-sized trees	
Acer campestre	yellow, yellow-orange
Acer platanoides varieties	yellow
Acer platanoides - red-foliage varieties	bronze-red
Acer rubrum varieties	red, orange
Acer saccharinum 'Wieri'	yellow, yellow-green
Aesculus flava varieties	yellow, orange
Alnus spaethii	violet-red, bronze
Betula species and varieties	yellow
Carpinus betulus varieties	yellow
Cercidiphyllum japonicum	yellow, yellow-orange
Corylus colurna	yellow
Euodia hupehensis	yellow
Fagus sylvatica varieties	yellow-orange, yellow-brown
Fraxinus angustifolia 'Raywood'	violet-brown
Gymnocladus dioicus	yellow
Liquidambar styraciflua	dark red, red, orange
Nyssa sylvatica	yellow, orange
Ostrya carpinifolia	yellow
Phellodendron amurense	yellow
Populus tremula	yellow, yellow-orange
Prunus avium	yellow, orange
Pyrus calleryana varieties	orange-red, red
Quercus coccinea	red, orange
Quercus palustris	yellow-orange
Sorbus aucuparia	yellow-orange, red
Sorbus domestica	orange-red
Tilia species and varieties	yellow

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22 - Plants with autumn colours

continued

Genus/species/variety	Main colour
3. Small trees	
Acer campestre 'Elsrijk'	yellow
Acer ginnala	red, orange
Acer griseum	red
Acer palmatum	red
Acer japonicum varieties	orange, red
Acer pensylvanicum	yellow
Acer rufinerve	orange, red
Acer rubrum	red, orange
Acer neglectum 'Annae'	yellow, yellow-orange
Aesculus carnea 'Briotii'	yellow
Amelanchier laevis	yellow-orange
Amelanchier lamarckii	orange, yellow
Aralia elata varieties	yellow-orange
Catalpa bignonioides varieties	yellow
Cercidiphyllum japonicum	yellow, yellow-orange
Cornus alternifolia	violet-red, yellow
Cornus controversa	violet
Cornus florida	bronze-red
Cornus kousa varieties	orange-red
Crataegus monogyna	blood-red, yellow
Crataegus coccinea	yellow-orange
Crataegus crus galli	orange-red
Fagus sylvatica 'Purpurea Pendula'	orange-brown
Koelreuteria paniculata	yellow-orange
Malus-hybrids	yellowish
Malus tschonoskii	red-orange, red
Nothofagus antarctica	yellow, green-yellow
Parrotia persica	red, yellow-orange
Phellodendron amurense	yellow
Prunus hillieri 'Spire'	orange, red
Prunus maackii varieties	orange-yellow
Prunus padus	yellow, orange
Prunus sargentii	orange-red
Prunus serrulata varieties	yellow-orange
Pyrus calleryana varieties	orange-red, red
Pyrus communis varieties	orange-yellow, red-violet
Rhus species and varieties	orange, red
Sorbus species and varieties	orange-red
Stewartia pseudocamellia	yellow-orange, red
4. Large shrubs	
Acer ginnala	red, orange
Acer japonicum 'Aconitifolium'	orange-red
Acer palmatum	red
Acer rufinerve	orange-red
Aesculus parviflora	yellow

Genus/species/variety	Main colour
Amelanchier species and varieties	yellow-orange
Aralia elata species and varieties	yellow-orange
Berberis ottawensis varieties	red
Cornus alternifolia	violet-red bis yellow
Cornus controversa	violet-bronze-red, yellow
Cornus florida and varieties	red-brown
Cornus kousa in varieties	orange-red
Cornus nuttallii	yellow-orange, red
Cornus sanguinea	blood-red
Corylus avellana	yellow, yellow-orange
Cotinus coggygria varieties	orange-red
Cotoneaster bullatus	orange-yellow, red
Crataegus laevigata varieties	bronze-red
Crataegus monogyna	blood-red, yellow
Crataegus coccinea	yellow-orange
Crataegus crus galli	orange-red
Euonymus europaeus	bronze-red, red
Euonymus planipes	red, pink
Hamamelis species and varieties	yellow to orange-red
Mespilus germanica	yellow-brown
Nothofagus antarctica	green-yellow, yellow
Parrotia persica	red, orange-yellow
Photinia villosa	red
Prunus species and varieties	orange-red
Ptelea trifoliata	yellow-green, yellow
Rhus typhina	orange, red
Salix triandra	yellow
Sorbus species and varieties	orange-red
Viburnum lantana	green-yellow, red
Viburnum opulus	orange-red, yellow
5. Normal shrubs	
Berberis ottawensis 'Superba'	orange
Berberis thunbergii	yellow-orange, red
Berberis thunbergii 'Atropurpurea' varieties	orange-red
Berberis vulgaris	yellow-orange, red
Corylopsis spicata	yellow
Cotinus coggygria 'Royal Purple'	red
Cotoneaster species and varieties	yellow-orange, red
Enkianthus campanulatus	yellow-orange, red
Euonymus alatus	red
Euonymus yedoensis	pink, red
Euonymus phellomanus	orange
Fothergilla major	yellow-orange, red
Hydrangea quercifolia	orange-red
Rhododendron hybrids (Azaleas)	orange-red, red, yellow
Rhus typhina 'Dissecta'	red-orange

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22 - Plants with autumn colours

continued

Genus/species/variety	Main colour
Salix sachalinensis 'Sekka'	yellow-green, yellow
Spiraea species and varieties	violet-brown, brown-red
Syringa species and varieties	crimson
Viburnum bodnantense varieties	bronze-red
Viburnum farreri	blood-red
Viburnum plicatum varieties	violet-red, orange
6. Small shrubs	
Aronia species and varieties	red, orange
Corylopsis pauciflora	yellow
Cotoneaster horizontalis	red
Fothergilla gardenii	yellow-orange, orange-red, red
Kerria japonica	yellow
Spiraea species and varieties	violet-red, orange
Stephanandra species and varieties	yellow
Syringa species and varieties	crimson
Vaccinium species and varieties	yellow, orange
7. Dwarf shrubs	
Berberis thunbergii 'Atropurpurea'	orange-red
Cotoneaster adpressus	red
Cotoneaster praecox	red
Spiraea species and varieties	violet-red, orange
8. Climbers	
Actinidia arguta	yellow
Actinidia chinensis	yellow-brown
Campsis species and varieties	yellow-green, yellow
Celastrus orbiculatus	yellow
Clematis species and varieties	pale yellow
Hydrangea petiolaris	yellow
Parthenocissus quinquefolia varieties	red
Parthenocissus tricuspidata 'Veitchii'	red-orange
Rubus caesius	orange-red
Rubus fruticosus in varieties	orange-red
Vitis coignetiae	orange-red
9. Conifers	
Ginkgo biloba	yellow
Larix decidua	yellow
Larix kaempferi varieties	yellow, yellow-orange
Metasequoia glyptostroboides	orange-brown
Pseudolarix amabilis	yellow
Taxodium distichum	orange-brown, orange

Evergreen broad-leaf plants - 23

In this table, evergreen plants are listed. The leaves stay on the plants during winter. In very exposed areas and when winter temperatures fall below -15°C , some species can lose some or all of their leaves. These are listed as “nearly evergreen”.

Note:

All evergreen plants can suffer when a long frost period occurs. It is essential that evergreens be thoroughly watered in late autumn and that the moisture content of the soil be checked during the mild phases of winter.

Genus/species/variety	Nearly evergreen	evergreen
1. Small trees		
Ilex aquifolium varieties		+
Quercus turneri 'Pseudoturneri'	+	
2. Large shrubs		
Bamboo species and varieties		+
Berberis julianae		+
Buxus sempervirens varieties		+
Cotoneaster salicifolius in varieties	+	+
Cotoneaster watereri varieties	+	+
Ilex altaclarensis varieties		+
Ilex aquifolium varieties		+
Ligustrum ovalifolium	+	
Ligustrum vulgare varieties	+	
Prunus laurocerasus varieties		+
Prunus lusitanica		+
Pyracantha species and varieties	+	
Rhododendron species and varieties		+
Stranvaesia davidiana		+
3. Normal shrubs		
Aucuba japonica varieties		+
Bamboo species and varieties		+
Berberis species and varieties	+	+
Cotoneaster franchetii	+	
Cotoneaster sternianus	+	
Elaeagnus multiflora	+	
Hedera helix 'Arborescens'		+
Ilex aquifolium varieties		+
Ilex crenata varieties		+
Ilex meserveae varieties		+
Kalmia latifolia varieties		+
Mahonia bealii		+
Osmanthus heterophyllus		+
Photinia fraseri 'Red Robin'		+

continued on next page

23 - Evergreen broad-leaf plants

continued

Genus/species/variety	Nearly evergreen	Evergreen
Pieris japonica varieties		+
Prunus laurocerasus varieties		+
Pyracantha species and varieties	+	
Rhododendron species and varieties	+	+
Rubus fruticosus	+	
Viburnum burkwoodii	+	
Viburnum 'Pragense'	+	+
4. Small shrubs		
Bamboo species and varieties		+
Berberis species and varieties		+
Ceanothus species and varieties	+	
Cotoneaster species and varieties	+	+
Daphne burkwoodii	+	
Elaeagnus ebbingei	+	+
Elaeagnus pungens varieties		+
Escallonia species and varieties	+	+
Euonymus fortunei varieties		+
Hypericum 'Hidcote'	+	
Hypericum patulum henryi	+	
Ilex crenata varieties		+
Ilex meserveae varieties		+
Kalmia angustifolia varieties		+
Kalmia latifolia varieties		+
Ledum palustre		+
Leucothoe walteri		+
Lonicera japonica repens	+	
Lonicera pileata	+	+
Lonicera nitida varieties	+	+
Mahonia aquifolium varieties		+
Pernettya mucronata varieties		+
Photinia fraseri 'Red Robin'		+
Pieris floribunda		+
Pieris japonica varieties		+
Prunus laurocerasus varieties		+
Rhododendron species and varieties	+	+
Skimmia japonica varieties		+
Viburnum tinus		+
5. Dwarf shrubs		
Arctostaphylos uva-ursi		+
Berberis species and varieties	+	+
Calluna vulgaris varieties		+
Cotoneaster dammeri varieties	+	+
Cotoneaster microphyllus varieties		+
Cotoneaster salicifolius varieties	+	+
Daboecia species and varieties		+

Evergreen broad-leaf plants - 23

Genus/species/variety	Nearly evergreen	Evergreen
Daphne cneorum		+
Empetrum nigrum		+
Erica species and varieties		+
Euonymus fortunei varieties		+
Gaultheria species and varieties		+
Hebe ochracea		+
Hypericum moserianum	+	
Lavandula angustifolia varieties		+
Ligustrum vulgare 'Lodense'	+	
Pachysandra terminalis		+
Rhododendron species and varieties	+	+
Rubus calycinoïdes	+	+
Vaccinium macrocarpon		+
Vaccinium vitis-idaea		+
Viburnum davidii		+
Vinca species and varieties		+
6. Climbers		
Akebia quinata	+	
Euonymus fortunei varieties		+
Hedera colchica varieties		+
Hedera helix varieties		+
Hedera helix hibernica		+
Lonicera japonica repens	+	
Lonicera henryi		+
Lonicera japonica varieties	+	+
Rubus fruticosus	+	
Rubus henryi		+
7. Conifers		
All without Ginkgo, Larix, Metasequoia, Pseudolarix und Taxodium		

24 - Plants that form runners

Subterranean runners are a form of vegetative propagation for plants. Numerous plants use this means of expanding, though it is not always clear whether runners can be formed anywhere, whether the roots have to have been mechanically damaged beforehand such as by digging, or whether runners are only formed under certain climatic conditions. Runners are characteristic of species; *Corylus avellana* seldom forms them while *Cornus sanguinea* forms them regularly at up to 100 per m². "Runners" is the collective term for root suckers. Shoots that spread above ground and take root on contact with the soil, such as those of *Salix*, are called layers.

Genus/species/variety	Distance from centre in m	Type of runners
1. Trees		
<i>Ailanthus altissima</i>	8-12	unhindered, like thickets
<i>Alnus incana</i>	4-7	like nests
<i>Aralia elata</i> and varieties	2-4	single
<i>Cercis siliquastrum</i>	2-3	like nests
<i>Gymnocladus dioicus</i>	2-6	like thickets
<i>Hippophae rhamnoides</i>	2-8	like thickets, rampant
<i>Liquidambar styraciflua</i>	1-2	single, rare
<i>Malus</i> -hybrids varieties	1-4	like nests
<i>Malus sylvestris</i>	2-4	single to nest-like
<i>Populus alba</i> and varieties	6-15	soread afar to thicket-like
<i>Populus berolinensis</i>	4-6	like nests
<i>Populus canescens</i>	6-10	single
<i>Populus nigra</i> and varieties	6-8	like nests
<i>Populus tremula</i> and varieties	10-18	forrest-like, rampant
<i>Prunus avium</i>	12-16	like nests, numerous
<i>Prunus padus</i>	6-12	like nests, in hundreds
<i>Pyrus communis</i>	2-6	like thickets
<i>Pterocarya fraxinifolia</i>	4-12	like thickets, in thousands
<i>Rhus glabra</i>	1-4	like thickets
<i>Rhus typhina</i> and varieties	1-8	like thickets
<i>Robinia pseudoacacia</i> varieties	1-25	like thickets, in hundreds
<i>Sorbus aucuparia</i>	2-4	single
<i>Sorbus torminalis</i>	6-8	like nests
<i>Ulmus carpinifolia</i>	4-10	like nests
<i>Ulmus laevis</i>	4-6	like nests
2. Shrubs		
<i>Acanthopanax sieboldianus</i>	0,5-1	like nests
<i>Aesculus parviflora</i>	2-4	like thickets, rampant
<i>Amelanchier ovalis</i>	1-2	single/nest like
<i>Aralia elata</i> and varieties	2-4	single
<i>Aronia melanocarpa</i>	0,5-1	like thickets
<i>Berberis vulgaris</i>	1-1,5	like nests
<i>Chaenomeles</i> species and varieties	0,2-2	like nests
<i>Cornus canadensis</i>	0,2-0,4	like lawns
<i>Cornus sanguinea</i>	1-5	like thickets
<i>Cornus stolonifera</i> 'Flaviramea'	1-2	like thickets

Genus/species/variety	Distance from centre in m	Type of runners
<i>Corylus avellana</i>	0,5-1	single
<i>Elaeagnus commutata</i>	1-5	like thickets, rampant
<i>Euonymus europaeus</i>	1-3	single
<i>Fothergilla gardenii</i>	0,5-1,2	like thickets
<i>Gaultheria procumbens</i>	0,2-0,4	like lawns
<i>Gaultheria shallon</i>	0,5-1	like thickets, rampant
<i>Hippophae rhamnoides</i>	2-8	like thickets, rampant
<i>Hydrangea arborescens</i> varieties	0,5-1	like nests
<i>Hydrangea quercifolia</i>	1-1,5	single
<i>Hypericum calycinum</i>	0,2-1	like lawns, rampant
<i>Myrica gale</i>	0,5-1,2	like thickets
<i>Pernettya mucronata</i> varieties	0,3-0,8	like thickets
<i>Phyllostachys</i> species and varieties	0,5-8	like nests and like thickets
<i>Prunus spinosa</i>	2-10	like thickets
<i>Prunus tenella</i> and varieties	0,5-1,5	like thickets
<i>Pseudosasa japonica</i>	0,5-1,5	like thickets
<i>Robinia hispida</i>	0,5-2	like nests
<i>Rosa blanda</i>	0,5-2	like thickets
<i>Rosa canina</i>	1-2	like nests
<i>Rosa carolina</i>	0,5-2	like thickets, rampant
<i>Rosa gallica</i>	0,5-6	like thickets, rampant
<i>Rosa nitida</i>	0,2-1	like thickets, rampant
<i>Rosa pimpinellifolia</i>	0,1-2	like thickets, rampant
<i>Rosa rugotida</i>	0,5-2	like thickets, rampant
<i>Rosa rugosa</i>	0,5-2	like thickets, rampant
<i>Rubus idaeus</i>	0,2-2	like nests
<i>Sambucus canadensis</i> varieties	1-1,5	single
<i>Sasa palmata</i>	0,5-1,5	like thickets
<i>Sasa veitchii</i>	0,5-2	like thickets, extrem rampant
<i>Sorbaria sorbifolia</i>	0,2-2	like thickets, rampant
<i>Symphoricarpos albus laevigatus</i>	0,2-2	like thickets
<i>Syringa vulgaris</i>	0,5-2	like thickets
<i>Ulex europaeus</i>	0,5-2	like thickets
<i>Vaccinium corymbosum</i>	0,5-1	like nests
<i>Vaccinium vitis-idaea</i> varieties	0,1-0,3	like lawns
<i>Viburnum farreri</i>	0,5-1,5	like nests
3. Climbers		
<i>Akebia quinata</i>	0,5-2	like nests, rampant
<i>Celastrus orbiculatus</i>	1-2	like nests
<i>Lonicera japonica</i> varieties	0,5-1	like nests
<i>Lonicera periclymenum</i>	0,5-1	like nests

25 - Characteristics of the root system of the trees

Knowledge of the root characteristics of plants is very limited and also controversial. It is thus understandable that the following table cannot provide sufficient, certain answers to all questions. The shape of the roots is genetically determined; one makes distinctions between shallow, cordate, and deep roots, though mixed forms occur in nature. It is not at all true that the root system has the same shape and spread as the branches above ground. If that were true, the spruce would have to have deep roots with a conical structure; in fact, it has shallow roots with a few individual deep roots. The root structures of nursery cultivated plants do not exactly correspond to their natural roots in the wild. Regular training produces a unified root ball, allowing the plants to be prepared for transport and transplanting so they can survive easily. Once they have reached their final destination, they can be expected to develop the type of root characteristic of their species, though not quite as completely as in the wild. All interference around the rooted area should remain limited; the resistance qualities listed should not be taken as a license to dig freely into the root system. For further tips, see the species descriptions.

Genus/species/variety	Root system type	Lifting of pavement	Covering with too much soil	Response to mechanical damage	Penetrating sewage lines
1. Large trees					
Acer platanoides varieties	shallow/cordate	possible	possible	tolerant	possible
Acer pseudoplatanus varieties	deep	rare	quite tolerant	tolerant	frequent
Acer saccharinum and varieties	extremely shallow	strong	quite tolerant	sensitive	preferred
Aesculus hippocastanum	shallow, far-r.*	strong	sensitive	sensitive	preferred
Ailanthus altissima	shallow	strong	sensitive	sensitive	frequent
Alnus glutinosa	shallow	rare	possible	tolerant	frequent
Betula maximowicziana	shallow/cordate	strong	sensitive	sensitive	
Betula papyrifera	shallow	possible	sensitive	sensitive	
Betula pendula	extremely shallow	strong	not possible	sensitive	rare
Castanea sativa	deep, dense	rare	possible		
Fagus sylvatica varieties	shallow/cordate	possible	not possible	sensitive	never
Fraxinus excelsior varieties	deep, wide	rare	possible	tolerant	frequent
Gleditsia triacanthos	shallow	rare	possible	tolerant	
Gymnocladus dioicus	cordate/deep	possible	sensitive	sensitive	
Juglans nigra	extremely deep	strong	possible	sensitive	rare
Liriodendron tulipifera	shallow, meaty	possible	sensitive	sensitive	
Platanus acerifolia	cordate	strong	quite tolerant	tolerant	frequent
Populus species and varieties	shallow	strong	quite tolerant	tolerant	preferred
Quercus cerris	deep	rare	possible	tolerant	frequent
Quercus frainetto	deep				
Quercus petraea	deep	rare	possible	tolerant	frequent
Quercus robur	deep	rare	possible	tolerant	frequent
Quercus rubra	shallow	strong	sensitive	sensitive	frequent
Robinia pseudoacacia varieties	shallow, far-r.*	strong	low	tolerant	never
Salix alba varieties	shallow	strong	quite tolerant	tolerant	preferred
Tilia species and varieties	cordate, intense	strong	low	tolerant	never
Ulmus carpinifolia	shallow/deep	strong	possible	tolerant	frequent
Ulmus glabra	deep	strong	possible	tolerant	frequent
Ulmus laevis	deep	rare	sensitive	sensitive	possible

Explanation of symbols: shallow = shallow root system / cordate = cordate root system / deep = deep root system (far-r.* = far-reaching)

Characteristics of the root system of the trees - 25

Genus/species/variety	Root system type	Lifting of pavement	Covering with too much soil	Response to mechanical damage	Penetrating sewage lines
2. Medium-sized trees					
Acer campestre and varieties	cordate	rare	possible	tolerant	rare
Acer negundo and varieties	shallow	possible	sensitive	sensitive	frequent
Acer platanoides varieties	shallow/cordate	possible	possible	tolerant	frequent
Acer rubrum and varieties	shallow	possible	sensitive	sensitive	frequent
Acer saccharinum 'Wieri'	extremely shallow	strong	quite tolerant	sensitive	preferred
Aesculus flava 'Vestita'	cordate			sensitive	
Alnus cordata	shallow	rare	possible		
Alnus incana	shallow	possible	possible	tolerant	preferred
Alnus spaethii	shallow				
Betula ermanii	shallow	strong	sensitive	sensitive	
Betula nigra	shallow, dense	possible	sensitive	sensitive	rare
Betula pubescens	shallow/cordate		possible	tolerant	
Betula utilis	shallow	strong	sensitive	sensitive	
Carpinus betulus varieties	cordate, intense	rare	low	sensitive	
Cercidiphyllum japonicum	shallow/cordate	strong			
Corylus colurna	cordate	possible	low	sensitive	
Davidia involuocrata vilmoriniana	shallow		not possible	sensitive	
Euodia hupehensis	cordate	possible			
Fagus sylvatica varieties	shallow/cordate	possible	not possible	sensitive	rare
Fraxinus angustifolia 'Raywood'	deep		low	tolerant	
Fraxinus excelsior varieties	deep, far-reaching	rare	possible	tolerant	frequent
Juglans regia	deep	rare	possible	sensitive	
Liquidambar styraciflua	cordate, meaty	possible	low	sensitive	frequent
Nyssa sylvatica	deep		low	sensitive	
Paulownia tomentosa	deep	possible	low	tolerant	
Phellodendron amurense	shallow, far-r.*	strong	low		
Populus simonii	shallow	strong	possible	tolerant	frequent
Populus tremula	shallow	strong	possible	tolerant	preferred
Prunus avium	cordate	possible	low	sensitive	frequent
Pterocarya fraxinifolia	shallow, far-r.*	strong	possible	tolerant	preferred
Quercus coccinea	shallow	possible	sensitive	sensitive	frequent
Quercus macranthera	deep	rare	possible		
Quercus palustris	shallow	strong	sensitive	sensitive	frequent
Robinia pseudoacacia varieties	shallow	possible	low	tolerant	rare
Salix alba varieties	shallow	strong	quite tolerant	tolerant	preferred
Salix alba 'Tristis'	shallow	strong	low	tolerant	preferred
Sophora japonica	shallow	strong	low	sensitive	
Sorbus aucuparia varieties	shallow/cordate	strong	possible	sensitive	rare
Sorbus domestica	deep	strong	low		
Sorbus intermedia and varieties	cordate	possible	possible	tolerant	rare
Tilia americana varieties	cordate	possible	sensitive	sensitive	
Tilia cordata varieties	cordate, intense	strong	low	tolerant	rare
Tilia euchlora	cordate	strong	low	sensitive	
Ulmus-hybrids	cordate	possible	low		

Explanation of symbols: shallow = shallow root system / cordate = cordate root system / deep = deep root system (far-r.* = far-reaching)
continued on next page

25 - Characteristics of the root system of the trees

continued

Genus/species/variety	Root system type	Lifting of pavement	Covering with too much soil	Response to mechanical damage	Penetrating sewage lines
3. Small trees					
Acer ginnala	shallow	possible	low	sensitive	
Acer griseum	shallow/cordate	rare	sensitive	sensitive	
Acer japonicum varieties	shallow		not possible	sensitive	
Acer negundo varieties	shallow	possible	sensitive	sensitive	frequent
Acer palmatum varieties	shallow	rare	not possible	sensitive	
Acer pensylvanicum	shallow	rare	not possible	sensitive	
Acer rufinerve	shallow	rare	sensitive	sensitive	
Acer neglectum 'Annae'	shallow/cordate	possible			
Aesculus carnea varieties	shallow/cordate	strong	sensitive	sensitive	
Alnus cordata	shallow	rare	possible		
Amelanchier species	shallow	possible	sensitive	sensitive	
Aralia elata and varieties	shallow	rare	low	sensitive	
Betula albosinensis	shallow		sensitive	sensitive	
Buxus sempervirens varieties	cordate, intense	rare	low	tolerant	
Catalpa bignonioides	cordate, meaty	rare	low	sensitive	
Cercis siliquastrum	shallow	possible			
Cornus species and varieties	shallow/cordate	rare	low	sensitive	
Crataegus laevigata 'Paul's Scarlet'	deep	rare	sensitive	sensitive	rare
Crataegus lavalleyi 'Carrierei'	deep	rare	possible	tolerant	rare
Crataegus monogyna varieties	deep	rare	sensitive	sensitive	rare
Crataegus coccinea	deep		possible	tolerant	rare
Crataegus prunifolia varieties	deep	rare			
Davidia involucrata vilmoriniana	shallow		not possible	sensitive	
Elaeagnus angustifolia	shallow/deep		low		rare
Fraxinus ornus varieties	cordate/deep	possible	possible	sensitive	
Halesia carolina	shallow	rare	not possible	sensitive	
Hippophae rhamnoides	shallow/deep	strong	possible	tolerant	rare
Ilex aquifolium varieties	cordate	rare	sensitive	sensitive	rare
Koelreuteria paniculata	shallow	rare	sensitive	sensitive	rare
Laburnum species and varieties	shallow, with gaps	possible	low	sensitive	rare
Lonicera maackii	cordate	possible	sensitive	sensitive	rare
Magnolia species and varieties	shallow	possible	not possible	sensitive	rare
Malus-hybrids and varieties	shallow/cordate	possible	sensitive	sensitive	possible
Malus tschonoskii	cordate	rare			
Morus nigra	cordate		possible	tolerant	
Parrotia persica	shallow	possible	sensitive	sensitive	
Prunus species and varieties	cordate	possible	sensitive	sensitive	possible
Pyrus calleryana varieties	deep	rare	possible	tolerant	possible
Pyrus communis varieties	cordate/deep	possible	possible	tolerant	
Pyrus regelii	deep				
Pyrus salicifolia	deep		tolerant	possible	
Quercus pontica	deep	rare			
Quercus turneri 'Pseudoturneri'	deep	rare			
Rhus glabra	shallow	rare	sensitive	sensitive	

Explanation of symbols: shallow = shallow root system / cordate = cordate root system / deep = deep root system (far-r.* = far-reaching)

Characteristics of the root system of the trees - 25

Genus/species/variety	Root system type	Lifting of pavement	Covering with too much soil	Response to mechanical damage	Penetrating sewage lines
Rhus typhina	shallow, far-r.*	strong	sensitive	sensitive	
Robinia 'Casque Rouge'	shallow	rare	sensitive	sensitive	
Salix species and varieties	shallow	strong	quite tolerant	tolerant	preferred
Sorbus species and varieties	cordate/deep	possible	sensitive	sensitive	possible
4. Conifers					
Abies species and varieties	cordate/deep	possible	possible	sensitive	rare
Cedrus species and varieties	cordate/deep	rare	possible	sensitive	rare
Chamaecyparis species and varieties	shallow, intense	possible	sensitive	sensitive	rare
Cupressocyparis leylandii	cordate	possible	sensitive		
Ginkgo biloba	cordate	rare	sensitive	sensitive	
Juniperus virginiana varieties	shallow/deep	rare	possible	tolerant	
Larix species and varieties	cordate/deep	possible	possible	tolerant	
Metasequoia glyptostroboides	shallow	strong	sensitive	sensitive	possible
Picea species and varieties	shallow	possible	sensitive	sensitive	rare
Pinus species and varieties	shallow/deep	strong	possible	tolerant	rare
Pseudolarix amabilis	deep	rare			rare
Pseudotsuga menziesii caesia	cordate	rare	low		rare
Sciadopitys verticillata	shallow, meaty	rare	not possible	sensitive	rare
Sequoiadendron giganteum	shallow/deep	possible	not possible	sensitive	rare
Taxodium distichum	shallow, far-r.*	possible	low	tolerant	possible
Taxus baccata	cordate	possible	low		rare
Thuja species and varieties	shallow, dense	possible	low	sensitive	rare
Thujopsis dolabrata	shallow	possible	low		
Tsuga species and varieties	shallow	possible	sensitive	sensitive	rare

Explanation of symbols: shallow = shallow root system / cordate = cordate root system / deep = deep root system (far-r.* = far-reaching)

Thorny and prickly plants - 26

Thorns are pointed, sharp, prickly organs created out of the transformation of leaves or shoots, such as with Rhamnus catharticus. On leaves, thorns are formed from needle-like projections on serrated or notched leaf edges, such as with Mahonia aquifolium.

Prickles occur on plants as the outgrowths of the outer layer of bark or skin, such as with roses or blackberries.

The formation of thorns and prickles is not a constant, but depends on:

- location (Prunus spinosa is thornier on dry soil than on fresh)
- age (young specimen of Ilex aquifolium are thornier than older ones)
- cutting (more thorns on leaves)

Thorny or prickly trees and shrubs can replace fences. When these plants are pruned they become impenetrable due to their dense branching and the increased amount of thorns. This makes for safe hiding spots for small animals and birds.

Note:

In the overview, no distinction is made between thorns and prickles.

continued on next page

26 - Thorny and prickly plants

continued

Genus/species/variety	Thorns or prickles on		
	Stem	Twig	Leaf
1. Deciduous trees			
Aralia elata and varieties	+		
Crataegus species and varieties	+	+	
Elaeagnus angustifolia	+	+	
Gleditsia triacanthos	+	+	
Hippophae rhamnoides	+	+	
Ilex aquifolium and varieties			+
Malus sylvestris		+	
Pyrus communis	+	+	
Pyrus salicifolia		+	
Pyrus regelii	+	+	
2. Shrubs			
Acanthopanax sieboldianus		+	
Berberis species and varieties		+	+
Chaenomeles species and varieties		+	
Crataegus species and varieties	+	+	
Elaeagnus pungens 'Maculata'		+	
Genista lydia		+	
Hippophae rhamnoides	+	+	
Ilex altaclarensis varieties			+
Ilex aquifolium varieties			+
Ilex meserveae varieties			+
Lycium barbarum		+	
Mahonia species and varieties			+
Mespilus germanica	+	+	
Osmanthus heterophyllus			+
Pernettya mucronata			+
Prunus spinosa	+	+	
Pyracantha species and varieties	+	+	
Rhamnus catharticus		+	
Ribes divaricatum		+	
Rosa species and varieties		+	
Rubus species and varieties		+	
Ulex europaeus	+	+	
3. Climbers			
Rosa species and varieties		+	
Rubus species and varieties		+	
4. Conifers			
Araucaria araucana		+	+
Cedrus deodara varieties			+
Juniperus chinensis varieties		+	+
Juniperus communis varieties		+	+
Juniperus media varieties			+
Juniperus squamata		+	+
Picea abies varieties			+
Picea pungens varieties			+
Pinus leucodermis			+
Pinus nigra and varieties			+
Pinus sylvestris and varieties			+

Plants with conspicuous bark colours - 27

Many plants develop bark colours that differ from normal colours. Normally, grey-brown or blackish coloured bark with lengthways fissures is found, occasionally with scaly peelings. The conspicuously coloured stems and twigs are only recognisable if the bark is smooth.

Note: Damage to bark, stem or twigs will provoke a bark development in which the characteristic colour of the smooth bark is irretrievably lost. The bark colour typical of the species disappears with age and is gradually replaced by a dull grey bark.

Our tip: Shrubs can be made to form new shoots with generous pruning in spring. The new twigs then display the typical, original bark colour in the following year.

Genus/species/variety	Bark colour	Note
1. Trees		
Acer griseum	cinnamon-red	peeling off in patches
Acer pensylvanicum	green with white lengthways stripes	
Acer rufinerve	grey-green and white lengthways stripes	an stem and twigs
Betula albosinensis	pink-white to copper-red	
Betula ermanii	white	
Betula maximowicziana	pale white to copper-brown	
Betula nigra	reddish to black-brown	peeling off in patches
Betula papyrifea	white	crossways stripes
Betula pendula	white	black bark when old
Betula pubescens	white	crossways stripes
Betula utilis	shimmering white	peeling off like paper
Malus sylvestris	scaly, reddish, light brown	
Parrotia persica	scaly, white, reddish, green	only at th base of the stem
Phellodendron amurense	light grey with strips of bork	
Platanus acerifolia	scaly light grey to light brown	Scaly, peel off in large sections
Populus simonii	whitish grey	stays smooth a long time
Populus tremula	light silver-grey	stays smooth a long time
Prunus maackii	shiny cinnamon-red	crossways stripes
Prunus maackii 'Amber Beauty'	shiny dark brown	crossways stripes
Prunus serrula	shiny mahogany-red	crossways stripes
Prunus schmittii	shiny dark brown	crossways stripes
Prunus serrulata varieties	shiny red-brown	crossways stripes
Populus alba 'Nivea'	white to light grey	bark pattern when old
Salix acutifolia 'Pendulifolia'	glaucous silver-blue	on 2-4 year twigs, cutting necessary
Salix daphnoides varieties	glaucous silver-blue	on 2-4 year twigs, cutting necessary
Salix alba 'Tristis'	bright yellow to yellow-green	only young twigs
Sorbus decora	bronze	crossways stripes

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27 - Plants with conspicuous bark colours

continued

Genus/species/variety	Bark colour	Note
2. Shrubs		
Bamboo species and varieties	green with yellow or black	only thin out
Caryopteris clandonensis i.S.	silvery grey	cut yearly
Cornus alba	brown-red	only on 2-4 year twigs, regular thinning out
Cornus alba 'Elegantissima'	dark red	as above
Cornus alba 'Kesselringii'	black to black-red	as above
Cornus alba 'Sibirica'	bright red	as above
Cornus alba 'Spaethii'	dark red	as above
Cornus sanguinea	dark red	
Cornus stolonifera 'Flaviramea'	yellow	as above
Cornus stolonifera 'Kelsey'	fresh green to reddish	as above
Cytisus scoparius and hybrids	dark green	as above
Euonymus species	green with cork stripes	do not cut, only thin out
Hydrangea quercifolia	yellow-brown	peeling off in patches
Kerria japonica and varieties	fresh green	
Lonicera caerulea	yellow to orange-brown	peeling off in patches
Lycium barbarum	light grey	
Nothofagus antarctica	shiny red-brown	crossways stripes
Perovskia abrotanoides	tomentose grey	
Salix balsamifera mas	shiny red-brown to green	
Salix triandra	scaly cinnamon-red	base of stem
Stephanandra incisa 'Crispa'	red-brown	
Stephanandra tanakae	cinnamon-red	thin out

28 - Plants that need light

Plants that need plenty of light are often also pioneer plants, i.e. they are the first to settle on fallow land. The older they get, the less they tolerate any type of shade. They initially try to grow into the light when they are in the shade. But if shade-tolerant, more dominant plants (even large shrubs) come too close for long periods, they lose their leaves and then die. Plants that form runners, such as *Rhus typhina*, try to get out of the shade with increased production of runners. And the following should be kept in mind: the poorer the location, for instance dry soil that is not nutritious, the more light is needed.

