Perennials in your garden

Agriculture
Canada

Publication 1754/E

630.4
C212
P 1754
1983
OOAg
c.3

Canada

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Available in Canada through

Authorized Bookstore Agents
and other bookstores

or by mail from

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Canada, K1A 0S9

Catalogue No. A53—1754/1983E
ISBN 0-660-11334-1

Canada: \$2.95
Other countries: \$3.55

Price subject to change without notice

Canadian Cataloguing in Publication Data

Cole, Trevor J.

Perennials in your garden

Issued also in French under title: Les fleurs vivaces de votre jardin.

"This publication replaces publications 968, Descriptive notes on herbaceous perennials for Canadian gardens, and 970, Growing herbaceous perennials, by R.W. Oliver."

I. Perennials. 2. Gardening. I. Canada. Agriculture Canada. II. Title.

SB434.C6

635.9'32

C83-097208-0

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This publication replaces publications 968, *Descriptive notes on herbaceous perennials for Canadian gardens*, and 970, *Growing herbaceous perennials*, by R.W. Oliver.

Également disponible en français.

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INTRODUCTION

All plants that live for more than 2 years are perennials. A herbaceous perennial is technically a perennial that does not produce woody stems and that dies down to the ground each fall and overwinters in some form of resting crown. The botanist restricts his discussion of herbaceous perennials to plants that fit this definition. In the garden, however, the term has a much looser meaning and is used for any of the hundreds of overwintering plants suitable for growing in a perennial border. It includes bulbs, tubers, and rhizomes, as well as plants that do not die down to the ground each year.

For the sake of simplicity, then, the term perennial is used in this publication, without the modifier herbaceous, to include all the kinds of perennials described above.

Although certain perennials, particularly irises and peonies, have been cultivated in the East for hundreds of years, perennial borders as we know them have their origins in the monasteries of medieval Europe.

One of the functions of these monasteries was to heal the sick. To this end, they planted borders of plants known for their medicinal properties. Over the course of time, other plants came to be included for their decorative rather than their utilitarian value. From these early collections evolved the perennial borders that reached their peak of popularity around the turn of the last century. This formal perennial border was generally planted in front of a wall, fence, or hedge, which provided a backdrop. Scaled-down versions of this style still have a role in modern gardens.

Following the Second World War, houses and lots became smaller. Formal perennial borders then fell from fashion and the concept of island beds began to gain popularity.

Island beds are free-form plantings of perennials, situated in the lawn area without any backdrop. Any shape that complements the garden design can be used. Because they are viewed from all sides, plant supports are difficult to hide. Dwarf varieties and self-supporting plants suitable for island beds have therefore become popular.

Present trends favor using perennials in mixed borders. Few people have room for a flower bed consisting solely of perennials. Now, clumps of perennials or individual perennial plants are being included in borders with shrubs, bulbs, and annual plantings.

Figures 1 and 2 show plans for both a conventional border and an island bed suitable for a small garden. Because the availability of varieties is so variable, species are listed only by color and height. Any varieties available locally and fitting these descriptions can be used.

Fig. 1. A design for a formal bed against a hedge or fence. Approximate heights are given in centimetres. Months of blooming (May to September) are indicated by the appropriate capital letters (M to S), except for June (Jn) and July (Jy). The ●'s indicate the suggested number and position of specimens.

Fig. 2. A design for a free-standing island bed. Approximate heights are given in centimetres. Months of blooming (May to September) are indicated by the appropriate capital letters (M to S), except for June (Jn) and July (Jy). The ●'s indicate the suggested number and position of specimens.

PLANNING

Location

Perennials should generally be planted in full sun in a well-drained, moderately rich soil. However, even when the only available site is shady or wet, an attractive display can still be achieved from a limited choice of plants. Consult the listing in the section “Using plants” for varieties suitable under special conditions.

Avoid low areas that collect cold air, because young shoots growing there are more likely to be injured by late spring frosts and the fall flowering period is curtailed in these areas. Also avoid planting close to trees, which compete for the available moisture and fertilizer.

Site preparation

Because perennials normally occupy the same site for several years, good preparation of the soil is essential before planting. When you are making a new bed in an area that was previously lawn, lift the sod before digging. Stack sod with the grass turned down for a year if you wish it to decompose quickly into good topsoil for topdressing the garden.