Note:

All varieties that at least tolerate shade when young or still come to terms with shady areas when old have been left out.

Genus/species/variety	Reaction to shade
1. Deciduous trees	
<i>Acer ginnala</i>	short-lived in shade, crooked habit
<i>Ailanthus altissima</i>	forms runners, crooked stem
<i>Alnus incana</i>	crooked stem

Genus/species/variety	Reaction to shade
Betula species and varieties	crooked stem
Cercis siliquastrum	crooked stem
Fraxinus ornus varieties	no flowers
Gleditsia triacanthos varieties	crooked stem
Hippophae rhamnoides	short lived, forms runners
Koelreuteria paniculata	extremely crooked habit
Liquidambar styraciflua	crooked stem, atypical, broken-up crown
Morus nigra	crooked stem, atypical, broken-up crown
Nyssa sylvatica	crooked stem, atypical, broken-up crown
Paulownia tomentosa	crooked stem, atypical, broken-up crown
Platanus acerifolia	tolerates light shade
Populus species and varieties	short-lived, forms runners
Prunus species and varieties	crooked stem, atypical, broken-up crown
Pyrus calleryana varieties	sensitive to frost
Pyrus regelii	crooked stem
Pyrus salicifolia	short lived
Rhus glabra	short-lived, forms runners
Rhus typhina	short-lived, forms runners
Robinia pseudoacacia varieties	crooked stem, short lived
Salix species and varieties	crooked habit, short lived,
Sophora japonica	crooked stem, more sensitive to frost
Tilia euchlora	crooked stem, atypical, broken-up crown
Tilia tomentosa varieties	persistend foliage, susceptible to breaking and frost
2. Shrubs	
Buddleja species and varieties	no flowers
Calluna vulgaris varieties	no flowers, shaggy-unkempt
Caryopteris clandonensis varieties	short lived
Chionanthus virginicus	crooked habit
Cotoneaster sternianus	crooked habit
Cytisus species and varieties	short lived
Elaeagnus species and varieties	crooked habit
Erica species and varieties	short lived, loses its compactness
Genista species and varieties	no flowers
Hitocus syriacus varieties	crooked habit, no flowers
Hippophae rhamnoides	short lived, forms runners
Hypericum kalmianum varieties	short lived
Lavandula angustifolia varieties	no flowers, short lived
Lespedeza thunbergii	no flowers
Perovskia abrotanoides	crooked habit, short lived
Prunus cistena	leaves turn green, crooked habit
Prunus mahaleb	crooked stem, atypical, broken-up crown
Rhus typhina varieties	crooked habit, forms runners
Ribes sanguineum varieties	crooked habit, short lived
Rosa glauca	crooked habit, short lived
Salix species and varieties	crooked habit, short lived
Syringa hyacinthiflora varieties	no flowers

continued on next page

28 - Plants that need light

continued

Genus/species/variety	Verhalten bei Beschattung
Syringa prestoniae varieties	crooked habit, no flowers
Tamarix species	crooked habit
Ulex europaeus	crooked habit, forms runners
Vaccinium macrocarpon	short lived
3. Climbers	
Campsis tagliabuana	no flowers
Clematis texensis	no flowers
Jasminum nudiflorum	no flowers
Wisteria species and varieties	few flowers, thinned out
4. Conifers	
Abies concolor	turns green
Abies procera 'Glauca'	turns green
Araucaria araucana	
Cedrus species and varieties	loses its leaves
Cupressocyparis leylandii varieties	thins out or loses its leaves
Ginkgo biloba	extremely crooked habit
Juniperus species and varieties	thins out or loses its leaves
Larix species and varieties	crooked stem, atypical, broken-up crown
Picea orientalis varieties	thins out or loses its leaves
Picea glauca varieties	thins out or loses its leaves
Picea pungens varieties	turns green or thins out partially or completely
Pinus species and varieties	thins out or loses its leaves
Pseudolarix amabilis	crooked stem, atypical, broken-up crown
Taxodium distichum	atypical, broken-up crown

29 - Shade-tolerant plants

Few plants like shade. Most varieties may tolerate semi-shade or even full shade when young, but the older they get, the more light they need. Plants in the shade regenerate insufficiently. Generous pruning does not cause them to create new shoots, but stops shooting altogether in the shade. Full shade does not mean dark shade like in a spruce forest, but only far-reaching protection from sun rays with wandering spots of light during the course of the day. Under the deep-reaching branches of large trees or draped shrubs, no long-term underplanting is possible even with shade-tolerant plants.

Genus/species/variety	Semi-shade	Full shade
1. Deciduous trees		
Acer campestre	+	
Acer platanoides in grünlaubigen Sorten	(+)	
Acer griseum	+	

Genus/species/variety	Semi-shade	Full shade
Acer japonicum varieties	+	
Acer pensylvanicum	+	+
Acer rufinerve	+	
Acer neglectum 'Annae'	+	(+)
Carpinus betulus varieties	+	(+)
Cornus species and varieties	+	
Crataegus species and varieties	+	
Fagus sylvatica all green varieties	+	+
Ilex aquifolium and varieties	+	+
Malus sylvestris	+	
Ostrya carpinifolia	+	+
Prunus padus	+	
Sorbus aucuparia	+	+
Sorbus domestica	+	
Sorbus torminalis	+	+
Stewartia pseudocamellia	+	
Tilia americana varieties	+	
Tilia platyphyllos	+	
Ulmus carpinifolia	+	
Ulmus glabra	+	
2. Shrubs		
Acer palmatum varieties	+	
Aesculus parviflora	+	
Aronia species and varieties	+	
Aucuba japonica and varieties	+	
Berberis species and varieties	+	
Buxus semevirens varieties	+	+
Cornus species and varieties	+	(+)
Corylus avellana	+	
Crataegus species and varieties	+	
Daphne mezereum varieties	+	
Eleaegnus ebbingei	+	
Euonymus species and varieties	+	
Euonymus fortunei varieties	+	+
Fothergilla species	+	+
Gaultheria species and varieties	+	+
Hydrangea species and varieties	+	(+)
Ilex altaclarensis varieties	+	+
Ilex aquifolium varieties	+	+
Ilex meserveae varieties	+	
Kalmia species and varieties	+	
Kerria japonica	+	+
Leucothoe walteri	+	+
Ligustrum species and varieties	+	(+)
Lonicera species and varieties	+	+

Explanation of symbols: (+) = of limited usefulness

continued on next page

29 - Shade-tolerant plants

continued

Genus/species/variety	Semi-shade	Full shade
Magnolia stellata varieties	(+)	
Mahonia species and varieties	+	+
Mespilus germanica	+	
Osmanthus heterophyllus	+	+
Pachysandra terminalis	+	+
Philadelphus species and varieties	+	
Photinia villosa	+	
Pieris species and varieties	+	+
Prunus laurocerasus varieties	+	+
Prunus lusitanica	+	+
Prunus padus	+	
Ptelea trifoliata	+	+
Rhamnus species and varieties	+	+
Rhododendron species and varieties	+	
Rhodotypos scandens	+	+
Ribes alpinum varieties	+	+
Ribes aureum	+	
Ribes divaricatum	+	
Rosa arvensis	+	
Rosa multiflora	+	
Rubus species and varieties	+	+
Sambucus species and varieties	+	
Skimmia japonica and varieties	+	+
Sorbus species and varieties	+	
Sorbaria sorbifolia	+	+
Spiraea species and varieties	+	
Staphylea colchica	+	
Stranvaesia davidiana	+	
Stephanandra species and varieties	+	
Stewartia pseudocamellia	+	
Vaccinium corymbosum	+	
Vaccinium vitis-idaea varieties	+	+
Viburnum species and varieties	+	
Viburnum tinus	+	+
Vinca species and varieties	+	+
Weigela species and varieties	+	
3. Climbers		
Actinidia species and varieties	+	
Akebia quinata	+	
Aristolochia macrophylla	+	+
Celastrus orbiculatus	+	+
Clematis alpina	+	
Clematis tangutica	+	
Clematis vitalba	+	+
Clematis viticella	+	

Explanation of symbols: (+) = of limited usefulness

Shade-tolerant plants - 29

Genus/species/variety	Semi-shade	Full shade
Euonymus fortunei varieties	+	+
Hedera colchica varieties	+	+
Hedera helix varieties	+	+
Hydrangea petiolaris	+	
Lonicera species and varieties	+	
Parthenocissus species and varieties	+	+
Polygonum aubertii	+	
Rosa arvensis	+	
Rubus caesius	+	+
Rubus fruticosus	+	+
Rubus henryi	+	+
4. Conifers		
Abies species and varieties (when young)	+	+
Chamaecyparis species and varieties	+	
Picea species and varieties (when young)	+	
Sciadopitys verticillata	+	+
Sequoia sempervirens	+	+
Sequoiadendron giganteum	+	
Taxus species and varieties	+	+
Thuja species and varieties	+	+
Thujopsis dolabrata	+	+
Tsuga species and varieties	+	+

Explanation of symbols: (+) = of limited usefulness

Wind resistant plants - 30

The wind-resistance of plants is not a constant, but depends on exposure, age and soil substrate, with the exposure playing a decisive role. Not every species is capable of growing in extreme, usually westward-oriented areas. Some only survive when other plants surround them or when they are grown on the side of the bed facing away from the wind where shoots, leaves and flowers do not dry out. These reactions are listed in the table along with the varieties that are suitable for all exposed areas – taking into consideration their other needs such as light needs. For most species, the elasticity of the branches and twigs noticeably decreases with age, which may mean that species that have great wind-resistance in the first 30 years eventually lose their elasticity and become extremely susceptible to breaking. When this happens, cutting back to further regeneration may be necessary, or the plant may need to be replaced. On heavy soil or when the water level is high, many species have a very shallow root system and are not really anchored in the soil so that they lose their stability as they grow. Here, the remedy is the correct selection of species and occasional pruning.

Note:

In situations with permanent strong winds or vacuums or at outlets for outgoing warm air, no plant can survive.

Genus/species/variety	Extreme areas	All exposures
1. Indigenous species		
Acer campestre	+	+
Acer platanoides		+
Acer pseudoplatanus	+	+

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30 - Wind resistant plants

continued

Genus/species/variety	Extrem areas	All exposures
Alnus glutinosa		+
Alnus incana	+	+
Amelanchier ovalis	+	+
Berberis vulgaris		+
Betula pubescens	+	
Carpinus betulus	+	+
Castanea sativa		+
Clematis vitalba		+
Colutea arborescens		+
Cornus mas		+
Cornus sanguinea	+	+
Crataegus laevigata		+
Crataegus monogyna	+	+
Euonymus europaeus		+
Fagus sylvatica	+	+
Fraxinus excelsior		+
Hippophae rhamnoides	+	
Ilex aquifolium		+
Juglans regia varieties		+
Ligustrum vulgare		+
Malus sylvestris		+
Myrica gale	+	
Populus alba		+
Populus nigra varieties		+
Populus tremula	+	+
Prunus mahaleb		+
Prunus spinosa	+	+
Pyrus communis		+
Quercus petraea		+
Quercus robur		+
Rhamnus species		+
Rosa canina	+	
Rosa glauca	+	
Rosa pimpinellifolia	+	
Rosa rubiginosa	+	
Salix species and varieties		+
Sambucus species and varieties		+
Sorbus species and varieties		+
Ulex europaeus	+	+
Ulmus species and varieties		+
Viburnum species and varieties	+	
2. Indigenous conifers		
Abies alba		+
Juniperus communis varieties		+
Larix decidua	+	+
Pinus cembra	+	+

Genus/species/variety	Extreme areas	All exposures
Pinus mugo	+	+
Pinus sylvestris		+
Taxus baccata		+
3. Park trees and decorative shrubs		
Alnus cordata	+	+
Alnus spaethii		+
Amelanchier species and varieties	+	+
Aronia species and varieties		+
Bamboo species and varieties		+
Betula species and varieties		+
Caragana arborescens	+	
Corylus colurna		+
Cotoneaster (summergreen)		+
Crataegus species and varieties		+
Elaeagnus species and varieties	+	
Forsythia species and varieties		+
Fraxinus ornus varieties		+
Juglans nigra	+	+
Kolkwitzia amabilis		+
Ligustrum species and varieties		+
Lonicera korolkowii zabelii		+
Lonicera ledebourii		+
Lycium barbarum	+	
Philadelphus species and varieties		+
Photinia villosa		+
Physocarpus opulifolius		+
Platanus acerifolia		+
Ptelea trifoliata		+
Pyracantha species and varieties		+
Pyrus calleryana varieties		+
Pyrus salcifolia		+
Quercus cerris	+	+
Quercus species and varieties		+
Ribes divaricatum	+	+
Sorbaria sorbifolia		+
Sorbus americana		+
Sorbus species and varieties		+
Spiraea species and varieties		+
Syringa vulgaris	+	
4. Climbers		
Actinidia arguta		+
Celastrus orbiculatus		+
Clematis tangutica		+
Parthenocissus quinquefolia		+

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30 - Wind resistant plants

continued

Genus/species/variety	Extreme areas	All exposures
5. Conifers		
Abies species and varieties		+
Araucaria araucana	+	+
Cedrus species and varieties		+
Chamaecyparis species and varieties		+
Cupressocyparis leylandii varieties	+	+
Ginkgo biloba		+
Juniperus species and varieties		+
Larix kaempferi	+	+
Metasquoia glyptostroboides		+
Microbiota decussata		+
Picea sitchensis	+	+
Pinus species and varieties		+
Sequoia sempervirens	+	+
Sequoiadendron giganteum	+	+
Taxus species and varieties		+
Thuja species and varieties		+
Thujopsis dolabrata		+
Tsuga species and varieties		+

31 - Plants for damp and flooded soil

Although many plants can grow in moist to damp soil, most prefer less damp areas. Too much moisture means insufficient oxygen for the roots of the plants. In such areas, most plants have extremely shallow roots. Floods are not tolerated equally well in all seasons. Trees with full foliage are extraordinarily sensitive to long floods in summer. Excess moisture and week-long floods are best tolerated from late winter into spring.

Genus/species/variety	Tolerates dampness	Short floods	Long floods
1. Deciduous trees			
Acer campestre	-	+	-
Acer nedundo	+	+	+
Acer platanoides varieties	-	+	-
Acer pseudoplatanus varieties	+	+	-
Acer rubrum	+	+	+
Acer saccharinum varieties	+	+	+
Aesculus flava varieties	+	+	-
Aesculus hippocastanum	-	+	-
Alnus species and varieties	+	+	+
Aralia elata and varieties	+	+	
Betula nigra	+	+	-
Betula pubescens	+	+	

Plants for damp and flooded soil - 31

Genus/species/variety	Tolerates dampness	Short floods	Long floods
Carpinus betulus	-	+	-
Catalpa bignonioides	+	+	-
Cercidiphyllum japonicum	-	+	-
Corylus colurna	+	+	-
Fraxinus excelsior varieties	+	+	-
Gleditsia triacanthos varieties	+	+	-
Gymnocladus dioicus	+	+	-
Juglans regia	+	+	-
Liquidambar styraciflua	+	+	+
Liriodendron tulipifera	+	+	-
Magnolia kobus	-	+	-
Malus sylvestris	-	+	-
Nyssa sylvatica	+	+	-
Platanus acerifolia	+	+	+
Populus species and varieties	+	+	+
Prunus padus	+	+	+
Pterocarya fraxinifolia	+	+	+
Quercus palustris	+	+	-
Quercus robur	-	+	-
Salix species and varieties	+	+	+
Sorbus decora	+	+	-
Tilia cordata	-	+	-
Ulmus species and varieties	-	+	-
2. Shrubs			
Aesculus parviflora	-	+	-
Amelanchier species and varieties	+	+	-
Aronia species and varieties	+	+	+
Betula nana	+	+	-
Calycanthus floridus	+	+	-
Chionanthus virginicus	+	+	-
Clethra alnifolia	+	+	+
Cornus alba varieties	+	+	-
Cornus florida	+	+	-
Cornus sanguinea	-	+	-
Cornus stolonifera varieties	+	+	+
Elaeagnus commutata	-	+	-
Erica tetralix	+	-	-
Euonymus europaeus	+	+	-
Euonymus yedoensis varieties	+	+	-
Fothergilla gardenii	+	-	-
Fothergilla major	-	+	-
Gaultheria shallon	+	+	+
Hippophae rhamnoides	+	+	-
Holodiscus discolor ariifolius	+	+	-
Hydrangea species and varieties	+	+	-
Ilex verticillata	+	+	+
Kalmia species and varieties	+	+	-
Ledum palustre	+	+	+

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31 - Plants for damp and flooded soil

continued

Genus/species/variety	Tolerates dampness	Short floods	Long floods
Lonicera caerulea	+	+	-
Lonicera ledebourii	+	+	-
Magnolia stellata	+	+	-
Myrica gale	+	+	-
Parrotia persica	+	+	-
Pernettya mucronata varieties	+	+	-
Prunus padus	+	+	+
Rhamnus frangula	+	+	+
Rhododendron canadense	+	+	+
Rhododendron vaseyi	+	+	-
Rhododendron viscosum varieties	+	+	-
Rubus caesius	+	+	+
Rubus fruticosus	+	+	-
Rosa arvensis	+	+	-
Salix species and varieties	+	+	+
Sambucus nigra	+	+	-
Sorbaria sorbifolia	+	+	-
Stephanandra incisa 'Crispa'	+	+	-
Symphoricarpos albus laevigatus	+	+	-
Vaccinium corymbosum	+	+	+
Viburnum opulus varieties	+	+	+
3. Climbers			
Actinidia arguta	-	+	-
Akebia quinata	+	+	-
Aristolochia macrophylla	+	+	+
Celastrus orbiculatus	+	+	-
Clematis maximowicziana	-	+	-
Clematis vitalba	+	+	+
Clematis viticella	-	+	-
Euonymus fortunei varieties	+	+	-
Hedera species and varieties	+	+	-
Lonicera species and varieties	-	+	-
Parthenocissus quinquefolia	+	+	+
Polygonum aubertii (= Fallopia)	+	+	-
Wisteria sinensis	+	+	+
4. Conifers			
Juniperus horizontalis varieties	+	-	-
Metasequoia glyptostroboides	+	+	-
Picea sitchensis	+	+	-
Pinus monticola varieties	+	-	-
Pinus sylvestris varieties	+	-	-
Pinus strobus	+	-	-
Pinus wallichiana	+	-	-
Taxodium distichum	+	+	+
Thuja occidentalis varieties	+	+	-
Thuja plicata	+	+	-
Thuja standishii	+	-	-

Plants that withstand drought - 32

Most of the plants listed cannot be considered drought lovers; rather, they tolerate droughts. Many of them primarily like light and only move into dry areas because more aggressive plants do not follow them there.

The planting phase is critical as the plants have to be watered regularly to grow normally. After planting, they need to be watered regularly in the first few years—more often in dry periods. Stress due to drought means, for most plants, that their growth and foliage are reduced, their autumn colours appear earlier, their frost hardiness is reduced, and the plants are more sensitive to pollution. The plants may also have more insects or mites, which would lead to more difficulties in extreme situations.

Note:

The plants that are more sensitive after planting or when young have been noted.

Genus/species/variety	Response to drought
1. Deciduous trees	
Acer ginnala	
Acer negundo	only as shrub
Ailanthus altissima	
Alnus cordata	sensitive when young
Alnus incana	sensitive when young
Betula nigra	sensitive when young
Castanea sativa	grows poorly
Corylus colurna	grows poorly
Crataegus species and varieties	tree-grid must remain open
Gleditsia triacanthos varieties	not very susceptible to wind damage
Koelreuteria paniculata	
Malus tschonoskii	sensitive when young
Morus alba	very resistand
Morus nigra	sensitive when young
Ostrya carpinifolia	grows poorly
Paulownia tomentosa	very resistand
Populus species and varieties	only as shrub, short lived
Prunus fruticosa 'Globosa'	sensitive when young
Pyrus species and varieties	mature better
Pyrus salicifolia	mature better
Quercus cerris	crooked stem, only as shrub
Quercus frainetto	sensitive when young
Quercus macranthera	
Quercus petraea	crooked stem, only as shrub
Quercus turneri 'Pseudoturneri'	bushy
Rhus species and varieties	more runners
Robinia species and varieties	
Sophora japonica varieties	mature better
Sorbus aria varieties	sensitive when young
Sorbus domestica	grows poorly
Sorbus thuringiaca 'Fastigiata'	sensitive when young
Sorbus torminalis	grows poorly
Tilia tomentosa	sensitive when young

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32 - Plants that withstand drought

continued

Genus/species/variety	Response to drought
2. Shrubs	
Acanthopanax sieboldianus	grows poorly
Amelanchier ovalis	leaves fall early
Berberis ottawensis 'Superba'	
Berberis thunbergii varieties	thinned out
Berberis vulgaris	very resistant
Buddleja species and varieties	flowers winter faster
Caragana arborescens	
Cercis siliquastrum	mature better
Colutea arborescens	thinned out
Cornus mas	sensitive when young
Cornus sanguinea	
Cotinus coggygria varieties	better when maturing
Cotoneaster dielsianus	sensitive when young
Cotoneaster divaricatus	sensitive when young
Cotoneaster franchetii	sensitive when young
Cotoneaster sternianus	grows poorly
Crataegus species and varieties	
Cytisus species and varieties	
Elaeagnus species and varieties	very resistant
Genista species and varieties	
Hippophae rhamnoides	needs residue moisture
Lespedeza thunbergii	better when maturing
Ligustrum species and varieties	sensitive during planting
Lycium barbarum	
Mespilus germanica	better when maturing
Osmanthus heterophyllus	grows poorly
Perovskia species and varieties	stand on its own better
Physocarpus opulifolius	sensitive when young
Prunus mahaleb	very resistant
Prunus spinosa	twigs have more thorns
Pyracantha-hybrids	twigs have more thorns
Rhamnus catharticus	like thickets
Rhus species and varieties	more runners
Robinia species and varieties	very resistant
Rosa carolina	grows poorly
Rosa gallica	forms runners
Rosa glauca	very resistant
Rosa pimpinellifolia	loses its foliage early
Rosa rubiginosa	grows poorly
Rosa rugosa	very resistant
Rosa rugotida	very resistant
Salix repens argentea	needs residue moisture
Spiraea decumbens	
Syringa vulgaris	
Tamarix species and varieties	very resistant
Ulex europaeus	
Viburnum lantana	

Plants that withstand drought - 32

Genus/species/variety	Response to drought
3. Climbers	
Campsis radicans	grows poorly
Campsis tagliabuana	resistand
Celastrus orbiculatus	slow growing
Clematis maximowicziana	sensitive when young
Clematis vitalba	slow growing
Euonymus fortunei varieties	hardly climbs
Hedera species and varieties	more sensitive to frost
Jasminum nudiflorum	
Parthenocissus quinquefolia	thinned out, sensitive when young
4. Conifers	
Abies concolor	sensitive when young
Cedrus species and varieties	sensitive when young
Cupressocyparis leylandii	grows poorly, thinned out
Ginkgo biloba	grows poorly
Juniperus species and varieties	very resistand
Picea orientalis	sensitive when young
Picea pungens varieties	
Pinus contorta	squat
Pinus densiflora 'Pumila'	
Pinus jeffreyi	grows poorly
Pinus leucodermis	very resistand
Pinus mugo varieties	sensitive when young
Pinus nigra varieties	sensitive during planting
Pinus peuce	sensitive during planting
Pinus ponderosa	sensitive during planting
Pinus sylvestris varieties	
Pseudotsuga menziesii caesia	grows poorly

Plants for alkaline soil - 33

Many of the plants named occur on even neutral or slightly acidic soil in the wild without any noticeable problems. Soil humidity, structure and nutrition play important roles in addition to the soil pH. Numerous exotic species do not bind to chalk or alkaline soil in their native habitat, but rather respond with indifference. In contrast, in central Europe they prefer chalky soil where they can withstand more drought, are less damaged by frost, and can compete with strong-growing competition better. In conclusion, it is a complex matter that cannot be stated in general terms for every species.

	Alnus incana
1. Deciduous trees	Alnus spaethii
Acer campestre varieties	Corylus colurna
Acer platanoides varieties	Crataegus species and varieties
Acer pseudoplatanus varieties	Elaeagnus angustifolia
Acer neglectum 'Annae'	Euodia hupehensis

continued on next page

Fraxinus species and varieties

Gleditsia triacanthos varieties

Gymnocladus dioicus

Juglans nigra

Juglans regia

Koelreuteria paniculata

Laburnum species and varieties

Malus species and varieties

Morus species and varieties

Ostrya carpinifolia

Paulownia tomentosa

Phellodendron amurense

Populus alba 'Nivea'

Populus canescens

Populus nigra varieties

Prunus species and varieties

Pyrus species and varieties

Quercus species and varieties

Rhamnus catharticus

Rhus typhina

Robinia species and varieties

Salix alba varieties

Salix daphnoides varieties

Sophora japonica varieties

Sorbus aria varieties

Sorbus domestica

Sorbus intermedia varieties

Sorbus thuringiaca 'Fastigiata'

Sorbus torminalis

Tilia species and varieties

Ulmus species and varieties

2. Shrubs

Acanthopanax sieboldianus

Amelanchier ovalis

Berberis species and varieties

Buddleja species and varieties

Buxus sempervirens varieties

Caragana arborescens

Caryopteris species and varieties

Ceanothus delilianus 'Gloire de Versailles'

Cercis siliquastrum

Chionanthus virginicus

Colutea arborescens varieties

Cornus mas

Cornus sanguinea

Corylus species and varieties

Cotinus coggygria varieties

Cotoneaster species and varieties

Crataegus species and varieties

Cytisus beanii

Cytisus decumbens

Cytisus kewensis

Cytisus nigricans varieties

Cytisus purpureus

Daphne species and varieties

Elaeagnus species and varieties

Erica carnea varieties

Euonymus europaeus

Euonymus planipes

Forsythia species and varieties

Genista radiata

Hitocus syriacus varieties

Hippophae rhamnoides

Hypericum kalmianum 'Gemo'

Laburnum species and varieties

Lavandula angustifolia varieties

Ligustrum species and varieties

Lonicera japonica repens

Lonicera korolkowii zabelii in varieties

Lonicera xylosteum varieties

Lycium barbarum

Malus species and varieties

Mespilus germanica

Osmanthus heterophyllus

Perovskia abrotanoides

Philadelphus species and varieties

Prunus species and varieties

Ptelea trifoliata

Pyracantha hybrids

Rhamnus catharticus

Rhus typhina varieties

Ribes species and varieties

Rhodotypos scandens

Rhus species and varieties

Robinia hispida varieties

Rosa arvensis

Rosa canina varieties

Rosa gallica

Rosa glauca

Rosa moyesii

Rosa multibracteata

Rosa pimpinellifolia

Rosa rubiginosa

Rubus calycinoides

Rubus idaeus

Salix elaeagnos

Salix hastata 'Wehrhahnii'

Salix purpurea varieties

Salix repens argentea

Salix viminalis

Sambucus canadensis varieties

Sambucus nigra

Sorbaria sorbifolia

Spiraea bumalda varieties

Spiraea decumbens

Spiraea japonica varieties

Spiraea nipponica

Spiraea vanhouttei

Staphylea colchica

Syringa species and varieties

Tamarix species and varieties

Viburnum bodnantense 'Dawn'

Viburnum burkwoodii

Viburnum carlcephalum

Viburnum farreri

Plants for alkaline soil - 33

Viburnum lantana

Viburnum opulus

Viburnum rhytidophyllum

Viburnum tinus

Vinca species and varieties

3. Climbers

Actinidia arguta

Aristolochia macrophylla

Campsis radicans varieties

Clematis species and varieties

Euonymus fortunei varieties

Hedera species and varieties

Jasminum nudiflorum

Lonicera species and varieties

Parthenocissus quinquefolia varieties

Polygonum aubertii

Rosa – some climbing roses

4. Conifers

Abies concolor

Cedrus atlantica varieties

Cedrus libani

Chamaecyparis nootkatensis varieties

Ginkgo biloba

Juniperus chinensis varieties

Juniperus communis varieties

Juniperus media varieties

Juniperus sabina varieties

Juniperus squamata varieties

Juniperus virginiana varieties

Larix decidua

Microbiota decussata

Picea orientalis varieties

Picea pungens varieties

Pinus aristata

Pinus leucodermis

Pinus mugo varieties

Pinus nigra varieties

Taxus species and varieties

Thuja occidentalis varieties

Plants for acidic soil - 34

The degree of acidity of the soil depends, among other things, on the original rock type. Acidic soil can be of purely mineral (acidic sand or loam) or organic origin. The degree of acidity is stated as its pH value, with the range for acid-loving plants between pH 4 and pH 6.5. Between pH 6.5 and approx. pH 7.2, one speaks of neutral soil; above that, of alkaline. The pH value on its own does not tell us everything; a slightly acidic soil of pH 6, where air humidity is high and humus is present, is better for plants than a soil of pH 6 would be in a situation where the plants are exposed to heat and drought on non-nutritious sand or gravel.

Note:

Many of the species named thrive well in neutral soil, some of them even in slightly alkaline soil (see the individual descriptions).

1. Deciduous trees

Acer griseum

Acer japonicum varieties

Acer negundo varieties

Acer pensylvanicum

Acer rubrum

Acer rufinerve

Acer saccharinum varieties

Ailanthus altissima

Alnus glutinosa

Amelanchier species and varieties

Betula species and varieties

Castanea sativa

Cornus alternifolia

Cornus controversa

Cornus florida and varieties

Cornus kousa and C. kousa chinensis

Ilex aquifolium

Liquidambar styraciflua

Liriodendron tulipifera varieties

Magnolia species and varieties

Nyssa sylvatica

Parrotia persica

Populus tremula

Quercus coccinea

Quercus palustris

Quercus rubra

Salix fragilis

Sorbus aucuparia varieties

Sorbus americana

Sorbus arnoldiana varieties

Sorbus decora

Sorbus koehneana

continued on next page

Stewartia pseudocamellia

2. Shrubs

Acer japonicum varieties
Acer palmatum varieties
Arctostaphylos uva-ursi
Aronia species and varieties
Amelanchier species and varieties
Berberis thunbergii species and varieties
Betula nana
Callicarpa bodinieri 'Profusion'
Calluna vulgaris varieties
Chaenomeles species and varieties
Clethra alnifolia
Cornus alternifolia
Cornus canadensis
Cornus controversa
Cornus florida and varieties
Cornus kousa varieties
Cornus nuttallii
Corylopsis species and varieties
Cytisus Hybrids
Cytisus scoparius
Daboecia species and varieties
Empetrum nigrum
Enkianthus campanulatus
Erica cinerea varieties
Erica tetralix varieties
Erica vagans varieties
Escallonia species and varieties
Fothergilla species and varieties
Gaultheria species
Genista species and varieties
Halesia carolina
Hamamelis species and varieties
Hebe ochracea
Hydrangea species and varieties
Ilex species and varieties
Kalmia angustifolia 'Rubra'
Ledum palustre
Lespedeza thunbergii
Leucothoe walteri
Lonicera caerulea
Lonicera ledebourii
Magnolia species and varieties
Myrica gale
Parrotia persica
Pernettya mucronata varieties
Photinia villosa
Pieris species and varieties
Potentilla fruticosa varieties
Rhamnus frangula
Rhododendron species and varieties
Rosa blanda
Rosa carolina
Rosa multiflora varieties
Rosa rugotida
Rosa rugosa varieties
Rubus calycinoideis

Rubus fruticosus

Salix aurita
Salix balsamifera mas
Salix cinerea
Salix helvetica
Salix lanata
Salix repens argentea
Salix sachalinensis 'Sekka'
Salix triandra
Sambucus racemosa
Skimmia japonica varieties
Spiraea betulifolia varieties
Spiraea prunifolia
Spiraea thunbergii
Stephanandra incisa 'Crispa'
Syringa patula varieties
Ulex europaeus
Vaccinium species and varieties

3. Climbers

Hydrangea petiolaris
Lonicera periclymenum
Rosa multiflora varieties
Rubus fruticosus
Wisteria species and varieties

4. Conifers

Abies balsamea 'Nana'
Abies homolepis
Abies koreana
Abies procera 'Glauca'
Abies veitchii
Araucaria araucana
Cedrus deodara varieties
Chamaecyparis lawsonia varieties
Chamaecyparis pisifera varieties
Chamaecyparis obtusa varieties
Cryptomeria japonica varieties
Cupressocyparis leylandii varieties
Juniperus species and varieties
Picea breweriana
Picea glauca varieties
Picea sitchensis
Pinus banksiana
Pinus contorta varieties
Pinus jeffreyi
Pinus monticola varieties
Pinus mugo
Pinus ponderpink
Pinus pumila varieties
Pinus schweininii
Pinus strobus varieties
Pinus wallichiana varieties
Pseudolarix amabilis
Sciadopitys verticillata
Sequoiadendron giganteum varieties
Taxodium distichum

Plants for acidic soil - 34

Thuja occidentalis varieties

Thuja plicata varieties
Thuja standishii
Thujopsis dolabrata

Tsuga canadensis varieties
Tsuga diversifolia

Plants for light, sandy soil - 35

Few plants grow willingly on sandy soil. Those that do are forced into the sand by stronger competitors. If these competitors are absent, most of the plants named are quite able to thrive on normal soil. Almost all of the plants listed grow better if the sandy soil is somewhat fresh or even moist, contains loamy or humic components, and is not too lacking in nutrients. Just because the plants concerned settle on sandy soil does not mean they prefer a lack of nutrients or drought. It should also be kept in mind that sandy soil does not necessarily mean the soil is acidic, for the pH values may be far into the alkaline range.

Plants that have to make do with sandy soil differ from their relatives on better substrates in, among other things, their multiple stems, crooked growth, more plentiful runners, and shorter-lived leaves. Species susceptible to frost or breaking are at an advantage, however, on sandy soil; they are more prone to damage on loam or clay.

1. Deciduous trees

Acer campestre
Acer ginnala
Acer negundo varieties
Acer platanoides varieties
Acer rubrum varieties
Acer saccharinum varieties
Acer neglectum 'Annae'
Ailanthus altissima
Alnus cordata
Alnus incana
Amelanchier species
Arctostaphylos uva-ursi
Betula species and varieties
Castanea sativa
Cornus kousa
Elaeagnus angustifolia
Fraxinus ornus
Gleditsia triacanthos varieties
Hippophae rhamnoides
Koeleria paniculata
Populus species and varieties
Prunus mahaleb
Prunus serotina
Pyrus salicifolia
Quercus cerris
Quercus coccinea
Quercus petraea
Quercus rubra
Rhamnus catharticus
Rhus typhina
Robinia pseudoacacia varieties

Salix species and varieties
Sophora japonica
Sorbus aucuparia
Sorbus intermedia

2. Shrubs

Acer ginnala
Amelanchier species
Berberis ottawensis 'Superba'
Berberis thunbergii varieties
Buddleja alternifolia
Calluna vulgaris varieties
Caragana arborescens
Ceanothus delilianus 'Gloire de Versailles'
Chaenomeles speciosa
Colutea arborescens
Cornus kousa
Cornus mas
Cornus sanguinea
Cornus stolonifera 'Flaviramea'
Cotinus coggygria varieties
Cotoneaster dielsianus
Cytisus species and varieties
Elaeagnus species and varieties
Erica cinerea
Genista species and varieties
Hippophae rhamnoides
Hypericum calycinum
Hypericum kalmianum 'Gemo'
Lespedeza thunbergii
Ligustrum species and varieties
Lycium barbarum

continued on next page

35 - Plants for light, sandy soil

continued

Perovskia abrotanoides
Physocarpus opulifolius
Potentilla fruticosa varieties
Prunus mahaleb
Prunus serotina
Rhamnus catharticus
Rhamnus frangula
Rhododendron vaseyi
Rhus species and varieties
Ribes aureum
Ribes divaricatum
Rosa glauca
Rosa multiflora
Rosa nitida
Rosa pimpinellifolia
Rosa rugotida
Rosa rugosa
Rubus calycinoideus
Salix species and varieties
Symphoricarpos species and varieties
Tamarix species and varieties

Vaccinium vitis-idaea varieties
Viburnum lantana

3. Climbers

Actinidia arguta
Akebia quinata
Aristolochia macrophylla
Celastrus orbiculatus
Jasminum nudiflorum
Parthenocissus quinquefolia varieties
Polygonum aubertii
Wisteria sinensis

4. Conifers

Abies concolor
Juniperus species and varieties
Larix kaempferi
Picea sitchensis
Pinus species and varieties

36 - Plants for heavy, loamy soil or clay

Heavy loam, loess, or even clay are not optimal soil substrates for most plants. Plant habits are much smaller than on normal loam. Some trees and shrubs, such as Chaenomeles, react to this poorly aerated soil with chlorosis (yellowing of the leaves), with sensitivity to fungi (such as Juniperus), or with early leaf loss (such as with many Sorbus varieties). Other examples of sensitivity would be the extreme frost damage to Cotoneaster or the weakened habit of Picea abies. Soil improvements and loosening are therefore desirable to prevent or reduce such damage.

Note:

The list does not include any plants occasionally considered tolerant of clay but that displayed severe defects in the course of decades of observation in the test garden at Weihenstephan near Munich (heavy loess).

1. Deciduous trees

Acer negundo varieties
Acer platanoides varieties
Acer saccharinum varieties
Aesculus species and varieties
Alnus species and varieties
Aralia elata varieties
Betula nigra
Carpinus betulus varieties
Crataegus species and varieties
Fagus sylvatica varieties
Fraxinus excelsior varieties
Gymnocladus dioica
Ilex aquifolium varieties
Juglans nigra
Laburnum species and varieties
Liquidambar styraciflua

Lonicera maackii
Magnolia kobus
Populus species and varieties
Prunus avium
Prunus padus varieties
Prunus serrulata varieties
Pterocarya fraxinifolia
Quercus palustris
Quercus robur
Rhamnus catharticus
Salix species and varieties
Tilia species and varieties

2. Shrubs

Aralia elata
Bamboo species and varieties
Colutea arborescens

Cornus alba varieties
Cornus mas
Cornus sanguinea
Cornus stolonifera 'Flaviramea'
Corylus avellana
Corylus maxima 'Purpurea'
Cotoneaster species and varieties
Crataegus species and varieties
Deutzia species and varieties
Euonymus europaeus
Euonymus fortunei varieties
Euonymus planipes
Forsythia intermedia varieties
Hamamelis species and varieties
Hypericum calycinum
Ilex aquifolium varieties
Kerria japonica varieties
Laburnum species and varieties
Ligustrum vulgare varieties
Lonicera ledebourii
Lonicera maackii
Lonicera xylostereum
Mahonia aquifolium varieties
Philadelphus species and varieties
Physocarpus opulifolius
Potentilla species and varieties
Prunus spinosa
Pseudosasa japonica
Rhamnus species
Ribes species and varieties
Rosa arvensis
Rosa canina
Rosa multibracteata
Rosa rubiginosa
Rubus caesius
Rubus fruticosus
Rubus idaeus
Salix species and varieties

Sambucus species and varieties
Sorbaria sorbifolia
Spiraea species and varieties
Symphoricarpos species and varieties
Syringa species and varieties
Viburnum lantana
Viburnum opulus varieties
Viburnum plicatum varieties
Weigela species and varieties

3. Climbers

Aristolochia macrophylla
Celastrus orbiculatus
Clematis tangutica
Clematis vitalba
Euonymus fortunei varieties
Hedera helix
Parthenocissus quinquefolia varieties
Parthenocissus tricuspidata 'Veitchii'
Polygonum aubertii
Rosa arvensis
Rubus caesius
Rubus fruticosus

4. Conifers

Abies nordmanniana
Chamaecyparis species and varieties
Juniperus media varieties
Larix species and varieties
Metasquoia glyptostroboides
Picea orientalis varieties
Picea pungens varieties
Taxus species and varieties
Thuja species and varieties

Plants resistant to industrial pollution - 37

Resistance to industrial pollution cannot be stated in set figures. A majority of those on the list are included based on mere observation; few were systematically measured or even tested with exposure to gases. It is thus not surprising that much information is contradictory. These contradictions result from observations dating back to the end of the 19th century, the beginning of the 50s, and the 70s. Tests were carried out in various regions, some even overseas, so that the findings can hardly be compared. In the meantime, air pollution, measurement accuracy, and the assessment of toxins have changed so much that a general review is needed. Furthermore, sensitivity to industrial pollution depends among other things on nutritional conditions and exposure to heat and drought, which means that the same species may respond differently under varying circumstances. Of course, seasonal conditions also play a role.

The table cannot, therefore, give any conclusive answers. Information taken from D. DAVIS/H. GERHOLD, 1976; M. DIRR, 1983; G. KRÜSSMANN, 1970; H. RANFT, 1971; VEB Typenprojektierung Dtsch. Bauakademie, among other sources.

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37 - Plants resistant to industrial pollution

continued

Genus/species/variety	Resistant to industrial pollution	Negative experience
1. Deciduous plants		
Acanthopanax sieboldianus	++	
Acer campestre	++	*
Acer ginnala	++	
Acer negundo	++	*
Acer platanoides varieties	++	*
Acer rubrum varieties	++	*
Acer saccharinum varieties	++	
Aesculus hippocastanum varieties	+	
Aesculus parviflora	++	
Ailanthus altissima	++	
Alnus glutinosa	++	*
Alnus incana	++	*
Amelanchier species	+	
Aucuba japonica	++	
Berberis buxifolia 'Nana'	+	
Berberis gagnepainii lanceifolia	+	
Berberis julianae	+	
Berberis stenophylla	+	
Berberis thunbergii	++	*
Berberis verruculosa	++	
Betula papyrifera	+	*
Betula pendula	++	*
Betula pubescens	+	
Buddleja Davidi-hybrids	+	*
Buxus sempervirens	++	
Calycanthus floridus	++	
Calluna vulgaris	+	
Caragana arborescens	+	*
Castanea sativa	++	
Catalpa bignonioides	++	
Cercidiphyllum japonicum	+	
Chaenomeles japonica	+	*
Chaenomeles speciosa	+	
Chionanthus virginicus	++	
Clematis vitalba	++	
Colutea arborescens	+	*
Cornus alba varieties	+	*
Cornus florida varieties	++	
Cornus mas	+	*
Cornus sanguinea	++	*
Cornus stolonifera 'Flaviramea'	+	
Cotoneaster adpressus	+	
Cotoneaster dammeri	+	
Cotoneaster divaricatus	+	
Cotoneaster horizontalis	+	
Cotoneaster acutifolius	+	

Explanation of symbols: ++ = sufficiently resistant to industrial pollution / + = resistant to industrial pollution / * = contradictory or mostly negative experience

Plants resistant to industrial pollution - 37

Genus/species/variety	Resistant to industrial pollution	Negative experience
Cotoneaster microphyllus 'Cochleatus'	+	
Cotoneaster salicifolius floccosus	+	
Cotoneaster watereri	+	
Corylus avellana	+	*
Crataegus lavalley 'Carrierei'	++	
Crataegus monogyna	++	*
Crataegus prunifolia varieties	+	
Daphne mezereum	+	
Deutzia scabra varieties	+	
Elaeagnus angustifolia	++	*
Elaeagnus commutata	++	
Elaeagnus pungens varieties	+	
Erica carnea	+	
Erica vagans	+	
Euonymus europaeus	++	
Euonymus fortunei varieties	+	
Fagus sylvatica	+	*
Forsythia intermedia	+	
Fraxinus excelsior	++	*
Fraxinus angustifolia 'Raywood'	+	
Gaultheria procumbens	+	
Gaultheria shallon	+	
Genista tinctoria	+	
Gleditsia triacanthos	++	
Gymnocladus dioicus	+	
Hamamelis japonica	+	
Hippophae rhamnoides	+	
Hypericum calycinum	+	*
Ilex aquifolium	++	
Ilex crenata	+	
Juglans nigra	+	
Kalmia angustifolia	+	
Laburnum anagyroides	+	
Leucothoe walteri	+	
Ligustrum vulgare varieties	++	
Liriodendron tulipifera	++	*
Lonicera nitida varieties	+	
Lonicera pileata	+	
Lonicera tatarica	++	
Lonicera xylosteum	+	
Lycium barbarum	++	*
Mahonia aquifolium	+	*
Mahonia bealei	+	
Malus sylvestris	+	
Malus hybrids	+	
Morus species and varieties	+	
Nyssa sylvatica	++	

Explanation of symbols: ++ = sufficiently resistant to industrial pollution / + = resistant to industrial pollution / * = contradictory or mostly negative experience
continued on next page

37 - Plants resistant to industrial pollution

continued

Genus/species/variety	Resistant to industrial pollution	Negative experience
Osmanthus heterophyllus	+	
Pachysandra terminalis	+	
Paulownia tomentosa	+	
Phellodendron amurense	+	
Philadelphus coronarius	+	
Philadelphus 'Erectus'	+	
Physocarpus opulifolius	+	*
Pieris floribunda	++	
Pieris japonica	+	
Platanus acerifolia	++	
Populus balsamifera	+	*
Populus berolinensis	+	
Populus canadensis varieties	++	*
Populus tremula	++	
Prunus avium	+	
Prunus cerasifera 'Nigra'	+	
Prunus laurocerasus varieties	+	
Prunus mahaleb	+	
Prunus padus	++	
Prunus serotina	++	*
Prunus serrulata varieties	+	
Prunus spinosa	++	
Pyracantha coccinea	++	*
Pyrus calleryana varieties	+	
Quercus petraea	++	
Quercus palustris	++	
Quercus rubra	++	
Quercus turneri 'Pseudoturneri'	+	
Ribes alpinum	++	*
Ribes aureum	+	
Rhododendron catawbiense varieties	++	
Rhododendron - Japanese Azaleas	+	
Rhodotypos scandens	+	
Rhus species and varieties	++	*
Robinia pseudoacacia	++	*
Rosa canina	++	*
Rosa pimpinellifolia	+	
Rosa rubiginosa	+	
Rosa rugosa	+	*
Rubus fruticosus	+	
Salix acutifolia 'Pendulifolia'	+	
Salix alba	++	*
Sambucus nigra	++	
Sambucus racemosa	+	
Skimmia japonica	+	
Sophora japonica varieties	++	*
Sorbus aria	++	

Explanation of symbols: ++ = sufficiently resistant to industrial pollution / + = resistant to industrial pollution / * = contradictory or mostly negative experience

Plants resistant to industrial pollution - 37

Genus/species/variety	Resistant to industrial pollution	Negative experience
Sorbus aucuparia	+	*
Spiraea bumalda	++	
Spiraea vanhouttei	+	*
Stranvaesia davidiana	+	
Symphoricarpos albus laevigatus	++	
Symphoricarpos chenaultii	+	
Symphoricarpos orbiculatus	+	
Syringa vulgaris	++	*
Tamarix pentandra	++	
Tamarix ramosissima	++	
Tilia americana varieties	+	
Tilia cordata	++	*
Tilia tomentosa	+	*
Viburnum lantana	++	*
Viburnum opulus	++	
Viburnum rhytidophyllum	+	
Vinca species and varieties	+	
Weigela 'Eva Rathke'	++	
Weigela florida	+	
2. Climbers		
Celastrus orbiculatus	++	
Hedera colchica	+	
Hedera helix	++	
Parthenocissus quinquefolia	+	*
Rubus fruticosus	+	
Wisteria sinensis	+	*
3. Conifers		
Abies balsamea 'Nana'	+	*
Abies concolor	++	*
Cedrus atlantica 'Glauca'	+	
Chamaecyparis species and varieties	+	
Ginkgo biloba	++	
Juniperus species and varieties	++	*
Larix kaempferi	+	*
Metasequoia glyptostroboides	++	
Picea omorika	+	*
Picea pungens glauca	++	*
Pinus species and varieties	+	*
Pseudotsuga menziesii varieties	+	*
Taxodium distichum	++	
Taxus baccata	++	
Thuja occidentalis	++	
Thuja plicata	++	
Tsuga diversifolia	++	

Explanation of symbols: ++ = sufficiently resistant to industrial pollution / + = resistant to industrial pollution / * = contradictory or mostly negative experience

38 - Salt-tolerant plants

Experience with plants' salt damage and tolerance varies greatly. That is not surprising as resistance and sensitivity depend on temperatures, precipitation, soil type, and the amount of salt. In cool, rainy areas, the damage is not nearly as severe as in hot, dry areas or in summer. The completely contradictory information that occurs is due to these factors.

Such contradictions either are not found or are rare in indices of resistance to salty air (sea-side areas). (For further information, see CHROMETZKA, P. et al.; M. DIRR, 1976; R. GABRIELS, 1972; O. LEH, 1974 ff; M. SCHIECHTL, 1978)

Genus/species/variety	Salt tolerance	Contradictory experience	Tolerance of salty air
1. Deciduous trees			
Acer campestre	++	*	
Acer negundo	+	*	
Acer platanoides	++	*	+
Acer pseudoplatanus	++	*	+
Acer rubrum	+	*	
Acer saccharinum	++	*	
Aesculus hippocastanum	+	*	
Aesculus carnea varieties	+		
Ailanthus altissima	++		+
Alnus glutinosa	+	*	
Alnus incana			
Betula pendula	+	*	
Carpinus betulus	+	*	
Elaeagnus species and varieties	++		+
Fraxinus excelsior	++	*	
Gleditsia triacanthos varieties	++		
Gymnocladus dioicus	++		
Hippophae rhamnoides	++	*	+
Juglans regia	++	*	
Malus hybrids	+	*	
Malus sylvestris	+	*	
Morus species and varieties	+		
Nyssa sylvatica	++		
Platanus acerifolia	++	*	
Populus alba	++		+
Populus berolinensis	+		
Populus canadensis varieties	++		
Populus canescens	++		
Populus nigra 'Italica'	+	*	
Populus simonii	+		
Populus tremula	++	*	
Prunus avium	++	*	
Prunus serotina	++	*	+
Pyrus calleryana 'Chanticleer'	+		
Quercus robur	++		
Quercus rubra	++		
Rhus species and varieties	++	*	+

Explanation of symbols: ++ = tolerant of (resistant to) salt / + = moderately tolerant of (resistant to) salt / * = contradictory or mostly negative experience

Genus/species/variety	Salt tolerance	Contradictory experience	Tolerance of salty air
Robinia species and varieties	++	*	+
Salix alba	+		
Salix alba 'Tristis'	++		
Salix caprea	+		
Salix matsudana 'Tortuosa'	++		
Sophora japonica	++		
Sorbus aria varieties	+		
Sorbus aucuparia	+		
2. Shrubs			
Acer ginnala	+		
Aesculus parviflora	++	*	
Amelanchier lamarckii	+		
Arctostaphylos uva-ursi	+		+
Aronia species and varieties	++		
Berberis thunbergii 'Atropurpurea'	+		
Calluna vulgaris	+		
Caragana arborescens	++		
Ceanothus delilianus varieties	++		
Clethra alnifolia	+	*	+
Cornus mas	+		
Cornus sanguinea	+	*	
Cornus stolonifera 'Flaviramea'		*	+
Cotoneaster franchetii			+
Cotoneaster horizontalis			+
Crataegus monogyna	+		
Elaeagnus angustifolia	++		+
Gaultheria procumbens	+		
Hippophae rhamnoides	++	*	+
Hydrangea arborescens varieties	+		
Hydrangea macrophylla			+
Hydrangea quercifolia	+		
Hypericum kalmianum varieties	++		
Kalmia angustifolia	+		
Ligustrum ovalifolium			+
Ligustrum vulgare	+	*	
Lonicera nitida varieties			+
Lonicera tatarica			+
Lonicera xylosteum	++	*	
Lycium barbarum	++	*	+
Mahonia aquifolium	+		+
Malus hybrids	+	*	
Philadelphus varieties	+		
Physocarpus opulifolius	+		
Potentilla fruticosa varieties	++	*	
Prunus padus	+	*	
Prunus serotina	++	*	
Prunus spinosa	++	*	

Explanation of symbols: ++ = tolerant of (resistant to) salt / + = moderately tolerant of (resistant to) salt / * = contradictory or mostly negative experience

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38 - Salt-tolerant plants

continued

Genus/species/variety	Salt tolerance	Contradictory experience	Tolerance of salty air
Ptelea trifoliata	++		
Pyracantha hybrids	+		+
Rhamnus catharticus	++	*	+
Rhamnus frangula	+	*	+
Ribes alpinum	++		
Ribes aureum	+		
Rosa canina	+	*	
Rosa multiflora			+
Rosa nitida			+
Rosa pimpinellifolia			+
Rosa rubiginosa			+
Rosa rugotida	++		
Rosa rugosa	++	*	
Salix repens varieties			+
Sambucus nigra	++		+
Spiraea arguta	+		
Spiraea bumalda 'Anthony Waterer'			+
Spiraea vanhouttei			+
Symphoricarpos species and varieties	++	*	
Syringa vulgaris			+
Tamarix parviflora	++		+
Tamarix ramosissima	++		+
Vaccinium corymbosum	+		
Vaccinium vitis-idaea varieties			+
Viburnum burkwoodii			+
Viburnum lantana	++	*	
Viburnum opulus	+	*	
3. Climbers			
Campsis radicans varieties	++		
Celastrus orbiculatus	++		
Parthenocissus quinquefolia			+
Polygonum aubertii			+
Wisteria sinensis			+
4. Conifers			
Juniperus communis	+		+
Juniperus horizontalis varieties	+		
Juniperus media 'Pfitzeriana'	+		
Juniperus sabina 'Tamariscifolia'			+
Juniperus virginiana	++	*	+
Picea pungens glauca	++	*	+
Pinus banksiana	++		
Pinus mugo	++	*	+
Pinus nigra	++	*	+
Pinus ponderosa	+		
Pinus sylvestris	+	*	+

Explanation of symbols: ++ = tolerant of (resistant to) salt / + = moderately tolerant of (resistant to) salt / * = contradictory or mostly negative experience

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
1. Deciduous trees			
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 carpinifolia		+	
Ulmus glabra		+	
Ulmus laevis			+

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39 - Indigenous plants

continued

Genus/species/variety	Found everywhere	Found in regions	Found in special areas
2. Shrubs			
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		+	

Genus/species/variety	Found everywhere	Found in regions	Found in special areas
Rosa glauca		+	
Rosa pimpinellifolia		+	+
Rosa rubiginosa		+	
Rubus fruticosus	+	+	+
Rubus idaeus	+		
Salix aurita	+		+
Salix cinerea	+		
Salix daphnoides and varieties			
Salix elaeagnos			
Salix purpurea	+		
Salix repens and varieties			+
Salix rosmarinifolia			
Salix smithiana		+	
Salix triandra			
Salix viminalis	+		
Sambucus nigra	+		
Sambucus racemosa		+	
Ulex europaeus			+
Vaccinium vitis-idaea		+	
Viburnum lantana		+	
Viburnum opulus	+		
3. Climbers			
Clematis alpina			+
Clematis vitalba		+	
Hedera helix	+		
Lonicera caprifolium		+	
Lonicera periclymenum		+	
Rosa arvensis		+	
Rubus fruticosus	+	+	+
4. Conifers			
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 proliferously. 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 in m	Likes light	Tolerates shade	Thorns, prickles	Good for birds
1. Deciduous trees					
<i>Acer campestre</i>	8-12	+	+		+
<i>Carpinus betulus</i>	5-20	+	+		+
<i>Fraxinus excelsior</i>	20-35	+			
<i>Malus sylvestris</i>	5-10	+	+	+	+
<i>Populus tremula</i>	10-15	+	-		
<i>Prunus avium</i>	15-20	+			+
<i>Prunus padus</i>	3-10	+	+		+
<i>Quercus petraea</i>	20-35	+	+		+
<i>Quercus robur</i>	30-35	+	+		+
<i>Rhamnus catharticus</i>	2-3	+	+	+	+
<i>Salix caprea</i>	3-8	+	-		
<i>Sorbus aucuparia</i>	5-10	+	+		
<i>Ulmus carpinifolia</i>	25-35	+			
2. Shrubs					
<i>Amelanchier ovalis</i>	1-3	+	-		+
<i>Berberis vulgaris</i>	1-3	+	+	+	+
<i>Cornus mas</i>	3-6	+	+		+
<i>Cornus sanguinea</i>	1-5	+	+		+
<i>Corylus avellana</i>	4-6	+	+		+
<i>Crataegus laevigata</i>	2-5		+	+	+
<i>Crataegus monogyna</i>	2-6	+	+		+
<i>Euonymus europaeus</i>	2-6	+	+		+
<i>Ilex aquifolium</i>	2-5	-	+	+	+
<i>Ligustrum vulgare</i>	2-5	+	+		+
<i>Lonicera caerulea</i>	0,5-1,5	-	+		+
<i>Lonicera xylosteum</i>	1-2		+		+
<i>Prunus mahaleb</i>	3-6	+			+
<i>Prunus spinosa</i>	1-3	+	-	+	+
<i>Rhamnus catharticus</i>	2-3	+	+	+	+
<i>Rhamnus frangula</i>	2-5	+	+		+
<i>Rosa canina</i>	1-3	+	+	+	+
<i>Rosa gallica</i>	0,5-1	+		+	+
<i>Rosa glauca</i>	1-3	+	-	+	+
<i>Rosa pimpinellifolia</i>	0,5-2	+	-	+	+
<i>Rosa rubiginosa</i>	2-3	+	-	+	+
<i>Rubus fruticosus</i>	1-2	+	+	+	+
<i>Sambucus nigra</i>	2-7	+	+		+
<i>Viburnum lantana</i>	2-4	+	+		+
<i>Viburnum opulus</i>	2-4		+		+
3. Climbers					
<i>Clematis vitalba</i>	5-15	+	+		+
<i>Lonicera caprifolium</i>	2-5		+		+
<i>Lonicera periclymenum</i>	1-3		+		+
<i>Rubus fruticosus</i>	1-2	+	+	+	+

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.

Genus/species/variety	Nectar	Pollen	Honeydew
1. Deciduous trees			
Acer campestre	++		*
Acer platanoides	++	+	*
Acer pseudoplatanus	+++	+	*
Aesculus hippocastanum	++	+	*
Aesculus carnea	++	+	*
Alnus species		++	*
Betula species		+	*
Carpinus betulus			*
Castanea sativa	++	+	*
Euodia hupehensis	+++		
Fagus sylvatica		++	*
Fraxinus excelsior		+	*
Juglans regia		+	*
Malus species and varieties	+++	+++	
Populus species and varieties		++	*
Prunus species and varieties	+++	+++	*
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 cordata	+++		*
Tilia platyphyllos	++		*
Tilia europaea	++		*
Ulmus carpiniifolia		++	
Ulmus glabra		++	*
Ulmus hybrids		++	*
Ulmus laevis		++	*
2. Shrubs			
Amelanchier species and varieties	+		
Berberis species and varieties	+		
Buddleja species and varieties	+		

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

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41 - Plants for bees

continued

Genus/species/variety	Nectar	Pollen	Honeydew
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	+		
3. Conifers			
Larix decidua		+	*
Picea abies			*
Pinus sylvestris			*
Taxus baccata		+	

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

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 Weißenstephan near Munich.

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

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

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42 - Plants for birds

continued

Genus/species/variety	Visited often	Thorns, prickles	Preferred for nests
Rosa species and varieties	+	+	+
Rubus species and varieties	+	+	++
Sambucus species	++		
Symphoricarpos Arten and varieties			+
Syringa vulgaris			+
Vaccinium species	+		
Viburnum species and varieties	+		
3. Climbers			
Clematis species and varieties			+
Euonymus fortunei varieties	+		+
Hedera species and varieties	+		+
Lonicera species and varieties	+		+
Parthenocissus species and varieties	+		+
Rosa - Kletterrosen	+	+	+
Rubus fruticosus	+	+	++
4. Conifers			
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 - cut			++
Thuja species and varieties			+
Tsuga species	+		+

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

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.

Plants to hold soil on embankments and slopes - 43

A. In open landscapes

Genus/species/variety	Roots	Runners	Resistance to covering
1. Deciduous plants			
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	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
Salix elaeagnos	intense		very good
Salix fragilis	very intense		very good
Salix purpurea	deep		very good

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

continued on next page

43 - Plants to hold soil on embankments and slopes

continued

Genus/species/variety	Doots	Runners	Resistance to covering
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	very intense		moderate
Viburnum lantana	intense		good
Viburnum opulus	intense	+	good
Vinca major	intense		good
2. Conifers			
Abies alba	deep		good
Larix decidua	deep		good
Pinus sylvestris	deep		good

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

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

Genus/species/variety	Durchwurzlung	Ausläuferbildung	Verschüttungsresistenz
1. Deciduous plants			
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

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

Plants to hold soil on embankments and slopes - 43

Genus/species/variety	Roots	Runners	Resistance to covering
Cotoneaster species	intense		good
Crataegus coccinea	deep		good
Crataegus lavalley 'Carrierei'	deep		good
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		++	good
2. Conifers			
Larix kaempferi	deep		moderate
Metasequoia glyptostroboides	very intense		moderate
Pinus nigra	deep		good

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

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
1. Trees			
Acer campestre (i)		+	
Acer negundo		+	
Acer pseudoplatanus (i)		+	
Acer saccharinum		+	
Aesculus hippocastanum		+	
Ailanthus altissima			+
Alnus glutinosa (i)		+	
Alnus incana (i)	+	+	+
Betula pendula (i)		+	
Carpinus betulus (i)		+	
Castanea sativa (i)		+	
Fraxinus excelsior (i)		+	
Fraxinus ornus		+	
Populus alba (i)		+	
Populus canescens (i)		+	
Populus nigra (i)	+	+	+
Populus tremula (i)		+	
Prunus mahaleb (i)		+	
Prunus padus (i)		+	
Prunus serotina		+	
Quercus robur (i)		+	
Quercus rubra		+	
Rhus typhina		+	
Salix alba (i) varieties	+		+
Salix caprea (i)		+	
Salix daphnoides (i) varieties	+		+
Salix fragilis (i)	+	+	+
Salix matsudana 'Tortuosa'	+		+
Sorbus aria (i)		+	
Sorbus aucuparia (i)		+	
Ulmus glabra (i)		+	

Explanation of symbol: (i) = indigenous

Genus/species/variety	Bush layers	Hedge layers	Cuttings, etc.
2. Shrubs			
Berberis vulgaris (i)			+
Caragana arborescens		+	
Cornus alba		+	
Cornus mas (i)		+	
Cornus sanguinea (i)		+	
Corylus avellana (i)		+	
Cotoneaster acutifolius		+	
Cotoneaster multiflorus		+	
Crataegus monogyna (i)		+	
Euonymus europaeus (i)		+	
Forsythia intermedia			+
Hippophae rhamnoides (i)		+	
Ligustrum vulgare (i)	+	+	
Lonicera xylosteum (i)			+
Lycium barbarum			+
Prunus mahaleb (i)		+	
Prunus spinosa (i)		+	
Rhamnus catharticus (i)		+	
Rhus typhina		+	
Rosa arvensis (i)		+	
Rosa canina (i)		+	
Rosa rubiginosa (i)		+	
Rosa rugosa		+	
Salix aurita (i)	+	+	+
Salix balsamifera mas	+	+	+
Salix caprea (i)		+	
Salix cinerea (i)	+	+	+
Salix daphnoides (i) varieties	+	+	+
Salix elaeagnos (i)	+	+	+
Salix hastata (i)			+
Salix purpurea (i) varieties	+	+	+
Salix repens (i) varieties	+		+
Salix rosmarinifolia (i)	+		+
Salix smithiana (i)		+	+
Salix triandra (i)	+	+	+
Salix viminalis (i)	+	+	+
Sambucus nigra (i)		+	
Sambucus racemosa (i)		+	
Syringa vulgaris		+	
Viburnum lantana (i)		+	
Viburnum opulus (i)		+	
3. Climbers			
Clematis vitalba (i)		+	
Rosa arvensis (i)		+	
Rubus caesius in types (i)			+
Rubus fruticosus in types (i)			+

Explanation of symbol: (i) = indigenus

45 - Nitrogen-collecting plants

Many plants live symbiotically with bacteria that collect nitrogen (such as Lupine) or actinobacillosis (such as sea buck-thorn). 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	Wide local range	Narrow local range
1. Trees		
Alnus species and varieties	+	
Cercis siliquastrum		+
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.

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

Village and courtyard trees - 47

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.