Dig the area and carefully remove all perennial weeds. Quack grass (also known as couch, twitch, quitch, quick, and witch grass) and thistle are both so invasive that even a small piece of root left in the garden can give rise to a new colony. Once established in a clump of growing perennials, these weeds are almost impossible to remove. Therefore unless you know the area is free from these weeds, hand digging is preferable to mechanical cultivation. A rotary tiller merely chops these weeds into small pieces that propagate prolifically.

On light soils work in as much humus as possible. Use compost, peatmoss, well-rotted manure, or leaf mold. On very sandy soils a topdressing of 10 cm deep is not excessive.

By planning ahead, you can prepare the bed in the spring, green-manure during the summer, and plant in the fall or the following spring. Green-manuring is an inexpensive way to enrich the soil with humus. To green-manure, seed the bed in the spring with a quick-growing cover crop such as buckwheat, winter rye, mustard, or rape. Then dig the crop into the soil just as it flowers. Replace the nitrogen that is depleted from the soil during decomposition of the cover crop by adding 25 g of ammonium sulfate per square metre. When cowpeas, vetches, or clover is used as a cover crop, fertilizer is not needed because these plants have an association with bacteria that change nitrogen into a form that can be utilized by plants in nodules on their roots. In areas with a long growing season, three cover crops can be grown in 1 year.

Improve clay soils by adding sand as well as humus. The problem with clay soils is poor drainage. Any material that opens the soil is beneficial. Use peatmoss only when no other form of humus is available, because it retains a lot of water.

Design

Whether you are making a large perennial border or simply using a few clumps of perennials in a mixed planting, planning is most important. Start your plans in the winter while other gardening chores are minimal.

Consider first the availability of plants. Get a list of plants that will be available from your local nurseries in the spring. Unfortunately the choice is often limited and there are few nurseries in Canada specializing in perennials that are willing to ship plants. A list of societies that can advise you on where to order perennials is provided at the end of this publication.

When planning your garden, keep in mind season of bloom, color, and height. Scatter plants flowering in the same season throughout the border. Separate flowers with similar or clashing colors, unless they bloom at different times. Do not hide small plants behind tall ones. Use tall plants to hide the bare spaces left when early-flowering plants, such as tulips, die down.

Sketch your plan to scale onto squared paper. Use colored pencils to illustrate color balance, numbers to represent heights, and letters to indicate flowering times. Finally, decide how many plants are needed for each block. The distance left between upright-growing plants should be roughly half their eventual height. Leave even more room than this between the dwarf, spreading forms used at the front of the border.

Large groups of a few perennials is more effective than smaller groupings of many perennials. A grouping of five or six plants is usually considered adequate. With the possible exception of peonies, avoid groupings of less than three.

Hardiness

The hardiness ratings assigned to trees and shrubs cannot be given to perennials because they die down to soil level each winter. Hardiness of perennials therefore depends more on soil temperature, which is affected by snow cover, than on air temperature. An area that sustains a heavy snowfall can grow a much wider range of plants than one with similar minimum temperatures but lighter snowfall.

Consult your local nurserymen and members of your nearest horticultural society for information on what perennials do well in your area.

In areas that usually receive a good snow cover, a freak winter with little snow, or an unusual midwinter thaw, can lead to the loss of plants that are normally considered hardy.

CULTURE

Planting

In regions of the country with mild winters, fall is the best time to plant. Soil is easier to work and fewer other gardening jobs need to be done in fall than during the growing season. In areas with harsh winters and little snow cover, however,

fall planting is not advisable. In these areas new plants do not have time in fall to form a root system strong enough to withstand the severe frost heaving that commonly occurs in winter, and the young plants are thus subject to severe dessication in early spring. Where reliable snow cover is expected, planting can take place in early fall or in spring. Irises and peonies, however, need more time than most plants to anchor themselves in the soil before freeze-up. Plant irises as early in August as possible, and peonies in late August or about 8 weeks before hard frosts are expected.

Many perennials are now sold in pots. To plant potted perennials, remove the pot and place the soil ball in the ground at the same level as it was in the pot (Fig. 3). When you are dividing your own plants or using divisions from friends, plant them with the dormant buds just below soil level. Plant peonies with the buds between 3 and 8 cm below ground level. Outside these limits, the plants grow but do not flower. The old tale about peonies taking 7 years to flower after being moved probably derived from planting them too deeply (Fig. 4). Irises should be planted with the thick rhizome, from which the roots grow, at soil level. The rhizome must be exposed to the sun to avoid rot. Plant it on a saddle of earth with the roots down either side (Fig. 5). Pack the soil firmly around the roots, leaving the rhizome exposed.