Genus/species/variety	Conspicuous flowers	Genus/species/variety	Conspicuous flowers
1. Deciduous trees		Quercus robur	
Acer platanoides	+	Robinia pseudoacacia	+
Acer pseudoplatanus		Salix alba	
Aesculus hippocastanum	+	Salix daphnoides 'Praecox'	+
Alnus glutinosa		Salix fragilis	
Alnus incana		Sorbus aucuparia	+
Betula pendula		Sorbus domestica	+
Carpinus betulus		Sorbus intermedia	+
Castanea sativa	+	Tilia cordata	+
Crataegus laevigata 'Paul's Scarlet'		Tilia platyphyllos	+
Fagus sylvatica		Tilia europaea	+
Fraxinus excelsior		Ulmus carpiniifolia	
Juglans regia		Ulmus glabra	
Malus varieties	+	Ulmus laevis	
Populus alba varieties			
Populus canescens		2. Conifers	
Populus nigra		Larix decidua	
Prunus avium	+	Picea abies	
Pyrus communis varieties	+	Pinus sylvestris	
Quercus petraea			

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 ²
1. Deciduous plants					
<i>Arctostaphylos uva-ursi</i>	e		+	moderate	3-5
<i>Berberis buxifolia</i> 'Nana'	e			slight	6-9
<i>Berberis candidula</i>	e			slight	3-5
<i>Berberis frikartii</i> 'Verrucandi'	e			moderate	3-5
<i>Berberis thunbergii</i> 'Atropurpurea Nana'	sg			slight	6-9
<i>Berberis verruculosa</i>	e			moderate	3-5
<i>Buxus sempervirens arborescens</i>	e			slight	16-40
<i>Calluna vulgaris</i> varieties	e	+	+	slight	9-16
<i>Chaenomeles hybrids</i>	sg	+	+	moderate	1-3
(= <i>C. superba</i>) varieties	sg	+	+		
<i>Cornus canadensis</i>	sg	+		slight	9-16
<i>Cornus stolonifera</i> 'Kelsey'	sg		+	moderate	3-5
<i>Cotoneaster adpressus</i>	sg		+	slight	6-9
<i>Cotoneaster dammeri</i> varieties	se - e		+	slight/strong	3-12
<i>Cotoneaster horizontalis</i>	sg		+	strong	1-3
<i>Cotoneaster microphyllus</i> 'Cochleatus'	e		+	slight	3-5
<i>Cotoneaster praecox</i>	sg		+	slight	3-6
<i>Cotoneaster salicifolius</i> 'Parkteppich'	se - e		+	moderate	
<i>Cytisus beanii</i>	sg		+	slight	3-6
<i>Cytisus decumbens</i>	sg		+	slight	5-6
<i>Cytisus kewensis</i>	sg			slight	
<i>Cytisus purpureus</i>	sg		+	slight	3-6
<i>Daboecia</i> species and varieties	e		+	slight	9-12
<i>Daphne cneorum</i>	e		+	slight	4-6
<i>Deutzia gracilis</i>	sg			slight	3-5
<i>Empetrum nigrum</i>	e		+	moderate	5-9
<i>Erica carnea</i> varieties	e		+	slight	12-16
<i>Erica vagans</i> varieties	e		+	slight	9-12
<i>Euonymus fortunei</i> varieties	e		+	slight	3-12

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

Ground-covering plants - 48

Genus/species/variety	Belaubung	Runners	Layers	Growth rate	Number/ m ²
Gaultheria procumbens	e	+	+	moderate	9-16
Gaultheria shallon	e	+		strong	4-6
Genista lydia	sg			slight	4-6
Genista radiata	sg			slight	3-5
Genista sagittalis	sg	+		slight	9-16
Hedera helix varieties	e		+	slight	3-9
Hypericum calycinum	se - e	+		strong	6-9
Hypericum 'Hidcote'	se - e			moderate	3-5
Hypericum moserianum	wi				5-6
Ilex crenata varieties	ie		+	slight/moderate	3-6
Kerria japonica	so	+		moderate	3-5
Lavandula angustifolia varieties	e			slight	5-9
Ledum palustre	e			slight	3-5
Leucothoe walteri	e	+	+	moderate	3-6
Ligustrum vulgare 'Lodense'	se			slight	5-8
Lonicera japonica repens	se - e		+	strong	2-4
Lonicera nitida 'Elegant'	se - e			moderate	3-5
Lonicera nitida 'Maigrün'	se - e			slight	4-6
Lonicera pileata	se		+	moderate	3-5
Pachysandra terminalis	e	+		moderate	9-16
Pleioblastus pumilis	e	+		strong	1-3
Potentilla fruticosa varieties	sg		+	slight/strong	3-6
Prunus laurocerasus varieties	e			strong	1
Pyracantha 'Red Cushion'	se - e			strong	1-2
Rhododendron carolinianum varieties	e			slight	2-4
Rhododendron Diamant Azaleas	se			slight	3-5
Rhododendron-Impeditum-hybrids	e			slight	3-6
Rhododendron keleticum	e			slight	4-6
Rhododendron 'Radistrotum'	e			slight	6-8
Rhododendron radicans	e			slight	6-8
Rhododendron Repens hybrids	e			slight	6-8
Rhododendron Yakushmanum hybrids	e			slight	3-6
Ribes alpinum 'Schmidt'	sg		+	moderate	3-5
Rosa nitida	sg	+		moderate	3-6
Rosa rugotida	sg	+		strong	2-5
Rosa - ground cover rose varieties	sg		+	moderate/strong	1-4
Rubus calycinoides	sg		+	moderate	5-7
Rubus fruticosus	sg-we	+	+	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	sg			moderate	2-4

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

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48 - Ground-covering plants

continued

Genus/species/variety	Leaves	Runners	Layers	Growth rate	Number/ m ²
Spiraea decumbens	sg		+	slight	9-12
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

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

49 - Hedges, espaliers, 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.

Number per linear meter (single row):

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

Genus/species/variety	Tall hedge	Espalier hedge	Normal hedge	Border
1. Deciduous trees				
Acer campestre	+		+	
Carpinus betulus	+	+	+	
Crataegus species and varieties	+		+	
Fagus sylvatica varieties	+		+	
Malus species and varieties		+		
Platanus acerifolia	+			
Quercus cerris			+	
Quercus petraea	+		+	
Quercus robur	+	+	+	
Robinia hispida 'Macrophylla'		+		
Sorbus aria		+		
Tilia cordata	+	+	+	
Tilia flavescens 'Glenleven'	+			
Tilia platyphyllos	+	+	+	
Tilia europaea	+	+	+	
2. Deciduous shrubs				
Berberis species and varieties			+	+
Buddleja Davidii-hybrids		+		
Ceanothus species and varieties		+		
Chaenomeles species and varieties		+	+	
Cornus mas			+	
Cotoneaster species and varieties		+	+	+
Crataegus species and varieties			+	
Deutzia gracilis				+
Escallonia species and varieties		+	+	
Forsythia species and varieties		+	+	
Hydrangea quercifolia		+		
Ligustrum species and varieties		+	+	+
Lonicera tatarica			+	
Lonicera xylosteum			+	
Magnolia liliiflora varieties		+		
Magnolia soulangiana varieties		+		
Malus hybrids varieties		+		
Potentilla fruticosa varieties			+	+
Prunus cerasifera 'Nigra'		+	+	
Prunus spinosa			+	
Ribes sanguineum varieties		+		
Ribes species and varieties			+	+
Rosa species and varieties		+		
Spiraea bumalda varieties				+
Spiraea japonica varieties				+

continued on next page

49 - Hedges, espaliers, and borders

continued

Genus/species/variety	Tall hedge	Espalier hedge	Normal hedge	Border
Symphoricarpos albus laevigatus			+	
Syringa chinensis			+	
Syringa hyacinthiflora varieties		+		
Syringa vulgaris			+	
3. (Semi-) Evergreen shrubs				
Berberis species and varieties			+	+
Buxus sempervirens varieties	+		+	+
Ceanothus species and varieties		+		
Cotoneaster species and varieties		+	+	+
Elaeagnus species and varieties		+		
Euonymus fortunei 'Vegetus'		+	+	+
Ilex species and varieties	+		+	+
Lavandula angustifolia				+
Ligustrum species and varieties		+	+	+
Lonicera nitida varieties		+	+	+
Lonicera pileata				+
Mahonia aquifolium			+	+
Osmanthus heterophyllus		+	+	
Prunus laurocerasus varieties		+	+	
Pyracantha hybrids varieties		+	+	+
Viburnum burkwoodii		+		
Viburnum 'Pragense'		+		
Viburnum rhytidophyllum		+		
Viburnum tinus			+	+
4. Conifers				
Chamaecyparis species and varieties	+		+	
Cupressocyparis leylandii varieties	+		+	
Ginkgo biloba		+		
Juniperus chinensis varieties	+		+	
Juniperus communis varieties			+	
Juniperus virginiana			+	
Larix species	+		+	
Metasequoia glyptostroboides	+		+	
Picea abies	+		+	
Picea omorika			+	
Pinus mugo			+	+
Taxus baccata	+		+	
Thuja occidentalis varieties	+		+	+
Thujopsis dolabrata			+	
Tsuga canadensis			+	

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:

A. Trellis climbers

B. Self climbers.

Both groups are further subdivided according to the climbing method.

Genus/species/variety	Leaves	Flowers	Fruit	Height in m
A. Trellis climbers				
1. Twining climbers				
Actinidia arguta	sg	white	green, sweet	3-6
Actinidia chinensis (= A. deliciosa)	sg	white	brown, sweet	
Actinidia kolomikta	sg	white	green	
Akebia quinata	sg-se	pink	green, sweet	4-6
Aristolochia macrophylla	sg	brown	green, poisonous	8-10
Celastrus orbiculatus	sg	green	yellow-orange	8-12
Humulus lupulus	sg	green	green	3-8
Lonicera japonica repens	se-e	white	red	2-3
Lonicera brownii 'Dropmore Scarlet'	sg	orange	orange	2-3
Lonicera caprifolium	sg	white	red	2-5
Lonicera heckrottii	sg	pink	red	2-4
Lonicera henryi	e	yellow	blue	5-7
Lonicera periclymenum	sg	white	red	1-5
Lonicera tellmanniana	sg	yellow	orange	4-6
Polygonum aubertii	sg	white	white	8-15
Wisteria floribunda	sg	blue	green	6-8
Wisteria sinensis	sg	blue	green	6-15
2. Sarmentous plants without suction pads				
Clematis alpina varieties	sg	blue	silvery	1-2
Clematis hybrids varieties	sg	many	silvery	2-4
Clematis macropetala varieties	sg	many	silvery	2-3
Clematis maximowicziana	sg	white	silvery	5-8
Clematis montana varieties	sg	white	silvery	5-8
Clematis montana 'Rubens'	sg	pink	silvery	3-10
Clematis orientalis 'Orange Peel'	sg	yellow	silvery	3-5
Clematis tangutica	sg	yellow	silvery	4-6
Clematis texensis varieties	sg	pink	silvery	1-1,5
Clematis vitalba	sg	white	silvery	10-20
Clematis viticella varieties	sg	blue	silvery	2-5
Vitis coignetiae	sg	green	black	6-8
				2-5
3. Splayed climbers				
Jasminum nudiflorum	sg	yellow	-	2-3
Rosa arvensis	sg	white	orange-red	1-2
Rosa - Kletterrosen	sg	red		2-3
Rubus fruticosus	sg-se	white	black	1-3
Rubus henryi	e	pink	black	2-3

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

continued on next page

50 - Climber

continued

Genus/species/variety	Leaves	Flowers	Fruits	Height in m
B. Self climbers				
1. Plants with suction pads				
Parthenocissus quinquefolia	sg	green	black	10-15
Parthenocissus quinquefolia 'Engelmannii'	sg	green	black	15-18
Parthenocissus tricuspidata 'Veitchii'	sg	green	black	15-18
2. Climbers with suction roots				
Campsis radicans	sg	red	green	6-15
Campsis radicans 'Flava'	sg	yellow	green	4-5
Campsis tagliabuana 'Mme Galen'	sg	red		3-5
Euonymus fortunei radicans	e		-	2-5
Euonymus fortunei 'Vegetus'	e	green	orange	3-6
Euonymus fortunei varieties	e		orange	1-3
Hedera colchica	e	yellow	black	6-8
Hedera helix	e	yellow	black	10-20
Hedera helix 'Woerner'	e	yellow	black	10-15
Hedera helix hibernica	e	yellow	black	5-20
Hydrangea petiolaris	sg	white	brown	8-12

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

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,
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)

Plants for roof garden with good maintenance - 51

Genus/species/variety	Height (m)	Limitations
1. Deciduous trees and Large shrubs		
Acer campestre	3 - 10	-
Acer ginnala	3 - 6	-
Acer neglectum 'Annae'	6 - 10	may be too big
Amelanchier laevis	3 - 5	Flower not wind resistant
Amelanchier lamarckii varieties	3 - 5	-
Cornus mas	3 - 6	-
Corylus avellana	3 - 5	sensitive when exposed to wind
Crataegus lavalleyi 'Carrierei'	5 - 8	-
Crataegus coccinea	5 - 7	-
Crataegus crus galli	5 - 7	-
Fraxinus ornus varieties	4 - 8	very sensitive to frost, flower not wind resistant
Philadelphus inodorus grandiflorus	3 - 4	Flower not wind resistant, needs thinning out
Physocarpus opulifolius	3 - 4	-
Prunus mahaleb	3 - 6	many seedlings
Prunus serotina	5 - 10	troublesome seedlings
Pyrus salicifolia	4 - 6	sensitive to frost, Flower not wind resistant
Salix acutifolia 'Pendulifolia'	4 - 6	break easily, cut back to keep young
Salix caprea	3 - 6	flowers brown from July on during droughts
Sorbus aria varieties	5 - 8	-
Sorbus aucuparia	5 - 8	loses its leaves early during drought
Sorbus hybrida 'Gibbsii'	4 - 6	early leaf loss due to stagnant dampness
Sorbus intermedia	8 - 10	may be too big
2. Medium to large shrubs		
Berberis ottawensis 'Superba'	2 - 4	-
Berberis thunbergii varieties	0,5 - 2	lose their leaves early during droughts
Buddleja alternifolia	2 - 3	very overhanging, sensitive to frost
Buddleja Davidii-hybrids	1 - 2	sensitive to frost, cut back yearly
Buxus sempervirens 'Bullata'	1 - 2	occasionally sensitive to frost
Chaenomeles Arten and varieties	1 - 2	flowers not wind resistant
Cornus alba	2 - 3	-
Cornus alba 'Sibirica'	1 - 2	-
Cornus stolonifera 'Kelsey'	0,5 - 1	not in hot, dry areas
Cotinus coggygria	2 - 3	sensitive to frost
Cotoneaster bullatus	2 - 3	occasionally sensitive to frost
Cotoneaster dielsianus	1 - 2	-
Cotoneaster divaricatus	1 - 2	-
Cotoneaster acutifolius	1 - 2	-
Cotoneaster multiflorus	1 - 2	occasionally sensitive to frost
Cotoneaster praecox	1 - 1,5	occasionally sensitive to frost
Deutzia species and varieties	0,5 - 2	not in hot, dry areas
Euonymus alatus	0,2 - 2	not in hot, dry areas
Hypericum 'Hidcote'	0,5 - 1	sensitive to frost, cut back yearly

continued on next page

51 - Plants for roof garden with good maintenance

continued

Genus/species/variety	Height (m)	Limitations
Hypericum patulum henryi	0,5 - 1	sensitive to frost, cut back yearly
Ilex meserveae varieties	1 - 2	sensitive to frost, may lose all their leaves
Kerria japonica varieties	1 - 2	sensitive to frost
Kolkwitzia amabilis	2 - 3	age quickly, thin out often
Ligustrum obtusifolium regelianum	1 - 2	-
Ligustrum ovalifolium	2 - 3	sensitive to frost
Ligustrum vulgare varieties	2 - 3	-
Lonicera ledebourii	2 - 3	not in dry areas
Lonicera tatarica	2 - 3	cut back occasionally
Lonicera xylosteoides 'Clavey's Dwarf'	2 - 3	-
Lonicera xylosteum	1 - 2	not in hot, dry areas
Lycium barbarum	2 - 3	very overhanging
Perovskia abrotanoides	1 - 1,5	cut yearly
Philadelphus coronarius	2 - 3	cut back occasionally
Philadelphus- hybrids	1 - 2	flowers not wind resistant, thin out often
Potentilla fruticosa varieties		all varieties are sometimes sensitive to frost, thin out
Potentilla 'Goldfinger'	0,5 - 1,5	-
Potentilla 'Goldteppich'	0,5 - 1	avoid planting too closely
Potentilla 'Sommerflor'	0,5 - 1	
Prunus laurocerasus 'Otto Luyken'	1 - 2	many fir-tree weevils on humic substrates, then hard to stop! occasionally sensitive to frost
Prunus laurocerasus 'Zabeliana'	1 - 2	
Prunus tenella	0,5 - 1,5	flowers not wind resistant, cut yearly
Pyracantha 'Red Cushion'	0,5 - 1	sensitive to frost, turn black when cold
Pyracantha 'Red Column'	2 - 3	sensitive to frost, turn black when cold
Pyracantha 'Soleil d'Or'	1 - 2	sensitive to frost
Ribes alpinum 'Schmidt'	0,5 - 1	not in hot, dry areas
Ribes aureum	1 - 2	loses its habit, not in hot, dry areas
Ribes divaricatum	2 - 3	not in hot, dry areas
Rosa glauca	1 - 2	co competition, loses its leaves starting in August
Rosa multiflora	1 - 2	-
Rosa rubiginosa	1 - 2	somewhat sensitive to wind
Rosa varieties	0,5 - 1	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	slow-growing, prostrate
Salix rosmarinifolia	1 - 1,5	not in hot, dry areas
Spiraea bumalda varieties	0,5 - 1	cut back often
Spiraea japonica varieties	0,3 - 0,5	cut back often
Spiraea vanhouttei	1 - 2	flowers sensitive to wind, sensitive to drought
Symphoricarpos albus laevigatus	1 - 2	troublesome runners
Symphoricarpos chenaultii	1 - 1,5	occasionally sensitive to frost
Symphoricarpos orbiculatus	1 - 1,5	occasionally sensitive to frost
Syringa chinensis	2 - 3	base for grafting, sometimes with new shoots
Syringa microphylla 'Superba'	1 - 1,5	-
Tamarix species	2 - 3	sensitive to frost, cut back frequently

Plants for roof garden with good maintenance - 51

Genus/species/variety	Height (m)	Limitations
Viburnum farreri	2 - 3	flowers sensitive to frost, need thinning out
Viburnum lantana	2 - 3	occasionally eaten bare by birds
Weigela hybrids varieties	1 - 2	thin out regularly, not in hot dry areas
3. Small and Dwarf shrubs, ground-cover plant		
Cornus stolonifera 'Kelsey'	0,5 - 1	not in hot dry areas
Cotoneaster adpressus	0,2 - 0,5	very slow-growing
Cotoneaster dammeri varieties	0,2 - 1,2	sensitive to frost, bronze when cold
Cotoneaster salicifolius 'Parkteppich'	0,3 - 1	sensitive to frost
Euonymus fortunei varieties	0,3 - 1	sensitive to frost, not for hot, dry extreme areas (colourful varieties susceptible), many fir tree weevils in humic substrates, then hard to stop
Hypericum calycinum	0,2 - 0,3	sensitive to frost
Hypericum moserianum	0,3 - 0,5	sensitive to frost
Ilex crenata varieties	0,3 - 1,5	sensitive to frost, not in hot dry areas
Ligustrum vulgare 'Lodense'	0,5 - 0,7	very slow-growing, bronze when cold
Lonicera nitida 'Maigrün'	0,5 - 0,8	sensitive to frost
Lonicera pileata	0,5 - 1	sensitive to frost
Mahonia aquifolium 'Apollo'	0,5 - 1	sensitive to frost, avoids sun
Philadelphus 'Erectus'	0,5 - 1	Flower not wind resistant
Potentilla 'Goldteppich'	0,5 - 1	avoid planting too closely
Potentilla 'Sommerflor'	0,5 - 1	-
Pyracantha 'Red Cushion'	0,5 - 1	sensitive to frost
Rosa - ground covering species	0,3 - 0,5 0,5 - 1 1 - 1,5	occasionally sensitive to frost, sensitive to wind, sometimes roots shoot, care for yearly
Symphoricarpos chenaultii 'Hancock'	0,8 - 1,2	occasionally sensitive to frost
4. Climbers		
Clematis montana 'Rubens'	2 - 5	frost sensitive, flowers sensitive to wind
Clematis tangutica	2 - 3	-
Euonymus fortunei radicans	1 - 3	sensitive to frost, not in hot dry areas
Hedera helix	3 - 8	does not always climb
5. Conifers		
Juniperus communis 'Hornibrookii'	0,5 - 1	-
Juniperus communis 'Repanda'	0,3 - 0,5	-
Juniperus horizontalis 'Wiltonii'	0,2 - 0,3	-
Juniperus sabina 'Tamariscifolia'	0,5 - 0,8	-
Picea abies 'Nidiformis'	1 - 1,5	only in shady areas
Picea abies 'Pumila Glauca'	0,3 - 0,5	only in shady areas
Pinus leucodermis	4 - 6	sensitive to stagnant water
Pinus mugo varieties	1 - 2	-
Pinus parviflora 'Glauca'	4 - 6	may be too big

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51 - Plants for roof garden with good maintenance

continued

Genus/species/variety	Height (m)	Limitations
Pinus parviflora 'Negishi'	1 - 1,5	-
Pinus sylvestris 'Watereri'	3 - 5	-
Taxus baccata varieties		many fir-tree weevils on humic substrates, then hard to stop
Taxus baccata 'Dovastoniana'	2 - 4	may be too big
Taxus baccata 'Nissens Corona'	1 - 3	see above
Taxus baccata 'Nissens Präsident'	2 - 3	see above
Taxus baccata 'Repandens'	0,5 - 0,7	see above
Taxus cuspidata 'Nana'	1 - 2	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 m² 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.

(species in parentheses) = preferred in lighter courts

1. Deciduous trees

Acer campestre varieties
Acer palmatum
Acer pensylvanicum
(Acer platanoides in green-leaf varieties)

Acer rufinerve
Acer neglectum 'Annae'
(Amelanchier lamarckii varieties)
Carpinus betulus varieties
(Cercidiphyllum japonicum)
Cornus alternifolia

Cornus controversa
 Cornus florida and varieties
 Cornus kousa and varieties
 (Cornus mas)
 Crataegus laevigata
 Crataegus lavalley 'Carrierei'
 Crataegus monogyna
 Crataegus coccinea
 Fagus sylvatica in green-leaf varieties
 (Fraxinus excelsior in slender-crown varieties)
 Ilex aquifolium varieties
 (Malus hybrids in 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
 Tsuga species and varieties

54.

Heath gardens - 54

"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.

Genus/species/variety	Needs light	Tolerates shade
A. Heaths near coasts		
1. Deciduous plants		
Betula pendula varieties	+	
Betula pubescens	+	
Cytisus scoparius varieties	+	
Crataegus monogyna		+
Empetrum nigrum	+	
Genista sagittalis	+	
Genista tinctoria varieties	+	
Myrica gale	+	
Rhamnus frangula		+
Salix repens argentea	+	
Sorbus aucuparia varieties		+
Ulex europaeus	+	

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54 - Heath gardens

continued

Genus/species/variety	Need light	Tolerates shade
2. Erikaceae varieties		
Calluna vulgaris varieties	+	
Erica cinerea	+	
Erica tetralix	+	
Erica vagans varieties	+	
Vaccinium vitis-idaea varieties		+
3. Conifers		
Juniperus communis varieties	+	
Pinus sylvestris 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.

Genus/species/variety	Need light	Tolerates shade
B. Alpine rose heaths		
Heaths in mountainous regions are similar to those in plains, though the species usually differ.		
1. Deciduous plants		
Clematis alpina		+
Crataegus monogyna		+
Cytisus purpureus	+	
Daphne cneorum	+	
Lonicera caerulea		+
Ribes alpinum		+
2. Ericaceae varieties		
Arctostaphylos uva-ursi	+	
Empetrum nigrum	+	
Erica carnea varieties	+	
Rhododendron ferrugineum		+
Rhododendron hirsutum		+
Vaccinium vitis-idaea varieties		+
3. Conifers		
Juniperus communis varieties	+	
Larix decidua	+	
Picea abies varieties		+
Pinus cembra	+	
Pinus mugo varieties	+	
Pinus nigra varieties	+	
Pinus sylvestris varieties		

Genus/species/variety	Needs leight	Tolerates shade
C. Heath-like formations form foreign countries		
1. Deciduous plants		
Aronia species and varieties		+
Betula species and varieties	+	
Clethra alnifolia		+
Cornus canadensis		+
Cornus stolonifera 'Kelsey's'		+
Cytisus species and varieties	+	
Daboecia species and varieties		+
Elaeagnus pungens varieties		+
Fothergilla gardenii		+
Genista species and varieties	+	
Hebe species and varieties	+	
Ilex crenata varieties		+
Ilex meserveae varieties		+
Ilex verticillata	+	
Rubus calycinoides	+	
Skimmia japonica varieties		+
Sorbus species and varieties	+	
Spiraea betulifolia		+
Spiraea prunifolia	+	
2. Ericaceae varieties		
Gaultheria procumbens		+
Gaultheria shallon		+
Kalmia angustifolia 'Rubra'		+
Kalmia latifolia varieties		+
Leucothoe walteri		+
Pernettya mucronata varieties		+
Pieris floribunda		+
Pieris japonica varieties		+
Rhododendron Wildarten		+
Rhododendron canadense	+	
Rhododendron impeditum varieties	+	
Rhododendron keleticum	+	
Rhododendron minus		+
Rhododendron radicans		+
Rhododendron 'Radistrotum'		+
Rhododendron - Japanese Azaleas		+
Vaccinium macrocarpon u.a.	+	

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54 - Heath gardens

continued

Genus/species/variety	Needs light	Tolerates shade
3. Conifers		
Juniperus species and varieties	+	
Larix kaempferi	+	
Pinus contorta	+	
Pinus densiflora 'Pumila'	+	
Pinus leucodermis	+	
Pinus parviflora 'Glaucua'	+	
Pinus pumila 'Glaucua'	+	
Thuja standishii	+	
Tsuga diversifolia		+
Tsuga mertensiana		+

55 - Plants for tubs and pots

Explanation:

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 plants

Acer ginnala
 Acer japonicum 'Aconitifolium'
 Acer rufinerve
 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
 Genista species and varieties
 Hydrangea arborescens varieties
 Lonicera tatarica varieties
 Mahonia aquifolium varieties

Malus-hybrid 'Red Jade'
 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 ovalifoium 'Aureum'

Lonicera nitida varieties
 Lonicera pileata
 Osmanthus heterophyllus
 Prunus laurocerasus varieties
 Pyracantha hybrid varieties
 Rhododendron Diamant Azaleas
 Rhododendron Impeditum hybrids
 Rhododendron keleticum
 Rhododendron 'Radistrotum'
 Rubus henryi
 Skimmia japonica varieties
 Viburnum davidii
 Viburnum tinus
 Vinca major

3. Conifers

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

Plant weights - 56

Plant weights and root ball sizes can only be approximated as many factors influence weight and root ball size. The shape of the root ball, the specific weight of the soil or substrate, the water saturation, and other factors leave a lot of leeway. The information below is based on experience and can be used to extrapolate transport weights.

Categories	Size	Approx. weight in kg/plant	Roots ball diameter in cm
Ground-covering shrubs	1,5 l container	1,3	
	2 l container	1,7	
Evergreens	20 - 30 cm tall	3	
	30 - 40 cm tall	4	
	40 - 50 cm tall	6	
	50 - 60 cm tall	9	
	60 - 80 cm tall	13	
	80 - 100 cm tall	18	
	100 - 125 cm tall	25	
	125 - 150 cm tall	40	
	150 - 200 cm tall	60	

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Category	Size	Approx. weight in kg/plant	Root ball diameter in cm
Roses	A quality	0,2	
Rhododendron	30 - 40 cm tall	3	
	40 - 50 cm tall	4,5	
	50 - 60 cm tall	6	
	60 - 70 cm tall	8	
	70 - 80 cm tall	11	
	80 - 90 cm tall	16	
	90 - 100 cm tall	25	
	100 - 120 cm tall	40	
	120 - 140 cm tall	60	
Decorative shrubs and hedges	2 xtr., bare root, - 100	0,5	
	2 xtr., bare root, 100 - 150	1	
	2 xtr., bare root, 150 - 200	2	
	3 xtr., rootballed, - 100	8	
	3 xtr., rootballed, 100 - 125	12	
	3 xtr., rootballed, 125 - 150	18	
	3 xtr., rootballed, 150 - 175	25	
Branched-trunk trees	2 xtr., bare root, 80 - 100	0,6	
	2 xtr., bare root, 100 - 125	0,8	
	2 xtr., bare root, 125 - 150	1	
	2 xtr., bare root, 150 - 200	1,5	
	2 xtr., bare root, 200 - 250	2	
	3 xtr., rootballed, 80 - 100	8	
	3 xtr., bare root, 100 - 125	9,5	
	3 xtr., bare root, 125 - 150	11	
	3 xtr., bare root, 150 - 175	14	
	3 xtr., bare root, 175 - 200	18	
	Streettrees and standards	2 xtr., bare root, 8 - 10	4
2 xtr., bare root, 10 - 12		4,5	
3 xtr., rootballed, 12 - 14		50	40
3 xtr., rootballed, 14 - 16		100	45
3 xtr., rootballed, 16 - 18		150	50
3 xtr., rootballed, 18 - 20		200	60
4 xtr., rootballed, 20 - 25		270	70
4 xtr., rootballed, 25 - 30		350	80
5 xtr., rootballed, 30 - 35		500	95
5 xtr., rootballed, 35 - 40		650	100
5 xtr., rootballed, 40 - 45		850	125
5 xtr., rootballed, 45 - 50		1100	130
6 xtr., rootballed, 50 - 60		1600	140
6 xtr., rootballed, 60 - 70		2500	160
6 xtr., rootballed, 70 - 80		4000	180
6 xtr., rootballed, 80 - 90	5500	190	
6 xtr., rootballed, 90 - 100	7500	210	
6 xtr., rootballed, 100 - 120	9500	220	

1. Outward appearance

1.1 Habit

1. Solitary perennials
2. Leader perennials
3. Companion perennials
4. Ground-covering perennials

1.2 Perennials for colourful effects

5. Flowering calendar
6. Red-flower perennials
7. Orange-flower perennials
8. Yellow-flower perennials
9. Blue-flower perennials
10. Purple or violet-flower perennials
11. Pink and carmine, magenta and crimson perennials
12. White and grey perennial

1.3 Flowers, leaves, and roots

13. Fragrant perennials
14. Poisonous perennials
15. Perennials with autumn colours
16. Evergreen perennials
17. Colourful perennials
18. Rampant perennials

2. Characteristics and demands

2.1 Light needs

19. Sun-loving perennials
20. Perennials for semi-shade
21. Shade-loving perennials

2.2 Soil factors

22. Heath plants
23. Perennials for heavy soil
24. Perennials for damp areas and floods

3. Use

25. Indigenous wild perennials
26. Naturalised and foreign wild perennials
27. Farm garden
28. Extensive and simple, intensive roof greenery
29. Medicinal plants
30. Edible perennials
31. Butterfly perennials

1 - Solitary perennials

Free-standing, impressive plants are called solitaires. Solitaires can be trees, shrubs or perennials. Unlike plants that are present all year, perennials have to develop their conspicuous forms over and over again and only look truly impressive in mid-summer. The solitary perennials must be: impressively large, persistent in the vegetation period and long-lived. In practice, varieties that close early or are short-lived are not considered solitaires.

The size of the plant as a criterion for selection depends on the space available; the same plant that is a solitary in a tiny inner court might be lost in a broad landscape.

Splendid flowers, leaf texture (=surface quality of the foliage) and leaf colour as well as a clearly distinct, more or less densely closed habit are further important characteristics, but are less important than the variables of size and persistence. Cultivars that need support, grow like thickets, and are rampant are not considered solitaires.

Genus/species/variety	Size in cm	Special characteristics
<i>Achillea filipendulina</i> 'Parker'	100-120	rigid peduncles, syncarpy attractive far into winter
<i>Aconitum carmichaelii</i> 'Arendsii'	110-130	autumn flowers
<i>Aruncus dioicus</i>	120-150 (200)	flowers, autumn colours
<i>Aster novae-angliae</i> 'Andenken an Paul Gerber' u. a.	130-150 (180)	later flowers
<i>Aster novi-belgii</i> 'Dauerblau'	120-140	late, persistent flowers
<i>Cimicifuga racemosa cordifolia</i>	180-250	towering inflorescences
<i>Delphinium Elatum</i> -hybrids	150-180	flowers twice, needs cutting
<i>Eupatorium fistulosum</i> 'Atropurpureum'	180-200 (300)	giant but doesn't need support, flowers
<i>Helenium</i> -hybrid 'Kugelsonne'	120-150	many flowers
<i>Helianthus decapetalus</i> 'Capenoch Star'	120-150	late, persistent flowers
<i>Heliopsis scabra</i> 'Goldgefieder'	120-130	late, persistent flowers
<i>Inula magnifica</i>	150-200 (250)	giant but doesn't need support
<i>Ligularia przewalskii</i>	120-150 (180)	many flowers
<i>Macleaya cordata</i>	180-200 (300)	rampant, only stopped with rhizome barrier
<i>Rodgersia</i> species	110-150	long-lived, decorative leaves
<i>Rudbeckia nitida</i> 'Herbstsonne'	180-220	late flowers
<i>Verbascum olympicum</i>	180-220	short-lived, replant!
Grasses		
Bamboo in species and varieties	200-400	evergreen, put up rhizome barrier
<i>Calamagrostis acutiflora</i> 'Karl Foerster'	120-170	turns green early, spikes into autumn
<i>Carex pendula</i>	120-150	evergreen to nearly-evergreen
<i>Cortaderia selloana</i>	100-250 (500)	late flowers, evergreen
<i>Miscanthus giganteus</i>	250-350	dense clusters of leaves, hardly flowers
<i>Miscanthus sinensis</i> 'Gracillimus'	140-170	elegantly tilting, dense
<i>Miscanthus sinensis</i> 'Silberfeder'	150-220	many flowers
<i>Molinia arundinacea</i> 'Karl Foerster'	180-240	transparent, attractive spikes
Ferns		
<i>Dryopteris affinis</i>	100-160	need wind protection!
<i>Osmunda regalis</i>	50-150 (200)	moist to damp areas

Leader perennials - 2

Leader perennials are the backbone of a perennial group. They set the tone for the group; their flower colour, their habit, and their size determine the character of the planting scheme. Companion and filler perennials adapt to them, complement them, and subordinate themselves to them. Unlike a solitary perennial, a leader perennial that directs the view of the plants does not occur alone. The same type or variety can be repeated in groups of various sizes and in irregular distances rhythmically.

Depending on the size of the plant group, one plant genus is selected as the determining element, or several varieties of leader perennials are combined with one another. Thus, one plant genus can occur as the leader perennial in the summer, with another taking over in autumn after the first has withered.

Like the solitary perennials, leader perennials have to be long-lived and clearly larger than their company. They must not wither and die too early and leave behind bare spots in the group.