Fig. 3. Plant pot-grown plants at soil level.

Fig. 4. Peonies (*Paeonia*) must be planted at the correct depth to flower properly.

Fig. 5. Plant irises on a ridge and at the correct depth.

Care

During the growing season the chief battle is against weeds. When allowed to gain control, weeds reduce the growth of desirable plants or choke them out completely by competing for available water and nutrients. Hoeing is the best way to combat weeds. Use a Dutch or push hoe as soon as the weeds are a couple of centimetres tall and cut them off just below the ground. Be careful not to disturb the roots of the perennial plants, especially in areas where no perennials are visible. Some plants are late to appear and their shoots are just below the soil surface.

Unless they are needed for drying, flower heads should be cut off as soon as the flowers fade. Removal of flowers prevents seed production, which generally improves flowering the next year. In some plants, especially delphiniums, removing old flower heads may promote the formation of a second crop of flower spikes, which extends their season of value.

Fertilizing

Unless you have green-manured, new beds should be fertilized during construction using a general fertilizer such as 7-7-7 at 100 g/m². Scatter the fertilizer over the surface and work it in during digging. Fertilize again in mid-June at half the above rate.

Established borders need fertilizing in the early spring to boost the early growth of the plants. Sprinkle 7-7-7 or 6-9-6 round the plants at about 75 g/m², taking care not to leave fertilizer granules on the young shoots. Alternatively, you can topdress the bed carefully with well-rotted manure. Fork the bed over lightly, to about half the depth of the tines, to work in the chemical fertilizer or the manure and to break up the winter crust on the soil surface.

Watering

In general, perennials are fairly drought resistant. However, in prolonged dry periods it is necessary to water. When irrigation is needed apply enough water each time to soak the soil deeply. You should aim at giving 3–5 cm of water. A few straight-sided containers can be scattered over the area to measure the amount of water applied.

Sandy soils need watering more frequently than loams or clay soils. They also leach out the fertilizer more readily. Supplementary feeds can be applied during watering by using a soluble fertilizer concentrate and a diluter.

When water for irrigation is not readily available in areas of low rainfall, grow plants adapted to dry conditions. Consult the list of plants suitable for growing under special conditions, given in the section "Using Plants".

Staking

Many modern varieties do not need staking under normal conditions, but the older, taller forms do require some form of support.

Fig. 6. Several stakes and criss-cross twine support plants well.

Fig. 7. Plants that have been allowed to flop over are difficult to tie up.

Stake plants requiring support early in the season. The best supports are twigggy branches pushed into the ground around the perennial so that the plant can grow up through them. More commonly used are wooden stakes or bamboo canes and string.

In one-sided borders when only one stake is used, it should be placed behind the plant. However, better support is achieved when several stakes are used (Fig. 6). Always tie the plants early in the season. When plants are not tied up until after they have fallen over, they present a bunched appearance (Fig. 7) that is unnatural and unattractive.

Transplanting

Once the border is finally planted, some maintenance is still usually required every few seasons to keep the plants within bounds. Plants grow at different rates. Many clumps can be left 6 or 7 years without tending but others must be dug up and divided every 2 or 3 years to keep them from becoming too crowded. Occasionally you also need to divide a plant to replace another that has died.

Lift plants in spring as soon as new growth can be seen, or transplant in early fall. When the clumps are not too large, you can break them apart by hand, but generally you need the help of a couple of garden forks. Place the forks back to back in the center of the clump. Then push the prongs down into the crown of the plant and pull on the handles to split the clump in half. Repeat as often as necessary to obtain pieces small enough to break apart by hand (Fig. 8).

Replant small pieces with three or four old shoots taken from the outside of the plant. The center of the clump should be thrown out. One clump can yield 20 or more pieces suitable for replanting.

Fig. 8. The final stage of dividing a perennial.

Propagation

The home gardener can propagate perennials by seed, from cuttings, or by division. In the section “Recommended plants” the best method for propagating each species is indicated by the letters *s*, *c*, or *d*.

Seed

Many gardening books tell you to sow perennial seed in August. This method was originally developed to suit the British climate, where winters are both mild and short. Although this advice may be suitable for some parts of British Columbia, in most of the rest of Canada it is not appropriate. Our growing season is too short and our winters too hard for small seedlings to survive.