Genus/species/variety	Size in cm	Special characteristics
Achillea filipendulina varieties	70-120	flowers long
Aconitum carmichaelii 'Arendsii'	110-130	late flowers
Aconitum napellus and others	80-120 (150)	flowers in July, then neutral
Anemone Japonica-hybrids	60-120	late flowers
Aruncus dioicus	120-150 (200)	attractive into winter
Aster novae-angliae varieties	100-150 (180)	many flowers
Aster novi-belgii	80-140	plentiful, long-lasting flowers
Astilbe Arendsii-hybrids	70-100	attractive into autumn
Astilbe chinensis taquetii 'Purpurlanze'	100-110	becomes broad
Chrysanthemum-hybrids (= Dendranthema) in varieties	70-80	very late flowers
Chrysanthemum serotinum (= Leucanthemella serotina)	130-150	very late flowers
Cimicifuga species and varieties	150-200 (250)	late flowers
Delphinium-hybrids	70-200	second flowers after cutting
Echinops bannaticus 'Blue Glow'	100-120	exotic
Euphorbia griffithii 'Fireglow'	50-80	attractive into autumn
Helenium-hybrids	70-150	overflowing with flowers
Helianthus decapetalus 'Capenoch Star'	120-150	numerous late flowers
Hemerocallis-hybrids	70-90	early shoots, autumn colours
Hosta-hybrid 'Royal Standard'	50-100	early shoots, autumn colours
Hosta-hybrid 'Sum and Substance'	50-80	broad clump, autumn colours
Kniphofia-hybrid 'Royal Standard'	50-100	winter green
Ligularia species and varieties	60-150	decorative flowers and leaves
Lythrum salicaria	80-150	endless propagation by seed!
Monarda-hybrids	80-150	flowers long
Paeonia Lactiflora-hybrids	80-100 (120)	plentiful flowers, autumn colours
Phlox paniculata varieties	70-140	overflowing with flowers
Rodgersia species	60-120	persistent, decorative leaves
Sedum telephium 'Herbstfreude'	50-70	for low groups, otherwise as company

continued on next page

2 - Leader perennials

continued

Genus/species/variety	Size in cm	Special characteristics
Grasses		
Calamagrostis acutiflora 'Karl Foerster'	120-170	turns green early, attractive into autumn
Carex pendula	80-120	evergreen to nearly-evergreen
Festuca mairei	50-100	attractive into autumn
Helictotrichon sempervirens	60-100 (150)	evergreen
Miscanthus sinensis 'Gracillimus'	140-170	compact
Molinia caerulea	50-120	choose only low partners
Molinia arundinacea 'Karl Foerster'	70-180 (240)	transparent, only low partners
Panicum virgatum 'Rehbraun'	60-120	autumn colours
Ferns		
Athyrium filix-femina	50-100	early shoots, autumn colours
Dryopteris affinis	100-160	winter green, need wind protection
Dryopteris filix-mas	50-120	early shoots
Polystichum setiferum	30-80	for low groups, otherwise as company

3 - Companion perennials

Companion perennials, as the name suggests, accompany leader perennials. They can be used with the same flowers, colour, habit, or texture (=surface quality of the leaves) or in contrast to the leader.

There are four types:

1. companion perennials that flower before the leaders,
2. companion perennials that flower with the leaders,
3. companion perennials that flower after the leaders,
4. neutral companion perennials that are "only" green.

The various types are defined by the flowering period and the appearance of the leader. Long-lived companion perennials are generally planted in the front or distributed over the whole area as a group for greater contrast so that the green stays into autumn. If companion perennials wither and die early, they are more often put in the middle or the background of the bed. There, they can wither and die behind their long-lived partners without being noticed and without causing gaps in the bed.

Genus/species/variety	Size in cm	Behaviour
Achillea filipendulina varieties	70-120	long into autumn
Achillea Millefolium-hybrids	30-70	inconspicuous from August on
Achillea ptarmica 'Boule de Neige'	50-70	long-lived, becoming broad
Aconitum species and varieties	80-100	long-lived, somewhat late flowers
Alchemilla mollis	30-50	long-lived
Anchusa azurea 'Dropmore'	80-100	inconspicuous or withering from July on
Anemone hupehensis 'Septembercharme'	50-70	long-lived, becoming broad

Genus/species/variety	Size in cm	Behaviour
Anemone Japonica-hybrids	60-100	long-lived, late flowers
Aquilegia-hybrids	50-60	usually withering in June
Artemisia ludoviciana 'Silver Queen'	70-80	long-lived, keep an eye on runners
Aruncus aethusifolius	25-30	long-lived, autumn colours
Aster amellus	40-60	long-lived
Aster divaricatus	50-60	long-lived, large groups
Aster Dumosus-hybrids	30-50	long-lived, covering large surfaces
Aster novi-belgii	80-120 (140)	long-lived, numerous flowers in autumn
Astilbe Arendsii-hybrids	50-100	long-lived, autumn colours
Astilbe chinensis taquetii 'Purpurlanze'	100-110	long-lived
Astrantia major	50-70	gradually broad
Bergenia cordifolia + hybrids	30-60	winter green
Brunnera macrophylla	30-50	very early shoots
Campanula persicifolia varieties	60-80	inconspicuous from August on
Centranthus ruber 'Coccineus'	50-70	long-lived, flowers long
Chrysanthemum-hybrids varieties	40-80	very late flowers
Chrysanthemum leucanthemum varieties	50-70	better in wild beds
Chrysanthemum maximum varieties	70-80	tranplant after 3-5 years
Coreopsis grandiflora varieties	30-80	long-lived
Delphinium Belladonna-hybrids	70-130	second flowers after cutting
Dicentra spectabilis + 'Alba'	60-90	wither from June on
Digitalis grandiflora	50-100	long-lived
Digitalis purpurea 'Gloxiniaeflora'	120-150	loose appearance with propagations by seed
Doronicum orientale 'Magnificum'	40-60	wither from June on
Echinacea purpurea	70-90	wither from September on
Echinops bannaticus 'Blue Glow'	100-120	better in wild beds
Erigeron Hybriden varieties	60-70	second flowers after cutting
Euphorbia griffithii 'Fireglow'	50-80	long-lived, autumn colours
Euphorbia polychroma	30-50	early flowering, autumn colours
Geranium pratense 'Johnson's Blue'	60-70	needs staking after flowering
Gypsophila paniculata 'Schneeflocke'	70-80	second flowers after cutting
Helenium-hybrids	80-150	long-lived, better as leader
Heliopsis scabra varieties	120-130	long-lived, better as leader
Hemerocallis-hybrids	40-100	very early shoots, autumn colours
Heuchera-hybrids	30-50	front of border only
Hosta species and varieties	30-100	long-lived, autumn colours
Iris Barbata-hybrids	40-70	winter green
Kniphofia-hybrids	50-100	long-lived, winter green
Lavandula angustifolia varieties	30-60	evergreen, subshrub
Ligularia species	60-150	better as leader
Lupinus Polyphyllus-hybrids	60-100	not attractive after flowering
Monarda-hybrids	80-120	long-lived
Nepeta faassenii 'Six Hills Giant'	60-90	needs a lot of space
Oenothera tetragona	50-60	not attractive after flowering
Paeonia Lactiflora-hybrids	80-100	early shoots, autumn colours
Paeonia officinalis 'Rubra Plena'	70-80	not attractive after flowering
Papaver orientale varieties	40-100	completely withers after flowering

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3 - Companion perennials

continued

Genus/species/variety	Size in cm	Behaviour
Phlox paniculata varieties	70-90	long-lived, larger ones solitary
Polemonium caeruleum	30-80	early flowers
Primula Bullesiana-hybrids	30-50	short-lived, self-sowing
Rudbeckia fulgida 'Goldsturm'	70-90	long-lived, flowers long
Salvia nemorosa varieties	40-60	second flowers after cutting
Sedum spectabile 'Rosenteller'	30-40	long-lived, late flowers
Sedum telephium 'Herbstfreude'	50-70	attractive into winter
Solidago caesia	80-90	better in wild gardens
Symphytum azureum	50-60	not attractive after May
Trollius chinensis 'Golden Queen'	80-100	withers after flowering
Verbascum species	60-180 (220)	short-lived, self-sowing
Veronica longifolia	60-100	neutral after July
Veronica austriaca teucrium 'Königsblau'	30-40	just plant here and there, small groups
Grasses		
Carex morrowii 'Variegata'	30-40	long-lived, evergreen
Deschampsia cespitosa	30-50	long-lived, winter green
Festuca mairei	40-50 (80)	long-lived, sometimes leader
Helictotrichon sempervirens	40-60	long-lived, evergreen
Panicum virgatum 'Rehbraun'	60-80	long-lived, conspicuous autumn colours
Pennisetum alopecuroides 'Hameln'	30-40	long-lived, autumn colours into winter
Ferns		
Athyrium filix-femina	30-100	long-lived, sometimes leader
Dryopteris filix-mas	30-120	long-lived, sometimes leader
Phyllitis scolopendrium	20-40 (60)	long-lived, winter green
Polystichum setiferum varieties	30-80	long-lived

4 - Ground-covering perennials

For uniform greenery on large surfaces, use perennials that spread flatly and closely using rhizomes (subterranean runners) and/or stolons (layers above ground), forming large colonies. Sometimes, you can use perennials that grow quickly and densely with profuse seed production and prevent self-settling plants from invading with their competitiveness.

True cushion plants are not suited for covering large areas. They do not give up their compact, domed habits and therefore cannot completely overtake the areas to be settled. Cushion plants give aggressive, spontaneous vegetation the chance to settle and expand.

Large areas used to be covered with just one type of plant. Nowadays, beds are planted like mosaics. For large or small groups, ground-cover perennials of equal size and equal growth rates can be mixed to provide a lively bed of vegetation. In such a bed, spontaneous vegetation that finds its way in would not be immediately annoying as it would be if there were only one type of plant in the bed. Greatly varying sizes and growth rates will, however, create an imbalance between the partners; strong-growing perennials will dominate extremely flat ones and suppress them.

Ground-covering perennials - 4

Genus/species/variety	Use in small spaces	Use in large spaces	Number per m ²
Acaena buchananii	+		7-12
Acaena microphylla and varieties	+		7-12
Achillea tomentosa	+		7-12
Ajuga reptans varieties	+		9-16
Alchemilla mollis		+	4-5
Anaphalis triplinervis varieties	+		7-9
Antennaria dioica 'Rubra'	+		12-25
Arabis caucasica 'Schneehaube'	+		9-12
Arabis procurrans 'Glacier'	+		9-18
Artemisia ludoviciana 'Silver Queen'		+	4-5
Artemisia stelleriana	+		5-7
Asarum europaeum	+		9-16
Aster divaricatus		+	3-4
Aster dumosus varieties	+	+	5-9
Astilbe chinensis pumila	+	+	5-9
Astilbe chinensis taquetii 'Purpurlanze'		+	3-4
Astrantia major		+	4-7
Bergenia cordifolia and hybrids	+	+	5-7
Brunnera macrophylla		+	5-7
Buglossoides purpureocaerulea		+	5-9
Centaurea montana		+	4-7
Cerastium tomentosum 'Silberteppich'	+		7-12
Ceratostigma plumbaginoides	+	+	9-16
Chrysogonum virginianum	+		3-5
Corydalis lutea	+		9-18
Dianthus deltoides varieties	+		7-12
Dicentra eximia	+	+	7-12
Dryas suendermannii	+	+	9-12
Epimedium species and varieties	+	+	9-16
Fragaria vesca	+		12-25
Galium odoratum	+	+	9-16
Geranium cantabrigiense varieties	+	+	7-16
Geranium endressii		+	5-9
Geranium himalayense varieties		+	3-6
Geranium macrorrhizum varieties		+	4-9
Geranium renardii	+		5-12
Geranium sanguineum		+	5-12
Geum coccineum and hybrids	+	+	9-16
Gypsophila repens 'Rosea'	+		7-9
Helianthemum-hybrids	+		5-9
Iberis sempervirens varieties	+		5-7
Lamium maculatum varieties	+	+	7-9
Lamiaeum galeobdolon 'Florentinum'		+	5-7
Lysimachia nummularia	+		12-18
Matricaria caucasica	+		12-16
Nepeta faassenii	+	+	7-12
Oenothera missouriensis	+		5-7

continued on next page

4 - Ground-covering perennials

continued

Genus/species/variety	Use in small spaces	Use in large spaces	Number per m ²
Omphalodes verna and varieties	+	+	7-16
Phlomis russeliana		+	4-5
Phuopsis stylosa	+	+	7-12
Polygonum affine 'Darljeeling Red'		+	7-16
Potentilla aurea	+		9-16
Prunella grandiflora	+		9-16
Pulmonaria angustifolia 'Azurea'	+	+	7-16
Pulmonaria saccharata varieties	+		9-12
Sedum acre	+		12-25
Sedum album 'Coral Carpet'	+	+	9-18
Sedum floriferum 'Weihenstephaner Gold'	+	+	9-16
Sedum hybridum 'Immergrünchen'	+	+	9-16
Sedum spurium varieties	+	+	9-16
Stachys byzantina 'Silver Carpet'		+	7-12
Symphytum grandiflorum		+	5-9
Tellima grandiflora		+	5-7
Thymus species	+		12-25
Tiarella cordifolia	+	+	9-16
Veronica spicata incana	+		9-18
Vinca major		+	5-7
Vinca minor varieties	+	+	7-12
Waldsteinia geoides	+	+	7-12
Waldsteinia ternata	+	+	9-16

5 - Flowering calendar

The flowering period is not a set time. Rather, it depends on the weather and the temperature, especially in the transitional seasons of early spring and autumn. In spring, the standard flower period can be up to four weeks earlier or later.

Flowering time	Genus/species/variety	Flower colour
til March XII-II/III	Helleborus niger	milky white with green
from March III-IV	Anemone nemorosa	white, light pink on the outside
III-IV	Epimedium perralderianum 'Frohnleiten'	yellow
III-IV	Pulsatilla vulgaris	violet to violet blue
III-IV	Pulsatilla vulgaris 'Röde Klokke'	velvety dark red
III-IV/IX	Caltha palustris	golden yellow

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

Flowering time	Genus/species/variety	Flower colour
III-V	Alyssum montanum 'Berggold'	bright yellow
III-V	Omphalodes verna	sky blue
III-V	Omphalodes verna 'Alba'	white
III-V	Primula elatior	light yellow
III-V	Pulmonaria angustifolia 'Azurea'	gentian blue
III-V	Pulmonaria rubra	coral red
III-V	Symphytum grandiflorum	cream yellow
from April		
IV-V	Ajuga reptans	purple-blue
IV-V	Ajuga reptans 'Atropurpurea'	violet
IV-V	Alyssum saxatile 'Compactum'	yellow
IV-V	Arabis arendsii 'Compinkie'	light to dark pink
IV-V	Arabis caucasica 'Schneehaube'	white
IV-V	Arabis procurrens 'Glacier'	white
IV-V	Aubrieta-hybrid 'Dr. Mules' u.a.	velvety dark violet
IV-V	Aubrieta-hybrid 'Neuling'	lavender blue
IV-V	Aubrieta-hybrid 'Royal Blue'	dark blue
IV-V	Aubrieta-hybrid 'Royal Red'	magenta-red
IV-V	Bergenia cordifolia	carmine
IV-V	Bergenia cordifolia 'Rotblum'	carmine
IV-V	Bergenia-hybrid 'Silberlicht'	white with carmine
IV-V	Brunnera macrophylla	pure blue
IV-V	Buglossoides purpureocaerulea	gentian blue
IV-V	Epimedium rubrum 'Coccineum'	carmine with white
IV-V	Epimedium versicolor 'Sulphureum'	sulphur yellow
IV-V	Epimedium youngianum 'Niveum'	pale white
IV-V	Euphorbia myrsinites	yellow-green
IV-V	Fragaria vesca	white
IV-V	Galium odoratum	white
IV-V	Iris Barbata Nana-hybrid 'Coerulea'	sky blue
IV-V	Lamium maculatum 'Chequers'	carmine pink
IV-V	Lamium maculatum 'Silbergroschen'	crimson-pink
IV-V	Phlox subulata 'G. F. Wilson'	light purple-blue
IV-V	Phlox subulata 'Temiskaming'	crimson red
IV-V	Phlox subulata 'White Delight'	pure white
IV-V	Pulmonaria rubra 'Dora Bielefeld'	bright pink
IV-V	Pulmonaria saccharata 'Sissinghurst White'	pure white
IV-V	Vinca major	blue
IV-V	Waldsteinia geoides	yellow
IV-V	Waldsteinia ternata	yellow
IV-VI	Anemone sylvestris	white
IV-VI	Euphorbia polychroma	yellow bracts
IV-VI	Polemonium caeruleum	blue

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

continued on next page

5 - Flowering calendar

continued

Flowering time	Genus/species/variety	Flower colour
IV-VI	<i>Symphytum azureum</i>	sky blue
IV-VI	<i>Vinca minor</i>	blue
IV-VII/IX	<i>Chrysogonum virginianum</i>	light to golden yellow
from Mai		
V	<i>Chrysanthemum leucanthemum</i> 'Maikönigin'	milky white
V	<i>Convallaria majalis</i>	milky white
V	<i>Iris Barbata</i> Nana-hybrid 'Cyanea'	light to dark violet
V	<i>Paeonia officinalis</i> 'Rubra Plena'	blood-red
V-VI	<i>Antennaria dioica</i> 'Rubra'	pink-red
V-VI	<i>Aquilegia</i> -hybrid 'Blaue Töne'	intense blue
V-VI	<i>Aruncus aethusifolius</i>	milky white
V-VI	<i>Aster alpinus</i> 'Dunkle Schöne'	intense violet
V-VI	<i>Campanula glomerata</i> 'Alba'	pure white
V-VI	<i>Cerastium tomentosum</i> 'Silberteppich'	pale white
V-VI	<i>Dicentra spectabilis</i>	pink to carmine
V-VI	<i>Dicentra spectabilis</i> 'Alba'	pure white
V-VI	<i>Dryas suendermannii</i>	cream white to light yellow
V-VI	<i>Euphorbia griffithii</i> 'Fireglow'	orange to brick-red
V-VI	<i>Geranium himalayense</i> 'Gravetye'	bright blue
V-VI	<i>Geranium pratense</i> 'Johnsons Blue'	purple-blue
V-VI	<i>Geranium macrorrhizum</i> 'Spessart'	white with light pint
V-VI	<i>Geranium sanguineum</i>	carmine to carmine-red
V-VI	<i>Geranium magnificum</i>	purpurviolett
V-VI	<i>Geum coccineum</i> 'Borisii'	orange-red
V-VI	<i>Heuchera</i> -hybrid 'Leuchtkäfer'	dark scarlet
V-VI	<i>Heuchera</i> -hybrid 'Red Spangles'	bright red
V-VI	<i>Iris pseudacorus</i>	yellow
V-VI	<i>Iris Barbata</i> Elatior-hybrid 'Goldfackel'	yellow to orange-yellow
V-VI	<i>Lamiaeum galeobdolon</i> 'Florentinum'	light yellow
V-VI	<i>Lychnis viscaria</i> 'Plena'	carmine pink
V-VI	<i>Lysimachia nummularia</i>	yellow
V-VI	<i>Matricaria caucasica</i>	white
V-VI	<i>Paeonia Lactiflora</i> -hybrid 'Karl Rosenfield'	dark wine-red
V-VI	<i>Paeonia Lactiflora</i> -hybrid 'Sarah Bernhardt'	light silvery pink
V-VI	<i>Papaver orientale</i> 'Beauty of Livermere'	bright scarlet
V-VI	<i>Polygonatum multiflorum</i>	greenish white
V-VI	<i>Saxifraga urbium</i> 'Clarence Elliott'	pink
V-VI	<i>Stipa pulcherrima</i>	silvery
V-VI	<i>Tellima grandiflora</i>	greenish pink
V-VI	<i>Thymus doerfleri</i> 'Bressingham Seedling'	pink
V-VI	<i>Tiarella cordifolia</i>	pale white with pink
V-VI	<i>Veronica austriaca</i> <i>teucrium</i> 'Königsblau'	bright blue

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

Flowering time	Genus/species/variety	Flower colour
V-VII	<i>Centaurea montana</i>	blue
V-VII	<i>Geranium macrorrhizum</i> 'Ingwersen'	light to pale pink
V-VII	<i>Geranium macrorrhizum</i> 'Spessart'	whitish pink
V-VII	<i>Geum coccineum</i> 'Borrisii'	bright orange
V-VII	<i>Gypsophila repens</i> 'Rosea'	pink
V-VII	<i>Potentilla aurea</i>	yellow
V-VIII	<i>Gypsophila-Repens-hybrid</i> 'Rosenschleier'	pink
V/VIII	<i>Iris Barbata Elatior-hybrid</i> 'Lovely Again'	lavender
V-IX	<i>Corydalis lutea</i>	light yellow to yellow
V-IX	<i>Helianthemum-hybrid</i> 'Bronzeteppich'	brown orange
V-IX	<i>Helianthemum-hybrid</i> 'Cerise Queen'	carmine
V-IX	<i>Helianthemum-hybrid</i> 'Lawrensens Pink'	intense pink
V-IX	<i>Helianthemum-hybrid</i> 'Rubin'	ruby red
V-IX	<i>Helianthemum-hybrid</i> 'Snow Queen'	white
V-IX	<i>Helianthemum-hybrid</i> 'Sterntaler'	golden yellow
V-IX	<i>Nepeta faassenii</i> and varieties	purple
from Juni		
VI	<i>Aquilegia alpina</i>	pure blue
VI	<i>Dianthus deltoides</i> 'Alba'	white with pink mottling
VI	<i>Hemerocallis-hybrid</i> 'Corky'	golden yellow
VI	<i>Iris sibirica</i> 'Phosphorflamme'	various hues of blue
VI	<i>Paeonia Lactiflora-hybrid</i> 'Bunker Hill'	bright carmine
VI	<i>Papaver orientale</i> 'Königin Alexandra'	salmon pink
VI	<i>Physalis alkekengi franchetii</i>	greenish cream-white
VI-VII	<i>Achillea tomentosa</i> 'Aurea'	golden yellow
VI-VII	<i>Achillea Millefolium-hybrid</i> 'Kirschkönigin'	carmine
VI-VII	<i>Aconitum napellus</i>	dark blue
VI-VII	<i>Aconitum cammarum</i> 'Bicolor'	blue with white
VI-VII	<i>Anaphalis triplinervis</i> 'Sommerschnee'	milky white
VI-VII	<i>Anchusa azurea</i> 'Dropmore'	bright blue
VI-VII	<i>Artemisia ludoviciana</i> 'Silver Queen'	grey
VI-VII	<i>Aruncus dioicus</i>	cream-white
VI-VII	<i>Astrantia major</i>	silvery white with pink
VI-VII	<i>Campanula carpatica</i> 'Blaue Clips'	violet blue
VI-VII	<i>Campanula carpatica</i> 'Weiße Clips'	pure white
VI-VII	<i>Campanula persicifolia</i> 'Grandiflora Alba'	pure white
VI-VII	<i>Campanula persicifolia</i> 'Grandiflora Coerulea'	porcelian blue
VI-VII	<i>Chrysanthemum maximum</i> varieties	milky white
VI-VII	<i>Delphinium grandiflorum</i> 'Blauer Zwerg'	bright sky blue
VI-VII	<i>Dianthus deltoides</i> 'Brilliant'	bright ruby red
VI-VII	<i>Dianthus Plumarius-hybrid</i> 'Haytor'	white

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

continued on next page

5 - Flowering calender

continued

Flowering time	Genus/species/variety	Flower colour
VI-VII	<i>Dianthus Plumarius</i> -hybrid 'Maggie'	carmine pink with red
VI-VII	<i>Dicentra eximia</i>	crimson-pink
VI-VII	<i>Digitalis purpurea</i> 'Gloxiniaeflora'	pink, carmine, crimson
VI-VII	<i>Geranium clarkei</i> 'Kashmir White'	white with pink veins
VI-VII	<i>Geranium renardii</i>	whitish pink
VI-VII	<i>Geranium catabrigiense</i> 'Biokovo'	white with pink shimmer
VI-VII	<i>Geranium catabrigiense</i> 'Cambridge'	dark pink
VI-VII	<i>Geum</i> -hybrid 'Goldball'	yellow
VI-VII	<i>Hemerocallis</i> -hybrid 'Pink Damask'	pink with salmon-orange
VI-VII	<i>Hemerocallis</i> -hybrid 'Stella de Oro'	golden yellow to orange-yellow
VI-VII	<i>Hosta crispula</i>	light purple
VI-VII	<i>Hypericum polyphyllum</i>	golden yellow
VI-VII	<i>Iberis sempervirens</i> varieties	bright white
VI-VII	<i>Lathyrus latifolius</i>	carmine
VI-VII	<i>Lupinus Polyphyllus</i> -hybrid 'Kastellan'	blue with white
VI-VII	<i>Lupinus Polyphyllus</i> -hybrid 'Mein Schloss'	tile-red with red
VI-VII	<i>Lupinus Polyphyllus</i> -hybrid 'Schlossfrau'	pink with white
VI-VII	<i>Rodgersia aesculifolia</i>	cream-white
VI-VII	<i>Rodgersia pinnata</i>	cream-white
VI-VII	<i>Sagina subulata</i>	white
VI-VII	<i>Sedum acre</i>	bright yellow
VI-VII	<i>Sedum album</i> 'Coral Carpet'	white with pink shimmer
VI-VII	<i>Sedum floriferum</i> 'Weihenstephaner Gold'	golden yellow
VI-VII	<i>Sedum hybridum</i> 'Immergrünchen'	yellow
VI-VII	<i>Trollius chinensis</i> 'Golden Queen'	yellow-orange to orange
VI-VII	<i>Veronica spicata incana</i>	dark blue
VI-VII/VIII	<i>Gypsophila paniculata</i> 'Schneeflocke'	pale white
VI-VII/IX	<i>Alchemilla mollis</i>	yellow-green
VI-VII/IX	<i>Delphinium Belladonna</i> -hybrid 'Casa Blanca'	white
VI-VII/IX	<i>Delphinium Belladonna</i> -hybrid 'Piccolo'	gentian blue
VI-VII/IX	<i>Delphinium Elatum</i> -hybrid 'Waldenburg'	deep, dark blue
VI-VII/IX	<i>Erigeron</i> -hybrid 'Grandiflorus'	purple-blue
VI-VII/IX	<i>Geum</i> -hybrid 'Dolly North'	orange-red
VI-VIII	<i>Astilbe Arendsii</i> -hybrid 'Anita Pfeiffer'	salmon pink
VI-VIII	<i>Campanula glomerata</i> 'Dahurica'	deep violet blue
VI-VIII	<i>Campanula poscharskyana</i> 'Blauranke'	light violet blue
VI-VIII	<i>Delphinium-Elatum</i> -hybrid 'Blauwal'	ultramarine blue
VI-VIII	<i>Digitalis grandiflora</i>	sulphur yellow
VI-VIII	<i>Linum perenne</i> 'Saphir'	bright blue
VI-VIII	<i>Lysimachia punctata</i>	yellow
VI-VIII	<i>Lythrum salicaria</i>	carmine
VI-VIII	<i>Nuphar lutea</i>	yellow

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

Flowering time	Genus/species/variety	Flower colour
VI-VIII	<i>Nymphaea alba</i>	milky white
VI-VIII	<i>Nymphaea</i> -hybrid 'James Brydon'	carmine
VI-VIII	<i>Nymphaea</i> -hybrid 'Marliacea Chromatella'	light yellow
VI-VIII	<i>Nymphaea odorata</i> 'Rosennymphe'	intense pink, light pink
VI-VIII	<i>Oenothera tetragona</i>	bright golden yellow
VI-VIII	<i>Phlomis russeliana</i>	light yellow
VI-VIII	<i>Primula-Bullesiana</i> -hybrids	salmon pink, whitish pink, yellow, golden yellow-orange, apricot, orange, salmon
VI-VIII	<i>Prunella grandiflora</i>	crimson-violet
VI-VIII	<i>Ranunculus lingua</i>	yellow
VI-VIII	<i>Sagittaria sagittifolia</i>	white
VI-VIII	<i>Salvia nemorosa</i> 'Blauhügel'	blue
VI-VIII	<i>Salvia nemorosa</i> 'Ostfriesland'	deep violet
VI-VIII	<i>Stratiotes aloides</i>	white
VI-VIII	<i>Thymus serpyllum</i> 'Coccineus'	crimson red
VI-VIII	<i>Verbascum olympicum</i>	bright yellow
VI-VIII/IX	<i>Delphinium-Belladonna</i> -hybrid 'Atlantis'	dark blue-violet
VI-IX	<i>Achillea filipendulina</i> varieties	golden yellow
VI-IX	<i>Alisma plantago-aquatica</i>	white to whitish pink
VI-IX	<i>Calamintha nepeta nepeta</i>	whitish purple
VI-IX	<i>Centranthus ruber</i> 'Coccineus'	carmine pink
VI-IX	<i>Coreopsis grandiflora</i> 'Early Sunrise'	golden yellow
VI-IX	<i>Coreopsis verticillata</i> 'Grandiflora'	bright yellow
VI-IX	<i>Coreopsis Verticillata</i> -hybrid 'Moonbeam'	light yellow
VI-IX	<i>Coreopsis Verticillata</i> -hybrid 'Zagreb'	golden yellow
VI-IX	<i>Oenothera missouriensis</i>	light to citrus yellow
VI-IX	<i>Origanum vulgare</i> 'Compactum'	violet-pink
VI-IX	<i>Phuopsis stylosa</i>	pink
VI-IX	<i>Polygonum affine</i> 'Darjeeling Red'	pink to crimson-pink
VI-X	<i>Filipendula ulmaria</i>	cream-white
VI-X (XI)	<i>Geranium endressii</i>	pink
from Juli		
VII	<i>Artemisia schmidtiana</i> 'Nana'	grey-white
VII	<i>Astilbe Arendsii</i> -hybrid 'Fanal'	ruby red
VII	<i>Hosta sieboldiana</i> 'Elegans'	whitish purple
VII-VIII	<i>Artemisia stelleriana</i>	yellowish grey
VII-VIII	<i>Aster amellus</i> 'Rudolf Goethe'	lavender blue
VII-VIII	<i>Aster amellus</i> 'Sternkugel' u.a.	light violet
VII-VIII	<i>Astilbe chinensis taquetii</i> 'Purpurlanze'	crimson red
VII-VIII	<i>Astilbe Arendsii</i> -hybrid 'Brautschleier'	white to cream-white
VII-VIII	<i>Astilbe Arendsii</i> -hybrid 'Rotlicht'	bright ruby red
VII-VIII	<i>Helenium</i> -hybrid 'Moerheim Beauty'	mahogany-red

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

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5 - Flowering calendar

continued

Flowering time	Genus/species/variety	Flower colour
VII-VIII	Helenium-hybrid 'Waltraud'	copper-red with yellow
VII-VIII	Hemerocallis-hybrid 'Sammy Russel'	tile-red
VII-VIII	Hosta fortunei 'Aureomarginata'	light violet
VII-VIII	Hosta-hybrid 'Royal Standard'	milky white
VII-VIII	Inula ensifolia	yellow
VII-VIII	Inula magnifica	golden yellow
VII-VIII	Lavandula angustifolia 'Dwarf Blue'	deep blue
VII-VIII	Lavandula angustifolia varieties	purple to violet
VII-VIII	Macleaya cordata	cream-white
VII-VIII	Phlox paniculata 'Starfire'	bright tile-red
VII-VIII	Sedum spurium 'Album Superbum'	white
VII-VIII	Sedum spurium 'Fuldaglut'	carmine
VII-VIII	Veronica longifolia	light blue
VII-IX	Achillea ptarmica 'Boule de Neige'	white
VII-IX	Butomus umbellatus	pink
VII-IX	Delphinium Elatum-hybrid 'Finsteraarhorn'	violet blue with black
VII-IX	Echinacea purpurea	carmine
VII-IX	Echinops bannaticus 'Blue Glow'	intense steel blue
VII-IX	Eryngium planum	steel blue
VII-IX	Heliopsis scabra 'Goldgefieder'	golden yellow
VII-IX	Heliopsis scabra 'Spitzentänzerin'	orange-yellow
VII-IX	Kniphofia-hybrid 'Royal Standard'	buds red, flowers yellow
VII-IX	Kniphofia-hybrids - mixed colours	yellow to orange-yellow, orange-yellow to orange, orange-red to rot
VII-IX	Monarda-hybrid 'Cambridge Scarlet'	scarlet
VII-IX	Monarda-hybrid 'Croftway Pink'	salmon pink
VII-IX	Monarda-hybrid 'Prärienacht'	deep crimson red
VII-IX	Origanum-Laevigatum-hybrid 'Herrenhausen'	red-violet
VII-IX	Rudbeckia fulgida 'Goldsturm'	golden yellow with black
from August		
VIII	Astilbe Arendsii-hybrid 'Glut'	dark red
VIII	Hosta lancifolia	crimson-violet
VIII	Hosta ventricosa	crimson-violet
VIII	Hosta tardiflora-hybrid 'Halcyon'	lavender
VIII	Phlox paniculata 'Eventide'	light purple-blue
VIII	Phlox paniculata varieties	pink to carmine
VIII	Phlox paniculata 'Kirmesländler'	white with pink bud
VIII-IX	Anemone hupehensis 'Septembercharme'	light pink-carmine
VIII-IX	Anemone Japonica-hybrid 'Honorine Jobert'	pure white
VIII-IX	Aster amellus 'Lady Hindlip'	pink
VIII-IX	Aster divaricatus	pale white

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

Flowering time	Genus/species/variety	Flower colour
VIII-IX	<i>Aster novae-angliae</i> 'Alma Pötschke'	salmon pink to salmon-red
VIII-IX	<i>Astilbe chinensis</i> pumila	violet-pink
VIII-IX	<i>Astilbe Arendsii</i> -hybrid 'Cattleya'	carmine pink
VIII-IX	<i>Chrysanthemum</i> -hybrid 'Bronzeteppich'	orange to brown-red
VIII-IX	<i>Chrysanthemum</i> -hybrid 'Orchid Helen'	purple-pink
VIII-IX	<i>Cimicifuga racemosa cordifolia</i>	cream-white
VIII-IX	<i>Eupatorium fistulosum</i> 'Atropurpureum'	crimson-carmine
VIII-IX	<i>Helenium</i> -hybrid 'Baudirektor Linne'	red-brown to tile-red
VIII-IX	<i>Helenium</i> -hybrid 'Kugelsonne'	yellow
VIII-IX	<i>Helianthus decapetalus</i> 'Capenoch Star'	golden yellow
VIII-IX	<i>Hosta</i> -hybrid 'Sum and Substance'	purple to lavender blue
VIII-IX	<i>Ligularia</i> species and varieties	yellow to golden yellow
VIII-IX	<i>Phlox paniculata</i> 'Nymphenburg'	white
VIII-IX	<i>Phlox paniculata</i> 'Pax'	pure white
VIII-IX	<i>Rudbeckia nitida</i> 'Herbstsonne'	yellow
VIII-X	<i>Sedum spectabile</i> 'Rosenteller'	pale carmine pink
from September		
IX	<i>Aster novae-angliae</i> 'Andenken an Paul Gerber'	carmine
IX	<i>Aster novae-angliae</i> 'Septemberrubin'	ruby red
IX	<i>Chrysanthemum</i> -hybrid 'Citrus'	light yellow
IX	<i>Cimicifuga ramosa</i> 'Atropurpurea'	white with pink shimmer
IX-X	<i>Aconitum carmichaelii</i> 'Arendsii'	violet blue
IX-X	<i>Anemone Japonica</i> -hybrid 'Bressingham Glow'	dark ruby-pink
IX-X	<i>Anemone Japonica</i> -hybrid 'Prinz Heinrich'	crimson red
IX-X	<i>Aster amellus</i> 'Veilchenkönigin'	dark ruby-pink
IX-X	<i>Aster novae-angliae</i> 'Barr's Blue'	dark lavender blue
IX-X	<i>Aster novae-angliae</i> 'Purple Dome'	dark ruby-pink
IX-X	<i>Aster novae-angliae</i> 'Rudelsburg'	salmon pink
IX-X	<i>Aster novi-belgii</i> 'Blaue Nachhut'	light lavender blue
IX-X	<i>Aster novi-belgii</i> 'Dauerblau'	dark purple-blue
IX-X	<i>Aster novi-belgii</i> 'Karminkuppel'	carmine
IX-X	<i>Aster novi-belgii</i> 'Schöne von Dietlikon'	purple-blue
IX-X	<i>Aster Dumosus</i> -hybrid 'Herbstgruß vom Bresserhof'	pink-red
IX-X	<i>Aster Dumosus</i> -hybrid 'Kassel'	carmine
IX-X	<i>Aster Dumosus</i> -hybrid 'Professor Anton Kippenberg'	blue
IX-X	<i>Aster Dumosus</i> -hybrid 'Schneekissen'	white
IX-X	<i>Aster Dumosus</i> -hybrid 'Wachsenburg'	violet-pink
IX-X	<i>Chrysanthemum serotinum</i>	pale white
IX-X	<i>Chrysanthemum</i> -hybrid 'Edelweiß'	white
IX-X	<i>Chrysanthemum</i> -hybrid 'Fellbacher Wein'	wine red
IX-X	<i>Chrysanthemum</i> -hybrid 'Schwabenstolz'	dark bronze red
IX-X	<i>Chrysanthemum</i> -hybrid 'White Bouquet'	white with pink shimmer
IX-X	<i>Cortaderia selloana</i>	silvery white
IX-X	<i>Miscanthus sinensis</i> 'Silberfeder'	silvery
IX-X	<i>Sedum telephium</i> 'Herbstfreude'	carmine-crimson to carmine-brown
IX-X	<i>Solidago caesia</i>	golden yellow
IX-XI	<i>Ceratostigma plumbaginoides</i>	gentian blue

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

6 - Red-flower perennials

The colour red occurs in three forms among perennials: as a flower colour, as foliage colour-where it tends towards brownish-and finally as autumn colours (see table of foliage and autumn colours). This red can either be used in monochrome gardens-i.e. where only red is used aside from the normal green of the leaves-or as flower colour and leaf colour. Along with these artificial, artful design motifs, the use of red can be used in diverse colour combinations such as the "warm" colour sequence: red-orange-yellow or the "primary contrast", a three-colour spectrum with the three primary colours red-yellow-blue as well as in free variations with other colours, such as with white and purple.

Two basic distinctions in topiary are made with red: warm red such as brick-red, scarlet, velvety brown-red, etc. and cold red: carmine, crimson red.

Genus/species/variety	Flower colour	Flowering time
Aster novae-angliae 'Septemberrubin'	ruby red	IX
Astilbe Arendsii-hybrid 'Fanal'	ruby red	VII
Astilbe Arendsii-hybrid 'Glut'	dark red	VIII
Astilbe Arendsii-hybrid 'Rotlicht'	bright ruby red	VII-VIII
Chrysanthemum-hybrid 'Bronzeteppich'	brown-red to orange	VIII-IX
Chrysanthemum-hybrid 'Fellbacher Wein'	wine red	IX-X
Chrysanthemum-hybrid 'Schwabenstolz'	dark bronze red	IX-X
Dianthus deltoides 'Brillant'	bright ruby red	VI-VII
Euphorbia griffithii 'Fireglow'	orange-red (bracts)	V-VI
Geum coccineum 'Borisii'	orange-red	V-VI
Geum-hybrid 'Dolly North'	orange-red	VI-VII/IX
Helenium-hybrid 'Baudirektor Linne'	red-brown to tile-red	VIII-IX
Helenium-hybrid 'Moerheim Beauty'	mahogany-red	VII-VIII
Helenium-hybrid 'Waltraud'	copper-red with yellow	VII-VIII
Helianthemum-hybrids 'Bronzeteppich'	brown orange	V-IX
Hemerocallis-hybrid 'Sammy Russel'	tile-red	VII-VIII
Heuchera-hybrid 'Red Spangles'	bright red	V-VI
Heuchera-hybrid 'Leuchtkäfer'	dark scarlet	V-VI
Kniphofia-hybrid 'Royal Standard'	buds orange-scarlet, then yellow	VII-IX
Kniphofia-hybrids - Farbmischung	orange-red to red	VII-IX
Lupinus Polyphyllus-hybrid 'Mein Schloss'	tile-red with red	VI-VII
Monarda-hybrid 'Cambridge Scarlet'	scarlet	VII-IX
Paeonia Lactiflora-hybrid 'Karl Rosenfield'	dark wine-red	V-VI
Paeonia officinalis 'Rubra Plena'	blood-red	V
Papaver orientale 'Beauty of Livermere'	bright scarlet	V-VI
Phlox paniculata 'Starfire'	bright tile-red (signal red)	VII-VIII
Pulmonaria rubra	coral red	III-V
Pulsatilla vulgaris 'Röde Klokke'	velvety dark red	III-IV

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

7 - Orange-flower perennials

Orange is a mixed colour between warm red and yellow and can be used equally well with both. Partners that are full of contrasts would have blue-violet hues, colours that would have to be far more plentiful than orange in a bed in order to match the powerful glow of orange. Orange occurs among perennials both as a flower colour and as an autumn colour. The hues of apricot and salmon-orange are counted under the main colour orange.

Orange-flower perennials - 7

Genus/species/variety	Flower colour	Flowering time
Chrysanthemum-hybrid 'Bronzeteppich'	orange to brown-red	VIII-IX
Euphorbia griffithii 'Fireglow'	orange to brick-red	V-VI
Geum coccineum 'Borrisii'	bright orange	V-VII
Heliopsis scabra 'Spitzentänzerin'	orange-yellow	VII-IX
Kniphofia-hybrids - Farbmischung	orange-yellow to orange	VII-IX
Primula-Bullesiana-hybrids	apricot, orange, salmon	VI-VIII
Trollius chinensis 'Golden Queen'	yellow-orange to orange	VI-VII

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

Yellow-flower perennials - 8

Yellow-flower perennials are very common. Yellow is used often in various three-colour combinations, for instance in the primary three colours, a combination of red, yellow, and blue, the only pure colours that cannot be gained from any combinations. It also plays an important role in the classic triad of yellow, white and blue.

Genus/species/variety	Flower colour	Flowering time
Achillea filipendulina varieties	golden yellow	VI-IX
Achillea tomentosa 'Aurea'	golden yellow	VI-VII
Alchemilla mollis	yellow-green	VI-VII/IX
Alyssum montanum 'Berggold'	bright yellow	III-V
Alyssum saxatile 'Compactum'	yellow	IV-V
Chrysanthemum-hybrid 'Citrus'	light yellow	IX
Chrysogonum virginianum	light to golden yellow	IV-VII/IX
Coreopsis grandiflora 'Early Sunrise'	golden yellow	VI-IX
Coreopsis verticillata 'Grandiflora'	bright yellow	VI-IX
Coreopsis Verticillata-hybrid 'Moonbeam'	light yellow	VI-IX
Coreopsis Verticillata-hybrid 'Zagreb'	golden yellow	VI-IX
Corydalis lutea	light yellow to yellow	V-IX
Digitalis grandiflora	sulphur yellow	VI-VIII
Epimedium perralderianum 'Frohnleiten'	yellow	III-IV
Epimedium versicolor 'Sulphureum'	sulphur yellow	IV-V
Euphorbia myrsinites	yellow-green	IV-V
Euphorbia polychroma	bright yellow bracts	IV-VI
Geum-hybrid 'Goldball'	yellow	VI-VII
Helenium-hybrid 'Kugelsonne'	yellow	VIII-IX
Helianthemum-hybrid 'Sterntaler'	golden yellow	V-IX
Helianthus decapetalus 'Capenoch Star'	golden yellow	VIII-IX
Heliopsis scabra 'Goldgefieder'	golden yellow	VII-IX
Heliopsis scabra 'Spitzentänzerin'	orange yellow	VII-IX
Hemerocallis-hybrid 'Corky'	golden yellow	VI

Explanation of symbols: I - XII = flowering period month- January (= I) to December (= XII)

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8 - Yellow-flower perennials

continued

Genus/species/variety	Flower colour	Flowering time
Hemerocallis-hybrid 'Stella de Oro'	golden yellow to orange-yellow	VI-VII
Hypericum polyphyllum	golden yellow	VI-VII
Inula ensifolia	yellow	VII-VIII
Inula magnifica	golden yellow	VII-VIII
Iris Barbata Elatior-hybrid 'Goldfackel'	yellow to orange-yellow	V-VI
Kniphofia-hybrid 'Royal Standard'	buds red, flower yellow	VII-IX
Kniphofia-hybrids - mixed colours	yellow to orange-yellow	VII-IX
Lamium galeobdolon 'Florentinum'	light yellow	V-VI
Ligularia species and varieties	yellow to golden yellow	VIII-IX
Lysimachia nummularia	yellow	V-VI
Lysimachia punctata	yellow	VI-VIII
Oenothera missouriensis	light to citrus yellow	VI-IX
Oenothera tetragona	bright golden yellow	VI-VIII
Phlomis russeliana	light yellow	VI-VIII
Potentilla aurea	yellow	V-VII
Primula-Bullesiana-hybrids	yellow, golden yellow, orange-yellow	VI-VIII
Primula elatior	light yellow	III-V
Rudbeckia fulgida 'Goldsturm'	golden yellow with black centre	VII-IX
Rudbeckia nitida 'Herbstsonne'	yellow	VIII-IX
Sedum acre	bright yellow	VI-VII
Sedum floriferum 'Weihenstephaner Gold'	golden yellow	VI-VII
Sedum hybridum 'Immergrünchen'	yellow	VI-VII
Solidago caesia	golden yellow	IX-X
Symphytum grandiflorum	cream yellow	III-V
Verbascum olympicum	bright yellow	VI-VIII
Waldsteinia geoides	yellow	IV-V
Waldsteinia ternata	yellow	IV-V
Aquatic plants		
Caltha palustris	golden yellow	III-IV/IX
Iris pseudacorus	yellow	V-VI
Nuphar lutea	yellow	VI-VIII
Nymphaea-hybrid 'Marliacea Chromatella'	light yellow	VI-VIII
Ranunculus lingua	yellow	VI-VIII

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

Overview of foliage colours

Genus/species/variety	Flower colour
Hosta fortunei 'Aureo-marginata'	green leaves with yellow margin
Hosta-hybrid 'Sum and Substance'	shoots bright yellow, then citrus yellow to yellowish
Scirpus tabernaemontanii	green stalk with yellow crossways stripes

Yellow-flower perennials - 8

Overview of autumn colours

Genus/species/variety	Flower colour
Aconitum carmichaelii 'Arendsii'	yellow (often along with flowers!)
Aruncus dioicus	light yellow to yellow
Convallaria majalis	yellow
Filipendula ulmaria	yellowish
Geranium renardii	light yellow
Hemerocallis-hybrids	yellow to greenish yellow
Hosta species and varieties	bright yellow
Macleaya cordata	light yellow
Polygonatum multiflorum	light yellow
Calamagrostis acutiflora 'Karl Foerster'	yellow
Carex montana	yellow to orange-brown
Miscanthus giganteus	yellow to yellow-orange
Molinia species	bright yellow
Pennisetum alopecuroides	straw-yellow

Blue-flower perennials - 9

Pure blue is a rather uncommon flower colour. Usually it is confused with purple or even violet and used synonymously. As the "coldest" colour, blue has the least glow; it is seldom used alone, but rather in various colour combinations: for example, in contrast to bright red or in the classic triad yellow-white-blue. Partners of blue are golden yellow and orange hues, which should be used with care lest their bright glows overshadow the effects of the blue (GOETHE: "Blue - an attractive nothing.").

Genus/species/variety	Flower colour	Flowering time
Aconitum cammarum 'Bicolor'	blue with white	VI-VII
Aconitum carmichaelii 'Arendsii'	violet blue	IX-X
Aconitum napellus	dark blue	VI-VII
Ajuga reptans	purple-blue	IV-V
Anchusa azurea 'Dropmore'	bright blue	VI-VII
Aquilegia alpina	pure blue	VI
Aquilegia-hybrid 'Blaue Töne'	intense blue	V-VI
Aster amellus 'Rudolf Goethe'	lavender blue	VII-VIII
Aster-Dumosus-hybrid 'Professor Anton Kippenberg'	blue	IX-X
Aster novae-angliae 'Barr's Blue'	dark lavender blue	IX-X
Aster novi-belgii 'Blaue Nachhut'	light lavender blue	IX-X
Aster novi-belgii 'Dauerblau'	dark purple-blue	IX-X
Aubrieta-hybrid 'Neuling'	lavender blue	IV-V
Aubrieta-hybrid 'Royal Blue'	dark blue	IV-V
Brunnera macrophylla	pure blue	(III) IV-V
Buglossoides purpureoerulea	gentian blue	IV-V

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

continued on next page

9 - Blue-flower perennials

continued

Genus/species/variety	Flower colour	Flowering time
Campanula carpatica 'Blaue Clips'	violet blue	VI-VII
Campanula persicifolia 'Grandiflora Coerulea'	porcelian blue	VI-VII
Campanula poscharskyana 'Blauranke'	light violet blue	VI-VIII
Centaurea montana	blue	V-VII
Ceratostigma plumbaginoides	gentian blue	IX-XI
Delphinium Belladonna-hybrid 'Piccolo'	gentian blue	VI-VII/IX
Delphinium Elatum-hybrid 'Blauwal'	ultramarine blue	VI/VIII
Delphinium Elatum-hybrid 'Waldenburg'	deep, dark blue	VI-VII/IX
Delphinium grandiflorum 'Blauer Zwerg'	bright sky blue	VI-VII
Echinops bannaticus 'Blue Glow'	intense steel blue	VII-IX
Erigeron-hybrid 'Grandiflorus'	purple-blue	VI-VII/IX
Eryngium planum	steel blue	VII-IX
Geranium himalayense 'Gravetye'	bright blue	V-VI
Geranium pratense 'Johnsons Blue'	purple-blue	V-VI
Hosta-hybrid 'Sum and Substance'	lavender blue	VIII-IX
Iris Barbata Nana-hybrid 'Coerulea'	sky blue	IV-V
Iris sibirica 'Phosphorflamme'	various hues of blue	VI
Lavandula angustifolia 'Dwarf Blue'	deep blue	VII-VIII
Lavandula angustifolia 'Munstead'	intense-lavender blue	VII-VIII
Linum perenne 'Saphir'	bright blue	VI-VIII
Lupinus Polyphyllus-hybrid 'Kastellan'	blue with white	VI-VII
Omphalodes verna	sky blue	III-V
Polemonium caeruleum	blue	IV-VI
Pulmonaria angustifolia 'Azurea'	gentian blue	III-V
Salvia nemorosa 'Blauhügel'	blue	VI/VIII
Symphytum azureum	sky blue	IV-VI
Veronica austriaca teucrium 'Königsblau'	bright blue	V-VI
Veronica longifolia	light blue	VII-VIII
Veronica spicata incana	dark blue	VI-VII
Vinca major	blue	IV-V
Vinca minor	blue	IV-VI

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

Purple and violet-flower perennials - 10

Purple and violet are mixed colours found between pure blue and clear red. Both colour pigments are constantly confused and even held to be blue. Purple lies between blue and violet on the colour spectrum. It is best understood as “blue with a touch of red”; it corresponds to the wild colours of lilacs (German for purple: “purple”) or lavender. Violet is found between purple and red; it is “red with a touch of blue”. It is best represented by *Salvia nemorosa* ‘Ostfriesland’. Both mixed colours flow imperceptibly into one another, which precludes a sharp distinction.

Partners of purple and violet are golden yellow to orange, but also citrus green hues. Deep brown foliage is also special: it can be used as a blackish yellow and even enhances the glow of deep violet in a leaf-flower combination.

Genus/species/variety	Flower colour	Flowering time
<i>Ajuga reptans</i>	purple-blue	IV-V
<i>Ajuga reptans</i> 'Atropurpurea'	violet	IV-V
<i>Aster alpinus</i> 'Dunkle Schöne'	intense violet	V-VI
<i>Aster amellus</i> 'Sternkugel' u.a.	light violet	VII-VIII
<i>Aster amellus</i> 'Veilchenkönigin'	dark ruby-pink	IX-X
<i>Aster novae-angliae</i> 'Purple Dome'	dark ruby-pink	IX-X
<i>Aster novi-belgii</i> 'Dauerblau'	purple-blue	IX-X
<i>Aster novi-belgii</i> 'Schöne von Dietlikon'	purple-blue	IX-X
<i>Aubrieta</i> -hybrids 'Dr. Mules' u.a.	velvety dark violet	IV-V
<i>Calamintha nepeta</i>	whitish purple	VI-IX
<i>Campanula carpatica</i> 'Blaue Clips'	light blue-violet	VI-VII
<i>Campanula glomerata</i> 'Dahurica'	deep violet blue	VI-VIII
<i>Campanula poscharskyana</i> 'Blauranke'	purple to violet blue	VI-VIII
<i>Delphinium Belladonna</i> -hybrid 'Atlantis'	dark blue-violet	VI-VIII/IX
<i>Delphinium Elatum</i> -hybrid 'Finsteraarhorn'	violet blue with black	VII/IX
<i>Erigeron</i> -hybrid 'Grandiflorus'	purple-blue	VI-VII/IX
<i>Geranium himalayense</i> 'Gravetye'	blue with purple, looks violet	V-VI
<i>Geranium magnificum</i>	crimson-violet	V-VI
<i>Hosta crispula</i>	light purple	VI-VII
<i>Hosta fortunei</i> 'Aureomarginata'	light violet	VII-VIII
<i>Hosta lancifolia</i>	crimson-violet	VIII
<i>Hosta sieboldiana</i> 'Elegans'	whitish purple	VII
<i>Hosta ventricosa</i>	crimson-violet	VIII
<i>Hosta tardiflora</i> -hybrid 'Halcyon'	lavender	VIII
<i>Hosta</i> -hybrid 'Sum and Substance'	purple to lavender blue	VIII-IX
<i>Iris Barbata</i> <i>Elatior</i> -hybrid 'Lovely Again'	lavender	V/VIII
<i>Iris Barbata</i> <i>Nana</i> -hybrid 'Cyanea'	light to dark violet	V
<i>Lavandula angustifolia</i> varieties	purple to violet	VII-VIII
<i>Nepeta faassenii</i> varieties	purple	V-IX
<i>Phlox paniculata</i> 'Eventide'	light purple-blue	VIII
<i>Phlox subulata</i> 'G. F. Wilson'	light purple-blue	IV-V
<i>Prunella grandiflora</i>	crimson-violet	VI-VIII
<i>Pulsatilla vulgaris</i>	violet to violet blue	III-IV
<i>Salvia nemorosa</i> 'Ostfriesland'	deep violet	VI/VIII

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

11 - Pink, carmine, magenta and crimson perennials

The colours pink and carmine are additional mixed colours. The mixture of white and red pigments produces pink. The less white in the mixture, the more the red will dominate. Intermediate colours are carmine-pink and pure carmine, a cold hue of red. An especially intense carmine with a bit of violet is called magenta-red. Other hues are carmine-red and, finally, ruby, wine and crimson red, all of which are deep hues of red. Their partners are pure white, green-yellow hues and purple.

Genus/species/variety	Flower colour	Flowering time
<i>Achillea Millefolium</i> -hybrid 'Kirschkönigin'	carmine	VI-VII
<i>Anemone hupehensis</i> 'Septembercharme'	light pink-carmine	VIII-IX
<i>Anemone Japonica</i> -hybrid 'Bressingham Glow'	dark ruby-pink	IX-X
<i>Anemone Japonica</i> -hybrid 'Prinz Heinrich'	crimson red	IX-X
<i>Antennaria dioica</i> 'Rubra'	pink-red	V-VI
<i>Arabis arendsii</i> 'Compinkie'	light to dark pink	IV-V
<i>Aster amellus</i> 'Lady Hindlip'	pink	VIII-IX
<i>Aster Dumosus</i> -hybrid 'Herbstgruß vom Bresserhof'	pink-red	IX-X
<i>Aster Dumosus</i> -hybrid 'Kassel'	carmine	IX-X
<i>Aster Dumosus</i> -hybrid 'Wachsenburg'	violet-pink	IX-X
<i>Aster novae-angliae</i> 'Alma Pötschke'	salmon pink to salom-red	VIII-IX
<i>Aster novae-angliae</i> 'Andenken an Paul Gerber'	carmine	IX
<i>Aster novae-angliae</i> 'Rudelsburg'	salmon pink	IX-X
<i>Aster novae-angliae</i> 'Septemberrubin'	ruby red	IX
<i>Aster novi-belgii</i> 'Karminkuppel'	carmine	IX-X
<i>Astilbe Arendsii</i> -hybrid 'Anita Pfeiffer'	salmon pink	VI-VIII
<i>Astilbe Arendsii</i> -hybrid 'Cattleya'	carmine pink	VIII-IX
<i>Astilbe Arendsii</i> -hybrid 'Fanal'	ruby red	VII
<i>Astilbe Arendsii</i> -hybrid 'Rotlicht'	bright ruby red	VII-VIII
<i>Astilbe chinensis pumila</i>	violet-pink	VIII-IX
<i>Astilbe chinensis taquetii</i> 'Purpurlanze'	crimson red	VII-VIII
<i>Aubrieta</i> -hybrid 'Royal Red'	magenta-red	IV-V
<i>Bergenia cordifolia</i>	carmine	IV-V
<i>Bergenia cordifolia</i> 'Rotblum'	carmine	IV-V
<i>Bergenia</i> -hybrid 'Silberlicht'	white with carmine	IV-V
<i>Centranthus ruber</i> 'Coccineus'	carmine pink	VI-IX
<i>Chrysanthemum</i> -hybrid 'Fellbacher Wein'	wine red	IX-X
<i>Chrysanthemum</i> -hybrid 'Orchid Helen'	purple-pink	VIII-IX
<i>Dianthus deltoides</i> 'Brilliant'	bright ruby red	VI-VII
<i>Dianthus-Plumarius</i> -hybrid 'Maggie'	carmine pink with red	VI-VII
<i>Dicentra eximia</i>	crimson-pink	VI-VII
<i>Dicentra spectabilis</i>	pink to carmine	V-VI
<i>Digitalis purpurea</i> 'Gloxiniaeflora'	pink, carmine, crimson	VI-VII
<i>Echinacea purpurea</i>	carmine	VII-IX
<i>Epimedium rubrum</i> 'Coccineum'	carmine with white	IV-V
<i>Eupatorium fistulosum</i> 'Atropurpureum'	crimson-carmine	VIII-IX

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

Pink, carmine, magenta and crimson perennials - 11

Genus/species/variety	Flower colour	Flowering time
Geranium catabrigiense 'Cambridge'	dark pink	VI-VII
Geranium endressii	pink	VI-X (XI)
Geranium macrorrhizum 'Ingwersen'	light to pale pink	V-VII
Geranium macrorrhizum 'Spessart'	whitish pink	V-VII
Geranium renardii	whitish pink	VI-VII
Geranium sanguineum	carmine to carmine-red	V-VI
Gypsophila repens 'Rosea'	pink	V-VII
Gypsophila Repens-hybrid 'Rosenschleier'	pink	V-VIII
Helianthemum-hybrid 'Cerise Queen'	carmine	V-IX
Helianthemum-hybrid 'Lawrensens Pink'	intense pink	V-IX
Helianthemum-hybrid 'Rubin'	ruby red	V-IX
Hemerocallis-hybrid 'Pink Damask'	pink with salmon-orange	VI-VII
Lamium maculatum 'Chequers'	carmine pink	IV-V
Lamium maculatum 'Silbergroschen'	crimson-pink	IV-V
Lathyrus latifolius	carmine	VI-VII
Lupinus Polyphyllus-hybrid 'Schlossfrau'	pink with white	VI-VII
Lychnis viscaria 'Plena'	carmine pink	V-VI
Lythrum salicaria	carmine	VI-VIII
Monarda-hybrid 'Croftway Pink'	salmon pink	VII-IX
Monarda-hybrid 'Prärienacht'	deep crimson red	VII-IX
Origanum Laevigatum-hybrid 'Herrenhausen'	red-violet	VII-IX
Origanum vulgare 'Compactum'	violet-pink	VI-IX
Paeonia Lactiflora-hybrid 'Bunker Hill'	bright carmine	VI
Paeonia Lactiflora-hybrid 'Sarah Bernhardt'	light silvery pink	V-VI
Papaver orientale 'Königin Alexandra'	salmon pink	VI
Phlox paniculata varieties	pink to carmine	VIII
Phlox subulata 'Temiskaming'	crimson red	IV-V
Phuopsis stylosa	pink	VI-IX
Polygonum affine 'Darjeeling Red'	pink to crimson-pink	VI-IX
Primula Bullesiana-hybrid	salmon pink, whitish pink	VI-VIII
Pulmonaria rubra 'Dora Bielefeld'	bright pink	IV-V
Saxifraga urbium 'Elliott'	pink	V-VI
Sedum spectabile 'Rosenteller'	pale carmine pink	VIII-X
Sedum telephium 'Herbstfreude'	carmine-crimson to carmine-brown	IX-X
Sedum spurium 'Fuldaglut'	carmine	VII-VIII
Tellima grandiflora	greenish pink	V-VI
Thymus doerfleri 'Bressingham Seedling'	pink	V-VI
Thymus serpyllum 'Coccineus'	crimson red	VI-VIII
Aquatic plants		
Butomus umbellatus	pink	VII-IX
Nymphaea-hybrid 'James Brydon'	carmine	VI-VIII
Nymphaea odorata 'Rosennymphe'	intense pink, light pink	VI-VIII

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

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12 - White and grey perennials

White is an indispensable flower colour. This neutral colour is in-between all other hues; it both separates and combines. Physically, the colour white is a mixture of complementary colours, such as blue with orange, violet with yellow, green with red. Thus, white is a pleasant junction between contrasting colours. With their maximum brightness, white perennials take the glow out of extremely bright flowers and make their neighbours appear darker.

Thanks to its brightness, white is the only colour that is recognisable at dawn and dusk. Silvery and grey-tomentose leaf varieties are also considered part of the colour white. Grey is merely a subdued continuation of the colour white. It reduces the colour contrasts.

Genus/species/variety	Flower colour	Flowering time
<i>Achillea ptarmica</i> 'Boule de Neige'	white	VII-IX
<i>Aconitum cammarum</i> 'Bicolor'	blue with white	VI-VII
<i>Anaphalis triplinervis</i> 'Sommerschnee'	milky white	VI-VII
<i>Anemone Japonica</i> -hybrid 'Honorine Jobert'	pure white	VIII-IX
<i>Anemone nemorosa</i>	white, light pink on the outside	III-IV
<i>Anemone sylvestris</i>	white	IV-VI
<i>Arabis caucasica</i> 'Schneehaube'	white	IV-V
<i>Arabis procurrens</i> 'Glacier'	white	IV-V
<i>Artemisia ludoviciana</i> 'Silver Queen'	grey	VI-VII
<i>Artemisia schmidtiana</i> 'Nana'	grey-white	VII
<i>Artemisia stelleriana</i>	yellowish grey	VII-VIII
<i>Aruncus aethusifolius</i>	milky white	V-VI
<i>Aruncus dioicus</i>	cream-white	VI-VII
<i>Aster divaricatus</i>	pale white	VIII-IX
<i>Aster Dumosus</i> -hybrid 'Schneekissen'	white	IX-X
<i>Astilbe Arendsii</i> -hybrid 'Brautschleier'	white to cream-white	VII-VIII
<i>Astrantia major</i>	silvery white with pink shimmer	VI-VII
<i>Campanula carpatica</i> 'Weiße Clips'	pure white	VI-VII
<i>Campanula glomerata</i> 'Alba'	pure white	V-VI
<i>Campanula persicifolia</i> 'Grandiflora Alba'	pure white	VI-VII
<i>Cerastium tomentosum</i> 'Silberteppich'	pale white	V-VI
<i>Chrysanthemum</i> -hybrid 'Edelweiß'	white	IX-X
<i>Chrysanthemum</i> -hybrid 'White Bouquet'	white with pink shimmer	IX-X
<i>Chrysanthemum leucanthemum</i> 'Maikönigin'	milky white	V
<i>Chrysanthemum maximum</i> varieties	milky white	VI-VII
<i>Chrysanthemum serotinum</i>	pale white	IX-X
<i>Cimicifuga racemosa cordifolia</i>	cream-white	VIII-IX
<i>Cimicifuga ramosa</i> 'Atropurpurea'	white with pink shimmer	IX
<i>Convallaria majalis</i>	milky white	V
<i>Delphinium Belladonna</i> -hybrid 'Casa Blanca'	white	VI-VII/IX
<i>Dianthus deltoides</i> 'Alba'	white with pink mottling	VI
<i>Dianthus Plumarius</i> -hybrid 'Haytor'	white	VI-VII
<i>Dicentra spectabilis</i> 'Alba'	pure white	V-VI

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

White and grey perennials - 12

Genus/species/variety	Flower colour	Flowering time
<i>Dryas suendermannii</i>	cream white to light yellow	V-VI
<i>Epimedium youngianum</i> 'Niveum'	pale white	IV-V
<i>Filipendula ulmaria</i>	cream-white	VI-X
<i>Fragaria vesca</i>	white	IV-V
<i>Galium odoratum</i>	white	IV-V
<i>Geranium catabrigiense</i> 'Biokovo'	white with pink shimmer	VI-VII
<i>Geranium clarkei</i> 'Kashmir White'	white with brown-pink veins	VI-VII
<i>Geranium macrorrhizum</i> 'Spessart'	white with light tint	V-VI
<i>Geranium renardii</i>	grey-white with violet veins	VI-VII
<i>Gypsophila paniculata</i> 'Schneeflocke'	pale white	VI-VII/VIII
<i>Helianthemum</i> -hybrid 'Snow Queen'	white	V-IX
<i>Helleborus niger</i>	milky white with a green shimmer	XII-II
<i>Hosta</i> -hybrid 'Royal Standard'	milky white	VII-VIII
<i>Iberis sempervirens</i> varieties	bright white	VI-VII
<i>Macleaya cordata</i>	cream-white, brown shimmer	VII-VIII
<i>Matricaria caucasica</i>	white	V-VI
<i>Omphalodes verna</i> 'Alba'	white	III-V
<i>Phlox paniculata</i> 'Kirmesländler'	white with pink bud	VIII
<i>Phlox paniculata</i> 'Nymphenburg'	white with ivory-white bud	VIII-IX
<i>Phlox paniculata</i> 'Pax'	pure white	VIII-IX
<i>Phlox subulata</i> 'White Delight'	pure white	IV-V
<i>Physalis alkekengi</i> <i>franchetii</i>	greenish cream-white	VI
<i>Polygonatum multiflorum</i>	greenish white	V-VI
<i>Pulmonaria saccharata</i> 'Sissinghurst White'	pure white	IV-V
<i>Rodgersia aesculifolia</i>	cream-white	VI-VII
<i>Rodgersia pinnata</i>	cream-white	VI-VII
<i>Sagina subulata</i>	white	VI-VII
<i>Sedum album</i> 'Coral Carpet'	white with pink shimmer	VI-VII
<i>Sedum spurium</i> 'Album Superbum'	white	VII-VIII
<i>Tiarella cordifolia</i>	pale white with pink shimmer	V-VI
Grasses		
<i>Cortaderia selloana</i>	silvery white	IX-X
<i>Miscanthus sinensis</i> 'Silberfeder'	silvery	IX-X
<i>Stipa pulcherrima</i>	silvery	V-VI
Aquatic plants		
<i>Alisma plantago-aquatica</i>	white to whitish pink	VI-IX
<i>Nymphaea alba</i>	milky white	VI-VIII
<i>Sagittaria sagittifolia</i>	white	VI-VIII
<i>Stratiotes aloides</i>	white	VI-VIII

Explanation of symbols: I - XII = flowering period from January (= I) to December (= XII)

13 - Fragrant and aromatic perennials

Genus/species/variety	Scent	Aroma	Genus/species/variety	Scent	Aroma
Achillea filipendulina varieties		AF	Galium odoratum	f	AF
Achillea millefolium varieties		AF	Geranium macrorrhizum varieties		(AF)
Achillea tomentosa 'Aurea'		AF	Geranium magnificum		af
Alchemilla mollis	f		Hemerocallis-hybrids	f	
Alyssum montanum and others	F		Hosta species and varieties	f/F	
Anemone sylvestris	f		Iris Barbata-hybrids varieties	f/F	
Arabis caucasica varieties	F		Lavandula angustifolia varieties	F	AF
Artemisia ludoviciana 'Silver Queen'	(F)	AF	Lupinus-Polyphyllus-hybrids	f	
Artemisia schmidtiana 'Nana'		(AF)	Lysimachia punctata	f	
Artemisia stelleriana		(AF)	Monarda-hybrids varieties	F	AF
Asarum europaeum		af	Nepeta faassenii varieties		AF(AF)
Aster divaricatus	f		Oenothera missouriensis	f	
Aster Dumosus-hybrids	f		Origanum species and varieties		AF
Aster novae-angliae		(AF)	Paeonia Lactiflora-hybrids i.S.	F	
Astilbe-Arendsii-hybrids	f		Papaver orientale varieties	f	
Astrantia major		af	Phlox paniculata	F	
Aubrieta-hybrids	f		Phlox subulata	f	
Brunnera macrophylla	f		Phuopsis stylosa	f	AF
Calamintha nepeta nepeta	f	AF	Polemonium caeruleum	f	
Centranthus ruber	f		Primula elatior	f	
Cerastium tomentosum 'Silberteppich'	f		Salvia nemorosa varieties		(AF)
Chrysanthemum-hybrids	(F)	AF	Sedum telephium 'Herbstfreude'	f	
Cimicifuga racemosa cordifolia	f		Tellima grandiflora	F	
Cimicifuga ramosa 'Atropurpurea'	f		Thymus species and varieties		AF
Convallaria majalis	F				
Dianthus-Plumarius-hybrids	F		Aquatic plants		
Eupatorium fistulosum varieties	f		Nuphar lutea	f	
Filipendula ulmaria	f	AF	Nymphae-hybrids	f	

(also see table "Fragrant and aromatic plants")

Explanation of symbols:

F = pleasant fragrance

(F) = pungent, somewhat unpleasant scent (subjective)

f = slightly fragrant (with one's nose directly in the flower)

AF = aromatic foliage

(AF) = very aromatic foliage

af = slightly fragrant to aromatic foliage

Genus/species/variety	Poisonous plant part	Degree of poison	Taste/note
All species of Aconitum	whole plant	+++	sweetish to spicy-hot
Alisma plantago-aquatica	whole plant, especially milky sap	(+)	bitter, spicy-hot
All species of Anemone	whole plant	+	unpleasant
All species of Aquilegia	whole plant	+	
Artemisia ludoviciana	whole plant	(+)	very bitter
Artemisia stelleriana	whole plant	(+)	very bitter
Asarum europaeum	whole plant	+	burning, numbing feeling
Caltha palustris	whole plant	+	spicy-hot
All species of Cimicifuga	whole plant	+	bitter
All species of Delphinium	whole plant	+++	
Dicentra spectabilis	roots	+	
All species of Digitalis	whole plant	+++	
Dryopteris filix-mas	young plant, roots	+	
All species of Epimedium	leaves	(+)	
Eupatorium fistulosum	whole plant	+	aromatic-bitter
All species of Euphorbia	milky sap	++	spicy, bitter, causes great swelling
Galium odoratum	whole plant	(+)	nice scent, causes headaches
All species of Helleborus	whole plant	+++	bitter and burning hot
All species of Iberis	seeds, leaves	+	bitter
Iris pseudacorus	rhizome, leaves	+	burning hot
Lathyrus latifolius	seeds	+	
Lupinus polyphyllus	seeds	++	bitter
Macleaya cordata	milky sap	+	
Nuphar lutea	rhizome, leaves	+	
All species of Nymphaea	whole plant	+	salty-bitter
Physalis alkekengi	whole plant	+	tangy-sour
Polygonatum multiflorum	berries	+	scratchy
All species of Pulsatilla	whole plant	+	
All species of Ranunculus	whole plant	+	burning
All species of Trollius	whole plant	+	
All species of Vinca	whole plant	+	

(Also see the preliminary remarks on the list "Poisonous plants".)