In Canada sow perennial seeds indoors in April, if you have sufficient room, or outdoors as soon as the soil is dry enough to work. The new plants then have the full season to grow to a reasonable size before winter comes.

Most of the large seed firms offer many perennials that can be grown from seed, and although your choice of cultivated varieties is limited, you can still obtain a good display from seed alone.

Cuttings

Soft cuttings of many species of perennials root easily. Soft cuttings are obtained in the spring when the new growth is about 15–20 cm tall. Trim off the lower leaves and, with a sharp knife, cut the stem just below the point from which the leaves are removed (Fig. 9).

Fig. 9. A softwood perennial cutting ready to root.

Dip the base of the cutting in one of the hormone rooting powders (softwood grade) and tap off any excess. In a shady part of the garden insert the cutting to the base of the remaining leaves in soil that has had some sand worked into it for good drainage.

Until rooting takes place cover the cutting with a large glass jar, or provide a tunnel for several cuttings by hanging polyethylene sheeting over wire hoops (Fig. 10).

Fig. 10. Rooting tunnels can be easily made at home.

Space the cuttings about 15 cm apart, and leave them undisturbed until fall when they should be moved to their final locations. When cuttings must be rooted close together because of space shortage, lift them as soon as they have rooted and replant them in rows about 15–20 cm apart. Bigger plants result from following this procedure but some do not survive transplanting.

Division

Most perennials can be propagated by division, as outlined in the section “Transplanting”. This method works well with plants that have fibrous roots growing from a central crown, such as day-lilies, sneezeweed, asters, and bergamot. Some of these have woody connecting roots, which may have to be cut with a knife or pruning shears.

Plants that bloom early in the year are best divided in the fall, whereas those that are late to flower are left until spring. However, a border can be renovated with success at either season.

The exception to these guidelines are irises, which should be divided in July or early August; Oriental poppies, which should be divided in August; and peonies, which should be moved or divided only in late August or September, depending on the length of the growing season.

Fall maintenance

Once a sharp frost has killed the last of the flowers, cut down the year's growth. In regions with good snowfall cut the stems at ground level. Where a good snow cover is uncertain, leave the stems 20–25 cm high to help trap any snow that does fall. The following spring cut the stems back to ground level.

Some books advocate using the cut-off stems as a mulch. However, when cut stems are left, mice come to eat the seeds and stay to eat bulbs and buds, causing severe plant damage. Also, many fungus diseases overwinter on old foliage, so its removal is a good sanitary measure.

Winter protection

In areas where a blanket of snow is uncertain, provide some other form of insulation. After the ground has frozen, cover the bed with a mulch of straw or dry leaves. Leaves are not as good as straw because they tend to pack down during the winter. Lay branches or evergreen boughs on top of the mulch to stop it from blowing away. When the covering is applied before the ground is frozen, dormant buds may be dug up and eaten by rodents sheltering in the mulch.

Spring renovation

Once severe frosts are finished in the spring, remove the mulch. As soon as the soil dries out enough to walk on it, sprinkle a light dressing of a complete fertilizer such as 7-7-7 (50–75 g/m²) and carefully fork it into the top 10–15 cm of the soil. Take care near the crowns of the plants that you do not damage the developing buds.

Pests and diseases

Although most perennials are tough, their health and beauty may still be adversely affected by attacks from pests and diseases. Aphids, leafhoppers, slugs, snails, and mites attack nearly all plants, including perennials. Most people are probably aware of the symptoms of such general pest infestations. A few pests, however, are peculiar to certain perennials. Some of these for which the gardener should be on the lookout are described here.

Leaf miners

The adult is a small fly that lays its eggs on the undersides of leaves. The larvae tunnel inside the leaves, marking them with near-transparent trails or large,

pale blotches. Various species of fly attack particular perennials. Columbines and chrysanthemums are especially prone. Control this pest by pinching the ends of the tunnels to squash the larvae or by spraying with an approved systemic insecticide.

Ants

Although ants do not actually feed on plants, they do spread plant lice from infected to healthy plants. Their underground nests can weaken a plant by removing soil from round the roots. Ants are often attracted to the buds of peonies. They seem to be feeding on the nectar excreted from the buds and are not directly harmful. Any of the commercial ant powders or baits are effective for their control.