Explanation of symbols: +++ = extremely poisonous, select with caution
 ++ = very poisonous
 + = poisonous
 (+) = slightly poisonous

15 - Perennials with autumn colours

There may not be as many species of perennials with spectacular autumn colours as there are among trees and shrubs, but some varieties do reveal their attractive sides in autumn with a surprising, attractive display of autumn colours. Most, however, go out inconspicuously with grey-brown hues and wither unnoticed at some point. Also, some evergreen shrubs turn bronze, often with a metallic sheen, under the influence of low temperatures.

Finally, the perennials that draw attention with their attractive, geometric syncarpy long into winter should not be forgotten. With expert advice, you can select many perennials (cf. table "Evergreen perennials") for attractive autumn and winter beds.

Genus/species/variety	Autumn colours / Winter colours	Syncarpy
Achillea filipendulina varieties	yellow	long-stem umbels
Aconitum carmichaelii 'Arendsii'	yellow (often along with flowers!)	
Ajuga reptans 'Atropurpurea'	winter violet to bronze red	
Aruncus aethusifolius	bright orange to tile-red	
Aruncus dioicus	strong yellow	towering syncarpy
Aster divaricatus	pale yellow	
Astilbe Arendsii-hybrids	yellow	stiff brown syncarpy
Astrantia major	yellowish	
Bergenia species and varieties	winter metallic red-brown	
Ceratostigma plumbaginoides	orange-red (along with flowers)	
Chrysanthemum-hybrids	reddish (along with late flowers)	
Convallaria majalis	yellow	
Coreopsis verticillata	green-yellow to bronze	
Epimedium perralderianum	winter bronze	
Epimedium rubrum 'Coccineum'	reddish	
Epimedium versicolor 'Sulphureum'	reddish	
Eupatorium fistulosum 'Atropurpureum'	yellowish to bright golden yellow	silvery, woolly heads
Euphorbia griffithii 'Fireglow'		bright-red stems
Euphorbia polychroma	yellow-orange	red stems
Filipendula ulmaria	yellowish	
Geranium macrorrhizum varieties	orange-yellow	
Geranium magnificum	orange	
Geranium renardii	light yellow	
Geranium sanguineum	brick to dark red	
Hemerocallis-hybrids	yellow or yellow-green	
Heuchera micrantha 'Palace Purple'	blood-red	
Hosta species and varieties	bright golden yellow	
Lysimachia punctata	yellowish	
Lythrum salicaria	bright blood-red	
Macleaya cordata	light yellow	loose syncarpy
Monarda-hybrids		stiff syncarpy
Paeonia Lactiflora-hybrids	yellowish to orange-brown, sometimes pink	
Physalis alkekengi franchetii	yellow	bright orange fruits

Perennials with autumn colours - 15

Genus/species/variety	Autumn colours / Winter colours	Syncarpy
Polygonatum multiflorum	light yellow (along with fruit)	black-blue fruit
Polygonum affine and varieties	bronze	
Pulsatilla vulgaris		silvery syncarpy
Rodgersia species	yellowish brown	
Sedum album 'Coral Carpet'	winter brick-red	
Sedum spectabile 'Rosenteller'	yellowish	red-brwon fruit umbels
Sedum telephium 'Herbstfreude'	yellowish	brown-violet umbels
Tiarella cordifolia	winter brick-red	
Verbascum olympicum		towering syncarpy
Waldsteinia geoides	yellowish	
Grasses		
Calamagrostis acutiflora 'Karl F.'	yellow	persistent fruit spikes
Carex montana	yellow to orange brown	
Cortaderia selloana		flower panicles in autumn
Festuca mairei		flower stalks in autumn
Miscanthus giganteus	yellowish orange	inflorescences silvery violet
Miscanthus sinensis 'Silberfeder'	straw-yellow	silvery syncarpy
Molinia species	bright yellow	transparent fruit panicles
Panicum virgatum 'Rehbraun'	orange-red to dark red	transparent fruit panicles
Pennisetum alopecuroides	straw-yellow	
Ferns		
Athyrium filix-femina	pale yellowish	
Dryopteris filix-mas	yellowish to brownish	
Matteuccia struthiopteris	yellowish	stiff, black-brown fruit fronds
Osmunda regalis	yellowish to yellow	
Polystichum setiferum and varieties	yellowish to reddish	
Aquatic plants		
Phragmites australis	like straw	silver fruit panicles
Typha angustifolia		red-bown syncarpy

16 - Evergreen perennials

Like trees and shrubs, perennials also have evergreen and nearly evergreen forms. Most perennials in our climatic zone tend to be nearly evergreen, i.e. the foliage stays green through winter and gradually dies during shooting in early spring. Evergreen perennials often originate from snowy, very mild regions where they either live through the winter with their green foliage covered by plentiful snow or are hardly damaged by frost. Therefore, these perennials should be covered with twigs and foliage at the beginning of the cold season, especially where little snow generally falls in winter. Even when such perennials were damaged, they regenerate from the root stock unless winter was extreme.

Genus/species/variety	Foliage	Genus/species/variety	Foliage
<i>Acaena buchananii</i> inter alia	evergreen	<i>Nepeta faassenii</i>	somewhat evergreen
<i>Achillea tomentosa</i> 'Aurea'	nearly evergreen	<i>Pachysandra terminalis</i>	evergreen
<i>Ajuga reptans</i> and varieties	nearly evergreen	<i>Phlomis russeliana</i>	nearly evergreen
<i>Alyssum saxatile</i> 'Compactum'	nearly evergreen	<i>Phuopsis stylosa</i>	nearly evergreen
<i>Antennaria dioica</i> 'Rubra'	nearly evergreen	<i>Sagina subulata</i>	nearly evergreen
<i>Arabis cuacastica</i> varieties	nearly evergreen	<i>Saxifraga urbium</i> 'Elliott'	(nearly) evergreen
<i>Arabis procurrans</i> 'Glacier'	nearly evergreen	<i>Sedum acre</i>	evergreen
<i>Asarum europaeum</i>	evergreen	<i>Sedum album</i> varieties	evergreen
Varities of <i>Aubrieta</i> -hybrids	(nearly) evergreen	<i>Sedum hybridum</i> 'Immergrünchen'	(nearly) evergreen
<i>Bergenia</i> species and varieties	(nearly) evergreen	<i>Sedum spurium</i> 'Album Superbum'	shoots nearly evergreen
<i>Centranthus ruber</i>	nearly evergreen	<i>Stachys byzantina</i> 'Silver Carpet'	nearly evergreen
<i>Cerastium tomentosum</i> 'Silberteppich'	(nearly) evergreen	<i>Veronica spicata</i> incana	nearly evergreen
<i>Dianthus Plumarius</i> -hybrids	nearly evergreen	<i>Waldsteinia ternata</i>	nearly evergreen
<i>Dryas suendermannii</i>	(nearly) evergreen	<i>Vinca</i> species and varieties	evergreen
<i>Epimedium perralderianum</i> 'Frohnleiten'	nearly evergreen		
<i>Euphorbia myrsinites</i>	evergreen	Grasses	
<i>Galium odoratum</i>	nearly evergreen	<i>Carex morrowii</i> 'Variegata'	evergreen
<i>Geranium endressii</i>	somewhat evergreen	<i>Carex pendula</i>	evergreen
<i>Helianthemum</i> -hybrids	(nearly) evergreen	<i>Carex plantaginea</i>	evergreen
<i>Helleborus foetidus</i>	evergreen	<i>Cortaderia selloana</i>	evergreen
<i>Helleborus niger</i>	nearly evergreen	<i>Deschampsia cespitosa</i>	nearly evergreen
<i>Iberis sempervirens</i> varieties	evergreen	<i>Festuca cinerea</i>	evergreen
<i>Iris Barbata</i> -hybrids	nearly evergreen	<i>Festuca mairei</i>	usually nearly evergreen
<i>Kniphofia</i> -hybrids	nearly evergreen	<i>Festuca ovina</i>	(nearly) evergreen
<i>Lamium galeobdolon</i> 'Florentinum'	nearly evergreen	<i>Helictotrichon sempervirens</i>	evergreen
<i>Lamium maculatum</i>	somewhat evergreen	<i>Luzula sylvatica</i> and varieties	evergreen
<i>Lavandula angustifolia</i>	evergreen		
<i>Matricaria caucasica</i>	nearly evergreen	Ferns	
		<i>Phyllitis scolopendrium</i>	evergreen
		<i>Polystichum setiferum</i>	usually nearly evergreen

Also see tips on evergreen deciduous plants.

Colourful perennials are indispensable for special effects. On the one hand, they can support the flower colour in monochrome gardens, above all because the flowering period is always shorter than the leaf colours; on the other, contrasts can be enhanced. For instance, dark areas can be lightened with yellow, white or silver-leaf perennials, or light areas can be toned down with red or brown-leaf plants.

Genus/species/variety	Colour
Blue to blue-green foliage	
Dianthus Plumarius-hybrids	silvery blue
Euphorbia myrsinites	blue-green
Hosta sieboldiana 'Elegans'	steel blue
Hosta tardiflora-hybrid 'Halcyon'	intense pale blue
Hypericum polyphyllum	grey-blue
Macleaya cordata	blue-green to steel blue
Sedum telephium 'Herbstfreude'	plae blue to blue-green
Grasses	
Festuca cinerea	blue to grey-blue
Helictotrichon sempervirens	steel blue
Yellow and yellow foliage	
Hosta fortunei 'Aureo-marginata'	green leaves with yellow margin
Hosta-hybrid 'Sum and Substance'	shoots bright yellow, then citrus yellow to yellowish-green
Scirpus tabernaemontanii	green stalk, yellow crossways stripes
Red and brown foliage	
Acaena microphylla	metallic bronze red
Acaena microphylla 'Kupferteppich'	bronze red, fruits brick-red
Ajuga reptans 'Atropurpurea'	shoots crimson red, then red-brown
Aruncus aethusifolius	orange-red in autumn
Ceratostigma plumbaginoides	tile-red in autumn
Cimicifuga ramosa 'Atropurpurea'	shoots dark red, later bronze red
Epimedium rubrum 'Coccineum'	shoots red, then green, autumn red
Euphorbia griffithii 'Fireglow'	bright red stems in autumn
Geranium macrorrhizum varieties	brick-red in autumn
Geranium magnificum	brick-red in autumn
Heuchera micrantha 'Palace Purple'	black-red
Lythrum salicaria	brick to blood-red in autumn
Paeonia Lactiflora-hybrids varieties	shoots dark red
Sedum album 'Coral Carpet'	brick to coral red
Sedum hybridum 'Immergrünchen'	leaves brick-red in winter
Sedum spurium 'Fuldaglut'	bronze red

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17 - Colourful perennials

continued

Genus/species/variety	Colour
White, silvery and silvery grey	
Achillea species	shoots silvery, then grey-green
Alyssum montanum 'Berggold'	silvery to grey-green
Alyssum saxatile 'Compactum'	silvery, then light grey
Anaphalis triplinervis 'Sommerschnee'	silvery white, then pale grey
Antennaria dioica 'Rubra'	silvery, then grey-green
Artemisia ludoviciana 'Silver Queen'	bright silvery white, then grey
Artemisia schmidtiana 'Nana'	silky silvery grey
Artemisia stelleriana	bright silvery grey
Cerastium tomentosum 'Silberteppich'	bright silvery white, then grey
Geranium renardii	velvety grey, then grey-green
Gypsophila paniculata 'Schneeflocke'	grey to gray-green
Helianthemum-hybrid 'Snow Queen'	silvery grey
Hosta crispula	green leaves with white margin
Lamiastrum galeobdolon 'Florentinum'	pale green, silvery spots
Lamium maculatum varieties	slender to large white spots
Lavandula angustifolia varieties	silvery grey when shooting, grey
Nepeta faassenii and varieties	pale grey to grey-green
Potentilla aurea	leaves with pale white spots
Pulmonaria saccharata varieties	leaves with pale white spots
Pulsatilla vulgaris	grey, silvery syncarpy
Stachys byzantina	velvety silver
Verbascum olympicum	silvery tomentose
Veronica spicata incana	flour-white, then silver-grey

18 - Rampant perennials

Unlike perennials that form clumps and cushions, rampant perennials do not have clearly defined habits. They either form loose thickets or large crops that spread as far the situation allows. If such plants are put in cultivated beds, they must be reduced regularly; sometimes rhizome barriers are useful. The rampant perennials are, however, excellent for creating greenery safely and quickly. The indigenous species are used in particular for biological engineering purposes. These species are also good for wild gardens.

Genus/species/variety	Means of propagation
Acaena buchananii	runners, layers
Acaena microphylla	runners, layers
Achillea ptarmica 'Boule de Neige'	runners
Ajuga reptans and varieties	layers

Genus/species/variety	Means of propagation
Anemone sylvestris	runners
Artemisia ludoviciana 'Silver Queen'	runners
Aruncus dioicus	seeds
Aster divaricatus	runners
Astilbe chinensis taquetii 'Purpurlanze'	runners
Astrantia major	seeds
Brunnera macrophylla	seeds
Buglossoides purpureoerulea	layers
Campanula poscharskyana 'Blauranke'	seeds
Centaurea montana	runners
Centranthus ruber	seeds
Cerastium tomentosum 'Silberteppich'	runners, layers
Chrysogonum virginianum	layers
Convallaria majalis	runners
Corydalis lutea	seeds
Euphorbia griffithii 'Fireglow'	runners
Filipendula ulmaria	runners, seeds
Geranium sanguineum	runners, layers, seeds
Lamium galeobdolon 'Florentinum'	layers
Lathyrus latifolius	layers
Lysimachia punctata	runners, seeds
Lythrum salicaria	seeds
Macleaya cordata	runners
Nepeta faassenii 'Six Hills Giant'	seeds
Omphalodes verna	layers
Phuopsis stylosa	runners, layers
Physalis alkekengi franchetii	runners
Polygonum affine 'Darjeeling Red'	layers
Sedum spurium 'Album Superbum'	layers
Stachys byzantina	layers
Symphytum azureum	runners, seeds
Symphytum grandiflorum	runners, layers
Tellima grandiflora	seeds
Grasses	
Carex pendula	seeds
Luzula sylvatica	runners

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18 - Rampant perennials

continued

Genus/species/variety	Means of propagation
Ferns	
Athyrium filix-femina	seeds
Dryopteris filix-mas	seeds
Matteuccia struthiopteris	runners
Aquatic plants	
Alisma plantago-aquatica	runners, seeds
Butomus umbellatus	runners
Iris pseudacorus	runners
Nuphar lutea	runners, layers
Nymphaea alba	runners
Phragmites australis	runners
Ranunculus lingua	runners
Sagittaria sagittifolia	runners
Stratiotes aloides	layers
Typha angustifolia	runners

19 - Sun-loving perennials

All sun-loving perennials need a lot of light but vary according to location. The column for locations lists the preferred locations, not all possible variants. Their typical occurrence in the wild is especially important for wild varieties, and this also goes for the varieties and is derived for the hybrids.

Genus/species/variety	Light span	Preferred location
Acaeana species and varieties	sun - light shade	grasslands, river beds
Achillea filipendulina varieties	sun	rocky slopes, meadows
Achillea millefolium 'Kirschkönigin'	sun	(semi-)xeric grassland communities
Achillea ptarmica 'Boule de Neige'	sun - light shade	damp meadows, swamps
Achillea tomentosa 'Aurea'	sun	dry meadows
Ajuga reptans and varieties	sun - semi-shade	moist, nutritious meadows
Alchemilla mollis	sun - light shade	river embankments, edges of forests
Alyssum montanum 'Berggold'	sun	rocky xeric grassland communities
Alyssum saxatile 'Compactum'	sun	mountainous meadows, gravelly surfaces
Anaphalis triplinervis 'Sommerschnee'	sun	mountain meadows, rocky slopes
Anchusa azurea 'Dropmore'	sun	borders of paths, gravelly surfaces
Anemone sylvestris	sun - light shade	edges of forests, light pine forests
Antennaria dioica 'Rubra'	sun - no direct sunlight	heaths, pine forests
Arabis caucasica varieties	sun	rocky grass slopes

Genus/species/variety	Light span	Preferred location
Artemisia ludoviciana 'Silver Queen'	sun	sandy prairies, light edges of forests
Artemisia schmidtiana 'Nana'	sun	sandy-gravelly slopes, cliffs
Artemisia stelleriana	sun	dunes, coasts
Aster alpinus	sun	mountainous rocky grasslands
Aster amellus	sun	bushes and edges of forests
Aster divaricatus	sun - semi-shade	light pine-oak forests, clear cutting
Aster dumosus	sun	moist edges of forests
Aster ericoides	sun	moderately dry edges of bushes
Aster novae-angliae	sun	moist meadows, embankments, bushes
Aster novi-belgii	sun - no direct sunlight	light alluvial soil, moist meadows, embankments
Aubrieta-hybrids	sun	rocky slopes
Buglossoides purpureocaerulea	sun - semi-shade	mixed forests rich with herbage
Calamintha nepeta nepeta	sun	gravelly ground, in walls
Campanula carpatica	sun - light shade	boulder gravel, cracks in rock
Campanula glomerata	sun - light shade	meadows, sunny edges of forests
Campanula poscharskyana	sun - light shade	gravelly ground
Centranthus ruber	sun - no direct sunlight	rocky-gravelly ground, maquis
Cerastium tomentosum 'Silberteppich'	sun	gravelly ground
Ceratostigma plumbaginoides	sun - semi-shade	bushes, light forests
Chrysanthemum-hybrids	sun	rocky, chalky slopes, bedrock
Chrysanthemum leucanthemum	sun	meadows
Chrysanthemum maximum	sun	mountian meadow
Chrysanthemum serotinum	sun - light shade	alluvial soil, moist meadows, embankments
Coreopsis grandiflora	sun	edges of forests
Coreopsis verticillata	sun	edges of forests, bushes
Delphinium Elatum-hybrids and others	sun - no direct sunlight	mountian meadows, light forests
Delphinium grandiflorum	sun	gravelly ground
Dianthus deltoides	sun	poor grasslands, edges of bogs
Dianthus plumarius	sun	bedrock grasslands, gravelly, rocky steppes
Digitalis grandiflora	sun - semi-shade	edges of forests, clearings
Dryas suendermannii	sun - no direct sunlight	gravel islands in rivers, rocky grasslands
Echinacea purpurea	sun	prairies, edges of paths and forests
Echinops bannaticus	sun	bedrock slopes, sunny bushes
Erigeron-hybrid	sun	prairies
Eryngium planum	sun	sandy surfaces, xeric grassland
Eupatorium fistulosum	sun - semi-shade	mixed forests rich with herbage alluvial soil, moist meadows
Euphorbia griffithii	sun - light shade	light pine forests, clearings
Euphorbia myrsinites	sun	rocky-gravelly ground, edges of forests
Euphorbia polychroma	sun - light shade	light forests, edges of bushes
Filipendula ulmaria	sun - semi-shade	moist meadows to swamps, embankments
Fragaria vesca	sun - semi-shade	light edges of forests

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19 - Sun-loving perennials

continued

Genus/species/variety	Light span	Preferred location
Geranium cantabrigiense	sun - light shade	rocky-gravelly ground, edges of forests
Geranium endressii	sun - semi-shade	mountainous bushes, edges of forests
Geranium himalayense	sun - light shade	rocky-gravelly, edges of forests
Geranium macrorrhizum	sun - semi-shade	talus, scree, light forests
Geranium renardii	sun - light shade	rocky meadows, bushes
Geranium sanguineum	sun - semi-shade	xeric grassland, light forests
Geum species and varieties	sun - light shade	embankments, moist meadows, bushes
Gypsophila paniculata	sun	semi-xeric grasslands and steppes
Gypsophila repens	sun	gravelly slopes, gravelly embankments
Helenium-hybrids	sun	moist meadows, valley depressions
Helianthemum-hybrids	sun - light shade	rocky, poor grasslands, edges of forests
Helianthus decapetalus	sun	clearings, edges of forests
Heliopsis helianthoides scabra	sun	edges of forests, light bushes
Hemerocallis-hybrids	sun - light shade	moist meadows, forests on alluvial soil
Hypericum polyphyllum	sun	rocky-gravelly ground, rocky slopes
Iberis sempervirens	sun - no direct sunlight	moist, rocky slopes
Inula ensifolia	sun	steppes, edges of bushes
Inula magnifica	sun - semi-shade	moist, mountainous birch forests
Iris-Barbata-Elatior	sun	steppes, gravelly ground
Iris sibirica	sun - light shade	moist meadows and bogs, ditches
Kniphofia-hybrids	sun	moist meadows, mountain slopes
Lathyrus latifolius	sun - light shade	edges of hedges
Lavandula angustifolia	sun	maquis, rocky ground
Linum perenne	sun	steppes, gravel
Lychnis viscaria	sun	sandy, xeric grasslands
Lythrum salicaria	sun - semi-shade	bogs and damp meadows, ditches
Macleaya cordata	sun - light shade	meadows, clearings
Matricaria caucasica	sun	mountainous meadows
Monarda-hybrids	sun - light shade	mountain slopes, alluvial forests
Nepeta faassenii	sun	rocky ground
Oenothera missouriensis	sun	rocky ground, edges of bushes
Oenothera tetragona	sun	edges of forests, borders of paths
Origanum vulgare and others	sun	poor grasslands, edges of bushes
Paeonia Lactiflora-hybrids	sun	meadows, light edges of forests
Paeonia officinalis	sun	mountain meadows, edges of forests
Papaver orientale	sun	grassy, rocky slopes
Phlomis russeliana	sun	clear cutting, edges of bushes
Phlox paniculata	sun	rich meadows, light alluvial soil
Phlox subulata	sun	gravelly surfaces, rocky-gravelly
Phuopsis stylosa	sun - semi-shade	light edges of forests, old dunes
Polemonium caeruleum	sun - semi-shade	moist meadows, forests on alluvial soil

Genus/species/variety	Light span	Preferred location
Potentilla aurea	sun	mountian meadow, dwarf shrub heaths
Primula elatior	sun - semi-shade	mountian meadow, alluvial forests
Prunella grandiflora	sun - semi-shade	semi-xeric grasslands, edges of forests
Pulsatilla vulgaris	sun	semi-xeric grasslands, gravel
Rudbeckia fulgida sullivantii	sun	moist edges of forests
Rudbeckia nitida	sun	moist and mountian meadow, cut lawns
Sagina subulata	sun - no direct sunlight	moist cracks in rocks
Salvia nemorosa	sun	semi-xeric grasslands, borders of paths
Sedum acre	sun - no direct sunlight	rocky strips, gravelly surfaces
Sedum album	sun	bedrock grasslands, cracks in rock
Sedum floriferum	sun - no direct sunlight	mountainous rocky ground
Sedum hybridum	sun - light shade	mountainous rocky ground
Sedum spectabile	sun	rocky ground, cracks in rock
Sedum spurium 'Album Superbum'	sun - semi-shade	mountainous bedrock meadows, edges of streams
Solidago caesia	sun	sunny pine forests, edges of forests
Stachys byzantina	sun	rocky ground, steppes
Symphytum azureum	sun	moist meadows
Thymus species	sun	sandy and poor grasslands
Trollius chinensis	sun - no direct sunlight	moist meadows and bogs
Verbascum olympicum	sun	rocky slopes, rocky steppes
Verbascum phoenicum	sun	rocky meadows
Veronica austriaca teucrium	sun - light shade	semi-xeric grasslands, edges of bushes
Veronica longifolia	sun - semi-shade	alluvial soil, swamps and bogs
Veronica spicata incana	sun - light shade	xeric grassland, gravelly meadows
Grasses		
Calamagrostis acutiflora	sun - semi-shade	clearings, moist meadows
Carex montana	sun - shade	chalk/poor grasslands, light forests
Cortaderia selloana	sun	river gravel, rocky meadows
Festuca cinerea	sun	strips of rock, semi-xeric grasslands
Festuca mairei	sun	mountian meadow, light edges of forests
Festuca ovina	sun - semi-shade	oak-pine forests, heaths
Helictotrichon sempervirens	sun	chalky, poor grasslands
Miscanthus giganteus	sun	moist meadows and swamps
Miscanthus sinensis	sun	moist meadows, alluvial soil
Molinia caerulea and others	sun - light shade	bogs and moist meadows
Panicum virgatum	sun	dry to moist meadows
Pennisetum alopecuroides	sun	meadows
Stipa pulcherrima	sun	rocky steppes, xeric grassland

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19 - Sun-loving perennials

continued

Genus/species/variety	Light span	Preferred
Aquatic plants		
<i>Alisma plantago-aquatica</i>	sun - light shade	embankments, reed beds
<i>Butomus umbellatus</i>	sun	embankments, reed beds, ditches
<i>Caltha palustris</i>	sun - shade	embankments, swamps, forests on alluvial soil
<i>Iris pseudacorus</i>	sun - light shade	embankments, reed beds
<i>Nuphar lutea</i>	sun - semi-shade	ponds
<i>Nymphaea alba</i>	sun	ponds
<i>Phragmites australis</i>	sun - no direct sunlight	reed beds, alluvial soil
<i>Ranunculus lingua</i>	sun - no direct sunlight	embankments, ditches, reed beds
<i>Sagittaria sagittifolia</i>	sun - light shade	embankments, ditches, reed beds
<i>Scirpus tabernaemontanii</i>	sun	embankments, reed beds
<i>Stratiotes aloides</i>	sun	ponds
<i>Typha angustifolia</i>	sun	embankments, ditches, reed beds

20 - Semi-shade perennials

Here, species and varieties that need protection from direct sunlight or need semi-shady areas are listed. There are no clear distinctions between light shade and semi-shade. Some plants need exposure at the top without being directly hit by sun rays, such as in very light, large inner courts. Such areas have a high rate of light intensity. Light shade indicates constant change between sun spots and short shade times brought on by transparent branches. Semi-shade means: long periods of complete shade and short, but regularly occurring direct sunlight. The shade here is not dark as it is under conifers. Unlike with "no direct sunlight", shade changes in the course of the day.

Genus/species/variety	Light span	Preferred location
<i>Aconitum cammarum</i> 'Bicolor'	no direct sunlight - semi-shade	ravine and alluvial forests, mountainous meadows
<i>Aconitum carmichaelii</i> 'Arendsii'	no direct sunlight - semi-shade	moist forests
<i>Aconitum napellus</i>	no direct sunlight - semi-shade	mountainous alluvial forests, pasture bushes
<i>Ajuga reptans</i>	(sun) - semi-shade	moist, nutritious meadows
<i>Alchemilla mollis</i>	(sun) - semi-shade	river embankments, edges of forests
<i>Anemone hupehensis</i> 'Septembercharme'	no direct sunlight to light shade	ravine forests, shady bedrock
<i>Anemone Japonica</i> -hybrids	no direct sunlight to light shade	embankments, bushes
<i>Anemone nemorosa</i>	light shade	mixed deciduous forests
<i>Aquilegia alpina</i>	light shade - semi-shade	grassy slopes, light mountains forests
<i>Aquilegia</i> -hybrids	light shade - semi-shade	light forests
<i>Arabis procurrens</i> 'Glacier'	no direct sunlight - light shade	gravelly and grassy ground
<i>Aruncus aethusifolius</i>	no direct sunlight - light shade	mixed deciduous forests
<i>Aruncus dioicus</i>		beech-fir forests, hardwood meadows

Genus/species/variety	Light span	Preferred location
Aster divaricatus	(sun) - semi-shade	light fir-oak forests, clear cutting
Astilbe Arendsii-hybrids	light shade - semi-shade	moist forests
Astilbe chinensis pumila	light shade	alluvial and deciduous forests
Astilbe chinensis taquetii 'Purpurlanze'	no direct sunlight - semi-shade	moist forests
Bergenia species and varieties	no direct sunlight - semi-shade	cranberry-pine forests, birch-larch forests
Brunnera macrophylla	no direct sunlight - semi-shade	mountainous moist bushes, mixed conifer forests
Buglossoides purpureocaerulea	(sun) - semi-shade	down-oak forests, bushes
Campanula persicifolia varieties	light shade	oak-pine forests, embankments
Centaurea montana	no direct sunlight - semi-shade	mountainous mixed forests, edges of forests, mountainous meadows
Ceratostigma plumbaginoides	(sun) - semi-shade	gravel, dams
Chrysogonum virginianum	light shade - semi-shade	edges of forests, light forests
Cimicifuga species and varieties	light shade - shade	mixed deciduous forests with plentiful herbage
Convallaria majalis	light shade - semi-shade	mixed deciduous forests
Corydalis lutea	light shade - semi-shade	shady bedrock
Dicentra eximia	light shade - shade	mountainous mixed deciduous forests
Dicentra spectabilis	(sun) - light shade	pine-rhododendron forests
Digitalis grandiflora	(sun) - semi-shade	edges of forests, clearings
Digitalis purpurea varieties	no direct sunlight - semi-shade	edges of forests, clearings, heaths
Doronicum orientale	light shade - semi-shade	edges of forests and bushes, mixed forests with plentiful herbage
Epimedium perralderianum	light shade - shade	mountainous deciduous and mixed conifer forests
Epimedium rubrum 'Coccineum'	light shade - semi-shade	rocky forests
Epimedium versicolor 'Sulphureum'	light shade- shade	mixed forests rich with herbage
Eupatorium fistulosum varieties	(sun) - semi-shade	mixed forests with plentiful herbage, alluvial soil, moist meadows
Euphorbia griffithii 'Fireglow'	(sun) - light shade	light pine forests, clearings
Filipendula ulmaria	sun - semi-shade	moist meadows, alluvial soil, ditches
Fragaria vesca	(sun) - semi-shade	edges of forests, clearings
Galium odoratum	light shade - shade	mixed deciduous forests with plentiful herbage
Geranium endressii	(sun) - semi-shade	mountainous bushes, edges of forests
Geranium macrorrhizum varieties	(sun) - semi-shade	rocky forests, talus, scree
Geranium sanguineum	sun - semi-shade	xeric grassland communities, light forests
Geum species and varieties	(sun) - semi-shade	moist meadows, embankments, bushes
Helleborus foetidus	light shade - semi-shade	oak forests, beech bushes
Helleborus niger	light shade - semi-shade	beech forests, alpine pine forests
Hemerocallis-hybrids	sun - semi-shade	mountainous moist meadows, alluvial soil
Heuchera-hybrids	light shade - semi-shade	light forests, moist areas
Heuchera micrantha 'Palace Purple'	light shade - semi-shade	alluvial forests, conifer forests

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20 - Semi-shade perennials

continued

Genus/species/variety	Light span	Preferred location
Hosta species and varieties	light shade - semi-shade	alder and pasture bushes, moist meadows, alluvial forests
Inula magnifica	sun - semi-shade	moist, mountainous birch forests
Lamium galeobdolon 'Florentinum'	no direct sunlight - shade	rich deciduous forests, hedges
Lamium maculatum	semi-shade - shade	moist deciduous forests, hedges
Ligularia species and varieties	light shade - semi-shade	mountainous alluvial forests, embankments
Lysimachia nummularia	light shade - semi-shade	alluvial forests, ditches, meadows
Lysimachia punctata	light shade - semi-shade	alluvial forests, moist meadows
Lythrum salicaria	sun - semi-shade	bogs and damp meadows, ditches
Omphalodes verna	light shade - shade	mixed beech forests, alluvial soil
Phuopsis stylosa	sun - semi-shade	light edges of forests, old dunes
Physalis alkekengi ranchetii	light shade - semi-shade	rocky forests, talus, scree
Polemonium caeruleum	(sun) - semi-shade	alluvial forests, moist meadows
Polygonatum multiflorum	light shade - shade	alluvial and mixed deciduous forests
Polygonum affine varieties	(sun) - semi-shade	moist grasslands and bedrock
Primula Bullesiana-hybrids	light shade - semi-shade	moist meadows, alluvial forests
Primula elatior	sun - semi-shade	mountian meadow, alluvial forests
Prunella grandiflora	sun - semi-shade	semi-xeric grasslands, edges of forests
Pulmonaria species and varieties	no direct sunlight - semi-shade	mixed deciduous forests
Rodgersia species	light shade - shade	alluvial soil, moist forests
Sedum spurium 'Album Superbum'	sun - semi-shade	mountainous bedrock meadows, edges of streams
Symphytum grandiflorum	no direct sunlight - shade	mountainous mixed beech forests
Tiarella cordifolia	light shade - shade	rich mountainous mixed forests
Veronica longifolia	(sun) - semi-shade	alluvial soil, swamps and bogs
Vinca species and varieties	(sun) - semi-shade	rocky forests, bushes
Waldsteinia geoides	light shade - shade	mixed deciduous forests, bushes
Waldsteinia ternata	light shade - shade	edges of bushes, moist meadows
Grasses		
Carex montana	sun - shade	chalk/poor grasslands, light forests
Carex morrowii 'Variegata'	no direct sunlight - semi-shade	rich mixed deciduous forests
Carex pendula	light shade - shade	ash and alder forests, banks of streams
Carex plantaginea	light shade - shade	moist forests
Deschampsia cespitosa	light shade - semi-shade	moist oak-beech forests
Festuca ovina	sun - semi-shade	oak-pine forests, heaths
Luzula sylvatica	light shade - shade	oak, beech, fir forests

Semi-shade perennials - 20

continued

Genus/species/variety	Light span	Preferred location
Ferns		
Athyrium filix-femina	light shade - shade	fir-beech forests, alluvial plains
Dryopteris affinis	light shade - semi-shade	beech-fir forests, mountainous perennial ground
Dryopteris filix-mas	light shade - shade	rich deciduous and mixed conifer forests
Matteuccia struthiopteris	light shade - semi-shade	alluvial forests, embankments bushes
Osmunda regalis	light shade - semi-shade	birch-alder forests, ditches
Phyllitis scolopendrium	light shade - shade	ravine forests, moist bedrock
Polystichum setiferum and varieties	light shade - shade	mountainous mixed beech forests
Aquatic plants		
Caltha palustris	sun - shade	embankments, swamps, alluvial forests
Nuphar lutea	sun - semi-shade	ponds

Shade-loving perennials - 21

Shade-loving perennials do not necessarily prefer deep shade far from the sun. Though there are a few genera that make do with 2% of the intensity of original sunlight, most shade-loving perennials prefer shade that is not too dark and is lightened at times by brief contact with wandering sun spots. Shade-loving perennials typically have light flower colours as the insects cannot recognise dark colours in the dark of the forest and leaves that remain pure green. This group of plants lacks protective mechanisms against evaporation such as white-tomentose-silvery leaves or blue wax coatings on the leaves.

Genus/species/variety	Light span	Preferred location
Aruncus dioicus	no direct sunlight - shade	beech-fir forests, hardwood meadows
Asarum europaeum	light shade - shade	mixed deciduous and conifer forests
Cimicifuga racemosa cordifolia	light shade - shade	mixed deciduous forests with plentiful herbage
Cimicifuga ramosa varieties	light shade - shade	moist beech-mixed meadows forests
Dicentra eximia	light shade - shade	mountainous mixed deciduous forests
Epimedium perralderianum	light shade - shade	mountain deciduous and mixed conifer forests
Epimedium versicolor 'Sulphureum'	light shade - shade	mixed forests rich with herbage
Epimedium youngianum	semi-shade - shade	mountainous forests with plenty of precipitation
Eupatorium fistulosum	(sun) - semi-shade - (shade)	alluvial forests, moist meadows
Galium odoratum	light shade - shade	mixed deciduous forests with plentiful herbage
Helleborus foetidus	semi-shade - (shade)	oak forests, beech bushes
Lamium galeobdolon 'Florentinum'	no direct sunlight - shade	rich deciduous forests, hedges
Lamium maculatum	semi-shade - shade	moist deciduous forests, hedges
Lysimachia punctata	semi-shade - (shade)	alluvial soil, moist bushes

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21 - Shade-loving perennials

continued

Genus/species/variety	Light span	Preferred location
<i>Omphalodes verna</i>	light shade - shade	mixed beech forests, alluvial soil
<i>Polygonatum multiflorum</i>	light shade - shade	alluvial and mixed deciduous forests
<i>Rodgersia</i> species	light shade - shade	alluvial soil, moist forests
<i>Symphytum grandiflorum</i>	no direct sunlight - shade	mountainous mixed beech forests
<i>Tellima grandiflora</i>	semi-shade - shade	embankments, moist conifer forests
<i>Tiarella cordifolia</i>	light shade - shade	rich mountainous mixed forests
<i>Waldsteinia geoides</i>	light shade - shade	mixed deciduous forests, bushes
<i>Waldsteinia ternata</i>	light shade - shade	edges of bushes, moist meadows
Grasses		
<i>Carex montana</i>	sun - shade	chalk/poor grasslands, light forests
<i>Carex morrowii</i> 'Variegata'	semi-shade - (shade)	rich mixed deciduous forests
<i>Carex pendula</i>	light shade - shade	ash and alder forests, banks of streams
<i>Carex plantaginea</i>	light shade - shade	moist forests
<i>Deschampsia cespitosa</i>	semi-shade - (shade)	moist oak-beech forests
<i>Luzula sylvatica</i>	light shade - shade	beech and fir-spruce forests
Ferns		
<i>Athyrium filix-femina</i>	light shade - shade	fir-beech and alluvial forests
<i>Dryopteris affinis</i>	semi-shade - (shade)	beech-fir forests, mountainous perennial ground
<i>Dryopteris filix-mas</i>	light shade - shade	rich deciduous and mixed conifer forests
<i>Phyllitis scolopendrium</i>	light shade - shade	ravine forests, moist bedrock
<i>Polystichum setiferum</i>	light shade - shade	mountainous mixed beech forests
Aquatic plants		
<i>Caltha palustris</i>	(sun) - shade	alluvial forests, banks of streams, damp meadows

22 - Heath plants

The heath landscapes of northern and western Europe lack the variety of other vegetation units. Most species of trees, shrubs and perennials that occur here appear with a great number of individuals and few species. A few dominant varieties leave their mark impressively on the landscapes as we witness in the heaths of northern Germany, where *Calluna vulgaris*, *Juniperus communis* and others set the tone. In order to complement this monotonous, but attractive landscape with textures and structures, the heath perennials and grasses are ideal partners for and contrasts to these plants. All perennials that prefer sandy-humic, poor or moderately nutritious, acidic substrates should be short-listed. Such groupings cannot be planted on chalky, heavy soil. As all these plants generally need a lot of light, it is not always easy to find good partners for undergrowth.

Genus/species/variety	Needs light	Tolerates shade
Flower perennials		
Antennaria dioica 'Rubra' (i)	+	
Bergenia cordifolia (f)		+
Dianthus deltoides and varieties (i)	+	
Digitalis purpurea and varieties (i)		+
Phuopsis stylosa (f)	+	+
Potentilla aurea (i)	+	
Thymus serpyllum and varieties (i)	+	
Grasses		
Calamagrostis acutiflora 'Karl Foerster' (i)	+	
Festuca ovina (i)	+	+
Luzula sylvatica (i)		+
Molinia caerulea	+	+
Ferns		
Dryopteris filix-mas		+
Polystichum setiferum		+

i = indigenous species or variety
f = foreign species or variety

Plants for heath gardens, see planning tips table no. 55

Perennials for heavy soil - 23

It is not always easy to plant greenery on loam and clay. Numerous perennials suffer, especially in winter, from the stagnant dampness that regularly occurs. As most perennials are very sensitive to winter dampness, many plants, especially those from the south, can be ruled out. The perennials listed tolerate heavy soil, but that does not mean that heavy soil is optimal for them.

Species/variety	
Achillea ptarmica 'Boule de Neige'	Lythrum salicaria
Aconitum species	Polemonium caeruleum
Ajuga reptans and varieties	Polygonum affine varieties
Anemone nemorosa	Primula elatior
Anemone sylvestris	Prunella grandiflora
Aruncus dioicus	Rudbeckia nitida varieties
Asarum europaeum	Symphythum grandiflorum
Astilbe chinensis taquetii 'Purpurlanze'	Tellima grandiflora
Brunnera macrophylla	Trollius chinensis varieties
Centaurea montana	Waldsteinia geoides
Chrysanthemum serotinum	Grasses
Eupatorium fistulosum 'Atropurpureum'	Calamagrostis acutiflora 'Karl Foerster'
Filipendula ulmaria	Carex montana
Geum coccineum 'Borisii'	Carex morrowii 'Variegata'
Hemerocallis-hybrids varieties	Carex pendula
Hosta species and varieties	Deschampsia cespitosa
Inula magnifica	Miscanthus species and varieties
Lamium galeobdolon 'Florentinum'	Molinia species
Lamium maculatum varieties	Ferns
Ligularia species	Matteuccia struthiopteris
Lysimachia nummularia	Osmunda regalis
Lysimachia punctata	

24 - Perennials for damp areas and floods

In addition to the perennials that are truly for planting on the edge of water, many varieties like it moist and some even tolerate short floods. Such perennials are the best transitional plants between genuine embankment vegetation and the perennials that prefer "fresh soil".

Genus/species/variety	Tolerates dampness	Tolerates floods
Achillea ptarmica 'Boule de Neige'	+	
Anemone nemorosa	+	+
Aster novi-belgii	+	
Astilbe chinensis taquetii 'Purpurlanze'	+	
Astrantia major	+	
Brunnera macrophylla	+	
Chrysanthemum serotinum (= Leucanthem.)	+	+
Chrysogonum virginianum	+	
Eupatorium fistulosum 'Atropurpureum'	+	+
Filipendula ulmaria	+	+
Hemerocallis-hybrids	+	
Inula magnifica	+	
Iris sibirica varieties	+	
Ligularia species	+	
Lysimachia nummularia	+	
Lysimachia punctata	+	
Lythrum salicaria	+	+
Polemonium caeruleum	+	
Polygonum affine varieties	+	
Primula Bullesiana-hybrids	+	
Primula elatior	+	
Sedum spurium in green leaf varieties	+	+
Tellima grandiflora	+	+
Trollius chinensis 'Golden Queen'	+	
Veronica longifolia	+	
Grasses		
Carex pendula	+	+
Deschampsia cespitosa	+	+
Luzula sylvatica	+	+
Miscanthus giganteus	+	+
Molinia caerulea	+	
Ferns		
Athyrium filix-femina	+	
Matteuccia struthiopteris	+	
Osmunda regalis	+	+
Swamp and aquatic plants		
Alisma plantago-aquatica	+	+
Butomus umbellatus		+
Caltha palustris	+	+
Iris pseudacorus	+	+
Phragmites australis	+	+
Scirpus tabernaemontani 'Zebrinus'	+	+
Typha angustifolia	+	+

Indigenous wild perennials - 25

Like the central-European wild plants, indigenous wild perennials usually aren't equally spread across the whole region, but rather occur in limited areas. Some are considered local specialities and only occur in special niche situations. Before they are planted in open landscapes, the conditions at the site should be analysed lest the flora be adulterated.

Flower perennials

Aconitum napellus
Ajuga reptans
Anemone nemorosa
Anemone sylvestris
Antennaria dioica 'Rubra'
Aquilegia alpina
Aruncus dioicus
Asarum europaeum
Astrantia major
Buglossoides purpureocaerulea
(= Lithospermum purpureocaeruleum)
Calamintha nepeta nepeta
Centaurea montana
Convallaria majalis
Corydalis lutea (eingebürgert)
Dianthus deltoides
Digitalis grandiflora
Eryngium planum
Euphorbia polychroma
Filipendula ulmaria
Fragaria vesca
Galium odoratum
Geranium sanguineum
Helleborus foetidus
Helleborus niger
Inula ensifolia
Lamium maculatum
Lysimachia nummularia
Lysimachia punctata
Lythrum salicaria
Polemonium caeruleum
Polygonatum multiflorum
Potentilla aurea
Primula elatior
Prunella grandiflora
Pulsatilla vulgaris
Sedum acre
Sedum album
Veronica longifolia
Veronica austriaca teucrium

Grasses

Carex montana
Carex pendula
Deschampsia cespitosa
Festuca cinerea
Festuca ovina
Luzula sylvatica
Molinia caerulea
Stipa pulcherrima

Aquatic plants

Alisma plantago-aquatica
Butomus umbellatus
Caltha palustris
Iris pseudacorus
Nuphar lutea
Nymphaea alba
Phragmites australis
Ranunculus lingua
Sagittaria sagittifolia
Stratiotes aloides
Typha angustifolia

Ferns

Athyrium filix-femina
Dryopteris affinis
Dryopteris filix-mas
Matteuccia struthiopteris
Osmunda regalis
Phyllitis scolopendrium
Polystichum setiferum

The colour selections of wild varieties that can also occur in the wild are listed.

26 - Naturalised and foreign wild perennials

Wild perennials from other countries can be used meaningfully in wild gardens and parks that are near but not identical to natural conditions where the situation allows. The use of plants from other continents provides exciting new aspects. The mixture of indigenous and foreign species or especially exotic looking species makes for extraordinarily luxurious, exotic, attractive plant combinations. The use of foreign species in open landscapes is forbidden by law for conservation reasons and should be avoided in order to prevent the adulteration of flora.

Genus/species/variety	Origins
Flower perennials	
<i>Acaena buchananii</i>	New Zealand
<i>Acaena microphylla</i>	New Zealand
<i>Alchemilla mollis</i>	Caucasus, Carpathians
<i>Artemisia stelleriana</i>	eastern Asia
<i>Aruncus aethusifolius</i>	Japan, Korea
<i>Aster divaricatus</i>	eastern North America
<i>Astilbe chinensis pumila</i>	western China
<i>Bergenia cordifolia</i>	Siberia
<i>Brunnera macrophylla</i>	Caucasus
<i>Centranthus ruber</i>	Mediterranean area
<i>Cerastium tomentosum</i>	southern Italy
<i>Ceratostigma plumbaginoides</i>	western China
<i>Chrysanthemum serotimum</i> (= <i>Leucanthemella</i> s.)	south-eastern Europe
<i>Chrysogonum virginianum</i>	eastern North America
<i>Cimicifuga racemosa cordifolia</i>	eastern North America
<i>Coreopsis verticillata</i>	eastern North America
<i>Corydalis lutea</i>	southern Europe
<i>Delphinium grandiflorum</i>	northern China, eastern Siberia
<i>Dicentra eximia</i>	eastern North America
<i>Dicentra spectabilis</i>	eastern Asia
<i>Doronicum orientale</i>	south-eastern Europe
<i>Echinacea purpurea</i>	eastern North America
<i>Echinops bannaticus</i>	south-eastern Europe
<i>Eupatorium fistulosum</i>	eastern North America
<i>Euphorbia griffithii</i>	Himalayas
<i>Euphorbia myrsinites</i>	southern Europe, Asia Minor
<i>Geranium clarkei</i>	Himalayas
<i>Geranium endressii</i>	Pyrenees
<i>Geranium macrorrhizum</i>	southern Europe
<i>Geranium renardii</i>	Caucasus
<i>Hosta lancifolia</i>	Japan

Genus/species/variety	Origins
Hosta sieboldiana	Japan
Hosta ventricosa	eastern Asia
Hypericum polyphyllum	southern Europe
Inula magnifica	Caucasus
Lathyrus latifolius	Mediterranean area
Lavandula angustifolia	Mediterranean area
Ligularia dentata	eastern Asia
Ligularia przewalskii	northern China
Lysimachia punctata	south-western Europe, western Asia
Macleaya cordata	eastern Asia
Matricaria caucasica	south-eastern Europe, western Asia
Oenothera missouriensis	south-western North America
Oenothera tetragona	eastern North America
Omphalodes verna	southern Europe
Phlomis russeliana	south-eastern Europe, western Asia
Phuopsis stylosa	south-eastern Europe, western Asia
Physalis alkekengi franchetii	eastern Asia
Pulmonaria rubra	south-eastern Europe
Rodgersia aesculifolia	western China
Rodgersia pinnata	western China
Sagina subulata	south-western Europe, North America
Solidago caesia	eastern North America
Symphytum azureum	Caucasus
Symphytum grandiflorum	Caucasus
Tellima grandiflora	western North America
Tiarella cordifolia	eastern North America
Verbascum olympicum	south-eastern Europe
Veronica spicata incana	eastern Europe, Siberia
Waldsteinia geoides	south-eastern Europe
Waldsteinia ternata	eastern Europe, eastern Asia
Grasses	
Carex plantaginea	North America
Cortaderia selloana	South America
Festuca mairei	northern Africa
Helictotrichon sempervirens	Switzerland, France
Miscanthus giganteus	eastern Asia
Panicum virgatum	North America

27 - Farm garden

Farm gardens have always been more than merely decorative; they have always contained a combination of decorative plants, cut plants, spices, vegetables, and medicinal plants. The gardens usually were arranged geometrically like monastic gardens. Border plants were created from plants tolerant of cutting like *Buxus* and subshrubs like *Lavandula* or, less often, from perennials. The indigenous and the exotic were casually juxtaposed. Colourful, densely double perennials were especially popular. Regional preferences were once easier to distinguish than nowadays. The various needs of the plants depending on location were seldom attended to, and when they were, it was usually “compensated for” with an extra portion of manure.

As farm gardens were positioned to have full sun, there was usually only space for a lightly sunny or semi-shady bed under apple or pear trees.

Species/variety	Main use
Sunny areas	
<i>Aconitum cammarum</i> 'Bicolor'	medicine, decoration
<i>Aconitum napellus</i>	medicine, decoration
Aquilegia-hybrids	decoration, cutting
<i>Aster novi-belgii</i> varieties	decoration
<i>Campanula</i> species	decoration, some vegetables
<i>Chrysanthemum leucanthemum</i>	decoration
<i>Chrysanthemum maximum</i>	decoration
<i>Dianthus plumarius</i> varieties	scent, cutting
<i>Dicentra spectabilis</i>	decoration, symbol plant
<i>Echinops bannaticus</i>	decoration
<i>Fragaria vesca</i>	fruits
<i>Gypsophila paniculata</i>	cutting
<i>Helleborus niger</i>	decoration, medicine
<i>Humulus lupulus</i>	medicine
<i>Iberis sempervirens</i>	decoration, borders
<i>Iris sibirica</i> varieties	decoration
<i>Iris-Barbata-Elatior</i>	decoration, cutting
<i>Lavandula angustifolia</i>	cut borders, scent
Lupinus-Polyphyllus-hybrids	decoration, cutting
<i>Lychnis viscaria</i> 'Plena'	decoration
Monarda-hybrids	decoration, scent
<i>Nepeta faassenii</i>	borders, decoration
<i>Origanum vulgare</i> varieties	spice
<i>Paeonia officinalis</i> 'Rubra Plena'	medicine, cutting
<i>Papaver orientale</i>	decoration
<i>Phlox paniculata</i>	decoration
<i>Physalis alkekengi franchetii</i>	decoration
<i>Primula elatior</i>	decoration
<i>Salvia nemorosa</i> varieties	decoration, medicine
<i>Sedum spectabile</i>	medicine, decoration

Species/variety	Main use
Sedum spurium 'Album Superbum'	borders
Stachys byzantina	borders, decoration
Thymus species and varieties	spice, scent
Vinca minor	medicine, decoration
Lightly shady to semi-shady	
Aconitum napellus	medicine, decoration
Aruncus dioicus	decoration
Bergenia cordifolia	borders
Centaurea montana varieties	decoration
Convallaria majalis	scent, cutting, medicine
Dicentra spectabilis	decoration, symbol plant
Digitalis purpurea	medicine
Doronicum species	cutting
Dryopteris filix-mas	medicine
Galium odoratum	scent, medicine
Hosta crispula and others	borders, decoration
Vinca minor	decoration, medicine
Plants from the farm garden	
Buxus sempervirens varieties	borders, topiary
Cornus mas	fruits
Corylus avellana	fruits
Hedera helix	decoration
Laburnum species	decoration
Ligustrum vulgare	border hedge
Lonicera caprifolium	scent, twined pergola
Lonicera periclymenum	scent, twined pergola
Mespilus germanica	fruits
Philadelphus coronarius	decoration
Rosa - old, double varieties	decoration, scent
Rosa - wild varieties	rose hips
Sambucus nigra	fruits, medicine
Syringa vulgaris	decoration, cutting
Taxus baccata	borders, topiary
Viburnum opulus 'Sterile'	decoration
fruit plants of all kinds	fruits

28 - Extensive and simple, intensive roof greenery

There is no clear distinction between extensive and simple, intensive roof greenery. The depth for the roots determines which perennials are possible. The more shallow the soil, the more limited the palette of possible, robust perennials. The deeper the substrate, the larger the competition will be between the plants. With each improvement of the substrate, the weakly competitive species will be increasingly overgrown. The more shallow the soil, the more the demanding varieties will wither or dry out.

Species/variety	Extensive	Simple intensive
Achillea tomentosa		+
Alyssum montanum		+
Alyssum saxatile		+
Anemone sylvestris		+
Arabis caucasica		+
Artemisia schmidtiana 'Nana'		+
Calamintha nepeta	+	+
Campanula glomerata		+
Centranthus ruber varieties		+
Cerastium tomentosum 'Silberteppich'	+	
Dianthus deltooides varieties	+	
Dianthus plumarius varieties		+
Geranium cantabrigiense 'Biokovo' among others	+	+
Geranium macrorrhizum varieties		+
Geranium renardii		+
Geranium sanguineum	+	+
Gypsophila repens		+
Hypericum polyphyllum	+	
Inula ensifolia		+
Iris-Barbata-Nana varieties	+	
Linum perenne	+	+
Lychnis viscaria		+
Nepeta faassenii		+
Origanum vulgare varieties	+	+
Prunella grandiflora		+
Pulsatilla vulgaris		+
Sedum acre	+	
Sedum album 'Coral Carpet'	+	
Sedum floriferum 'Weihenstephaner Gold'	+	
Sedum telphium 'Herbstfreude'		+
Sedum hybridum 'Immergrünchen'	+	
Sedum spectabile i.S.		+
Sedum spurium 'Album Superbum'	+	
Stachys byzantina 'Silver Carpet'	+	+
Thymus serpyllum varieties	+	
Veronica spicata		+

extensive: soil layer between 6-10 cm

simple intensive: soil layer between (8) 10-15 cm

Extensive and simple, intensive roof greenery - 28

Species/variety	Extensive	Simple intensive
Grasses		
Carex montana	+	
Festuca cinerea	+	
Festuca ovina	+	
Helictotrichon sempervirens		+
Stipa pulcherrima		+

extensive: soil layer between 6-10 cm simple intensive: soil layer between (8) 10-15 cm

Medicinal plants - 29

Knowledge about the effects of medicinal plants is very old. Much of the knowledge our ancestors collected has been scientifically confirmed in recent years. Other effects are best seen as beliefs and superstition. As it is forbidden by national conservation laws to collect medicinal plants in the wild, it is recommended that they be planted in gardens. Medicinal plants should be used with caution; for small wounds, self-treatment is justified, but a doctor must be visited for serious illnesses and injuries. Numerous medicinal plants are also poisonous, can lead to allergies, or have other side effects. Inform yourself thoroughly before any applications.

Species/variety	Plant parts used	Medicinal effects
Achillea millefolium	dried leaves, flowers	intestinal and stomach pains, menstrual pains, wounds
Aconitum species	rhizome (extremely poisonous)	colds, pain-killer (caution)
Alchemilla mollis and others	dried leaves	intestinal and stomach pains, menstrual pains
Antennaria dioica	dried flowers	intestinal and stomach pains
Asarum europaeum	roots	asthma, intestinal and stomach pains
Centranthus ruber	roots	sleep disturbances
Cimicifuga racemosa	roots	menstrual pains, gout, rheumatism, asthma
Convallaria majalis	dried leaves, flowers (poisonous)	heart disease (caution)
Digitalis purpurea and others	dried leaves (poisonous)	heart pain (caution)
Dryopteris filix-mas	roots (poisonous)	vermicide, (caution), phlebitis
Echinacea purpurea	fresh leaves, roots	colds, anti-inflammatory
Eryngium planum	fresh herbage, roots	whooping cough, antispasmodic
Filipendula ulmaria	dried flowers, roots	fever, gout, rheumatism
Fragaria vesca	dried leaves, fruits	cleans blood
Galium odoratum	dried young leaves	sleep disturbances, antispasmodic
Helleborus niger	roots (poisonous)	laxative, headaches
Lysimachia nummularia	fresh shoots	heals wounds, clots blood
Lythrum salicaria	fresh or dried leaves	clots blood, heals wounds, digestive disturbances
Monarda-hybrids	dried leaves, flowers	tranquilising, heals wounds

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Species/variety	Plant parts used	Medicinal effects
Oreginum vulgare and others	dried leaves	appetite stimulant, colds
Paeonia officinalis	seeds, roots	gout, rheumatism
Phyllitis scolopendrium	dried leaves	bronchitis, liver ailments
Physalis alkekengi	mature fruits	bladder ailments, gout, rheumatism
Primula elatior	dried roots, flowers	colds, bladder ailments
Prunella grandiflora	dried leaves	eye inflammation, heals wounds
Pulmonaria officinalis	dried leaves	colds
Sedum acre	fresh leaves	wounds, burns
Symphytum species	roots	bruises, broken bones
Thymus species	fresh or dried leaves	colds, gout, rheumatism
Vinca minor	flowering shoots	skin cancer, colds
Woody plants		
Abies alba	needles, young twigs	colds, rheumatism
Aesculus hippocastanum	skinned fruits, flowers	phlebitis, intestinal and stomach pains
Alnus species	young bark	sore throats
Arctostaphylos uva-ursi	dried leaves	bladder ailments
Berberis vulgaris	root bark	menstrual pains, liver and gall ailments
Betula pendula and others	dried young leaves	gout, rheumatism, nephritis
Calluna vulgaris	dried flowering twigs	sedative, gout, rheumatism
Castanea sativa	dried leaves	whooping cough
Crataegus laevigata	dried leaves, flowers, fruits	lowers blood pressure, heart disease
Crataegus monogyna	as above	
Cytisus scoparius	flowers, dried herbage (poisonous)	heart disease, cleans blood
Fraxinus excelsior	dried leaves, young bark	gout, rheumatism, bladder ailments; ulcers
Hamamelis virginiana	dried leaves, bark	clots blood, phlebitis
Hedera helix	young sprouts and leaves	whooping cough, rheumatism
Juglans regia	fresh or dried leaves, green fruit skin	anti-inflammatory, intestinal and stomach pains, gout
Juniperus communis	dried berries, twig tips	appetite stimulant, rheumatism; rheumatism, gout
Larix decidua	resin	abscesses, rheumatism
Lavandula angustifolia	flower buds	sleep disturbances, migraines
Picea abies	needles	colds
Pinus mugo and others	needles, young twigs tips	bronchitis, rheumatism
Populus nigra	dried spring buds	rheumatism, gout, bronchitis
Populus tremula	young bark and leaves	rheumatism, gout, bladder ailments
Prunus padus	fresh bark	gout, rheumatism, fever reduction
Prunus spinosa	dried flowers, fruits	laxative, bladder ailments
Rhamnus catharticus	fruits, young bark	laxative
Rhamnus frangula	dried bark (poisonous)	laxative
Ribes nigrum	dried leaves, fruits	gout, rheumatism, whooping cough

Species/variety	Plant parts used	Medical effects
Ribes nigrum	dried leaves, fruits	gout, rheumatism, whooping cough
Robinia pseudoacacia	dried bark (poisonous)	migraines, facial neuralgia
Rosa canina and others	rose hips without seeds	kidney and bladder ailments, exhaustion
Rubus fruticosus	dried leaves	colds,
Salix species	dried bark	pain-killer ("Aspirin")
Sambucus nigra	all parts, fresh or dry	colds, sudorific
Sorbus aucuparia	berries, fresh or dry, flowers	menstrual pains, rheumatism, colds
Tilia species	dried flowers	colds, intestinal and stomach pains
Vaccinium vitis-idaea	dried leaves	bladder ailments
Viburnum opulus	dried bark	menstrual pains, antispasmodic

Edible perennials - 30

The perennials presented here should not be seen as competition for vegetables and lettuce; rather, the readers are encouraged to try something unusual, to give their own cooking an exotic taste and expand on the selection of spices. Some of these plants used to grow in kitchen gardens, though they are only known as decorative plants today.

Species/variety	Usable plant parts	Dish/drink	Taste
Alchemilla mollis	young leaves - fresh - dried	spices, salads, vegetables spice	bitter-sweet-spicy, older plants withering
Anchusa azurea and others	young leaves flowers	vegetables, colourful decoration in salads, food colouring	like borscht, like cucumbers
Butomus umbellatus	roots, rhizomes	vegetables roasted, ground-flour	mild
Calamintha nepeta	young leaves - dried	herbal tea, tea, spice	like peppermint
Campanula persicifolia	roots	cooked as a salad et al.	sweetish-mild
Centranthus ruber	young leaves	salad, vegetables	like lamb's lettuce
Chrysanthemum leucanthemum (=Leucanthemum v.)	young leaves, sprouts before flowers	salad, vegetables	tangy
Chrysanthemum maximum	petals, inflorescences	salad, also fried	more for decoration, flowery-mild
Coreopsis grandiflora	petals	gives food a yellow tinge	tasteless
Dianthus plumarius	upper parts of petals (bitter at the base)	salad, marmalade, vinegar, liqueur, candied	fragrant like flowers
Eryngium planum	sprouts before flowering, roots	salad vegetables	sweetish-spicy hot

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30 - Edible perennials

continued

Species/variety	Usable plant parts	Dish/drink	Taste
Filipendula ulmaria	young leaves - dried	additive in herbal beer, wine, herbal tea, soup spice, in marmalade	aromatic somewhat reminiscent of "chewing gum"
Fragaria vesca	fruits young leaves dry	fruit, marmalade, herbal tea	sweet, intense aroma aromatic-bitter
Galium odoratum	leaves, sprouts before flowering in small doses	tea, punch, potpourri	pleasant scent, aromatic, most aromatic when slightly dry
Hemerocallis hybrids	young leaves, flower buds	vegetables soup spice	peppery hot like horseradish
Hosta species	youngest leaves in spring	salad, vegetables	neutral
Lamium maculatum	young leaves, sprouts before flowers	vegetables	like spinach
Lavandula angustifolia and others	youngest leaves - dried, flowers - dried	spice spice, potpourri tea or tea additive, vinegar, marmalade additive, potpourri	bitter-spicy, fragrant-aromatic
Lythrum salicaria	young leaves, sprouts before flowers, flowers	vegetables, tea, sweets-decoration	mild-tart
Monarda hybrids	young leaves before flowering - dried, flowers	salad, spice herbal tea, marmalade, exotic drinks, tea, salad, spices potpourri	like peppermint to balm, spicy-aromatic
Origanum vulgare 'Compactum'	young leaves, leaves dried	spice	spicy-aromatic
Prunella grandiflora	young leaves, sprouts before flowers	soup, salads, vegetables	mild-neutral
Pulmonaria angustifolia	fresh leaves before flowering	soup, salads, vegetables	slightly spicy
Pulmonaria officinalis	as above		
Sagittaria sagittifolia	root tubers - dried	vegetables ground as flour	like peas or nuts (if the ducks leave any)
Sedum acre	young leaves young (small) shoot pieces	spicy, only in small amounts!	peppery hot
Sedum reflexum	young leaves	soups, salads	sour
Sedum telephium	young leaves	soups, salads	tangy
Symphytum grandiflorum	young spring leaves, young stems, whole flowers	salad, vegetables fried, salad (decoration) fried	like spinach, spicy hot, flowers-spicy
All species of Thymus	leaves, stems - dried	spice, potpourri	aromatic
Typha angustifolia	young sprouts, flower tips before flowering, roots dried	salad, vegetables, vegetables flour	tangy, sweetish-spicy hot

Plants that have been used for ages in food but could lead to allergies, such as Achillea millefolium, have been left out of the list.

Starting in July or August, certain perennials are frequented by butterflies, especially on hot-humid days. The number of butterflies changes from year to year, depending on the strength of the previous winter. The following are often found on the perennials listed below: Red admiral, painted lady (thistle butterfly), small tortoiseshell, peacock butterfly, and sillagowhitings.

Achillea millefolium and hybrids
Aster species and varieties
Centranthus ruber 'Coccineus'
Cimicifuga species and varieties
Dianthus species and varieties
Echinacea purpurea
Echinops species and varieties
Erigeron hybrids
Helenium hybrids
Helianthus decapetalus 'Capenoch Star'
Inula species
Lavandula angustifolia varieties
Lythrum salicaria
Monarda varieties
Nepeta x faassenii 'Six Hill Giant'
Origanum species and varieties
Phlox paniculata varieties
Prunella grandiflora
Salvia species and varieties
Sedum telephium 'Herbstfreude'