Borers

Most stem borers are kept under control by good sanitation. Removing old stems from the border each fall eliminates most of the borers. The one borer that may give trouble is the iris borer. These pests tunnel into the rhizomes (Fig. 11) and cause wilting and yellowing of the foliage. They also leave the rhizome subject to attack by the foul-smelling soft rot disease. Control of the iris borer can usually be achieved by drenching the plant and the surrounding soil with an approved systemic insecticide.

Thrips

Thrips are usually first detected by the damage they cause. These small, dark-colored insects scrape the surface off plants and suck the sap. They are particularly fond of developing buds, and their activity here is signaled by pale streaks on the flowers when they open (Fig. 12). Thrips are often a severe pest on day-lilies, but they also attack irises and lilies. Any spray recommended for aphids should control them.

Leaf spots

Few of the various leaf spot diseases that attack perennials are serious. Sanitary measures such as removing infected leaves as soon as they are seen and cleaning up the plants in the fall generally keep the disease under control.

Rots

The most serious rot to guard against is soft rot of iris (Fig. 13). This bacterial disease is easily recognized by soft, watery tissue in the rhizomes and by the repulsive odor. Soft rot is encouraged by the presence of iris borers and by planting the rhizomes so deeply that they cannot ripen in the sun. Cut infected parts out with a sharp knife. Sterilize the knife between each cut by dipping it in rubbing alcohol.

Mildew

The commonest and most visible of the diseases that attack perennials is mildew. This disease occurs in late summer and its spread is encouraged by hot, humid weather. In arid regions mildew is not as serious a problem. Mildew attacks many plants, but it is particularly bad on phlox, asters, bergamot, and delphiniums

(Fig. 14). A gray felty-looking deposit covers the leaves. It causes premature leaf-drop and weakens the plant. Mildew is difficult to control chemically. However, attacks can usually be minimized by regular division. Small clumps containing only a few stems allow good air circulation, which helps prevent a rapid spread of this disease.

RECOMMENDED PLANTS

In the descriptions that follow, only the more common and fairly available plants are listed. The letters *c* (cutting), *d* (division), and *s* (seed) indicate the best method for propagating the various species listed. For more details and a larger list of the cultivated plants available, termed cultivars, consult *Canadian Garden Perennials* by A. R. Buckley. This book, which details 35 years of perennial plant evaluation at the Central Experimental Farm in Ottawa, is available through your local library.

ACHILLEA

yarrow

This fairly large group of plants includes three forms that are commonly used in the perennial border (Fig. 15).

A. filipendulina

fernleaf yarrow
July–Sept. *d* 100–150 cm

This species is characterized by flat, plate-like heads of yellow flowers. It grows well in dry, sandy soils and has a stiff, upright habit, seldom needing support.

Gold Plate and Coronation Gold are the two cultivars most commonly grown. Coronation Gold is the smaller of the two, with slightly smaller heads of flower about 8 cm across. The flower heads are good for drying.

A. millefolium

common yarrow
June–Sept. *c,d* 50 cm

The common yarrow is a white-flowered, invasive weed. When it seeds itself into a lawn it is almost impossible to eradicate. Luckily the forms with colored flowers are not as invasive.

Cerise Queen, Fire King, and Red Beauty are sometimes available. They are all shades of red, fading to pink with age.

Fig. 11. Iris borers cause discolored foliage.

Fig. 12. The effect of thrips feeding on day-lily flower buds (*Hemerocallis*).

Fig. 13. Soft rot is difficult to control in iris.

Fig. 14. Mildew can defoliate phlox some years.

Fig. 15. The three forms of *Achillea* (from left to right): fernleaf yarrow, sneezewort, and common yarrow.

Fig. 16. Sea-hollies (*Eryngium*) are both smaller and bluer than globe thistles (*Echinops*).

Fig. 17. Modern day-lily cultivars (*Hemerocallis*) come in a wide range of forms and colors.

Fig. 18. The leaves of plantain-lilies (*Hosta*) brighten shaded areas.

Fig. 19. These irises bloom again in the fall.

Fig. 20. Spike gayfeather (*Liatris spicata*) can grow in most types of soil.

Fig. 21. A selection of the colors available in summer phlox (*Phlox paniculata*).

A. ptarmica **sneezewort**
June–Aug. d 80 cm

Unlike the other two species, the flowers of sneezewort are in small, globe-like heads. The cultivar The Pearl, with white flowers, is the form most usually available.

ACONITUM **monk's-hood**

A. napellus **helmetflower**
July–Aug. d,s 100–150 cm

These upright plants, sometimes known as the common monk's-hood, have soft growth that generally needs staking. This species is good for shaded areas with moist soil, but it can take a fair amount of sun without burning. Like all monk's-hoods, the roots and foliage are poisonous, so be sure to wash thoroughly after dividing these plants. The flowers are blue, occur in spikes, and resemble an upturned cowl. There are several named forms.

AJUGA **bugleweed**

These low plants are useful for edging and for placing at the front of a perennial border. They are apt to spread into the lawn but are easy to control with weed killers. They make good groundcovers in sun or shade.

A. pyramidalis **pyramid bugleweed**
June d 15–25 cm

This form is the slowest growing species of *Ajuga*, producing mounds rather than mats of foliage. The flowers are a deep blue.

A. reptans **carpet bugleweed**
May–June d,s 10–20 cm

The regular green form is best for shady spots. In the sun one of the cultivars with variegated foliage, such as Gaiety, is preferable. Both spread by runners and have blue flowers.

ALCEA

hollyhock

A. rosea

hollyhock
July–Aug. s 100–250 cm

Although strictly a biennial (flowering the second year from seed), hollyhock is most often planted in a mixed border. It often lives for several years. Easy to raise from seed (which is often listed under the old name *Althaea*), hollyhocks are available with single or double flowers. In some parts of the country, hollyhock rust disease can almost defoliate the plants by flowering time. Observing strict sanitation in the fall and changing the location of the plants in the garden help to control this disease.

ANCHUSA

bugloss

These border plants are valuable because of their uncommonly bright blue flowers. Because they are relatively short lived, they should be propagated frequently.

A. azurea

Italian bugloss
June c 100–150 cm

This species is the only one usually offered for sale, generally as one of the named forms such as Dropmore or Loddon Royalist. When the heads are removed after flowering, the plant may bloom again in August.

ANEMONE

windflower

These plants range from a few centimetres to 1 m tall. Many are best suited in the rock garden but the following species are good border plants.

A. hupehensis

Chinese anemone
Aug.–Sept. d 50 cm

This pink-flowered species is rarely seen, but the white-flowered cultivar Honorine Joubert is quite common.

A. × hybrida

Japanese anemone
Sept.–Oct. d 50–100 cm

This name covers a group of hybrids with somewhat mixed parentage. Flowers may be single or semidouble and vary in color from white to deep pink. There are many named forms. They grow well in shade and thus can be used among shrubs. In areas with short growing seasons, flowers may be frozen by an early frost unless protected.

A. sylvestris

snowdrop anemone
June s,d 20 cm

Although the plant can grow in full sun, the flowers last longer when grown in shade. The silky seed heads are attractive when the flowers are done.

A. vitifolia

grape-leaved anemone
Aug. d 60 cm

As its common name suggests this species, and its cultivar *Robustissima*, have leaves somewhat like those of the grape. Flowers are pink.

ANTHEMIS

dog-fennel

A. tinctoria

golden Marguerite
July–Aug. d 60 cm

There are many named forms of this species, but *Kelwayi* is the most common. They differ slightly in height and shade of yellow. The seed is both fertile and freely produced. In some areas of the country this plant is becoming a weed.

AQUILEGIA hybrids

columbine

Although there are many species of columbine, the plants generally grown in borders are the long-spurred hybrids. Columbines have no morals and most of the species cross-pollinate with reckless abandon. They are easy to grow from seeds if the seed is chilled for 30 days before sowing. Unless only one form is grown, all seedlings should be treated with suspicion. The commonest hybrids are *Crimson Star* (May–June s 60 cm), with large crimson and white flowers with long spurs; *McKana's Giants* (June–Aug. s 80 cm), with very long-spurred flowers in a variety of colors; and *Mrs. Scott-Elliot* (June–Aug. s 70 cm), available in a good color range but with shorter spurs.

ARABIS

rock cress

Although this genus is much used in the rock garden, rock cress is also an excellent plant for the front of a border.

A. caucasica

wall rock cress
early spring c,d 20 cm

The species is white-flowered, but cultivars of this or the closely related *A. ×arendsii* may have pink flowers. A double-flowered cultivar grows about 10 cm taller. The variegated form is attractive even when not in flower but grows more slowly.

ARTEMISIA

wormwood

This genus is grown mainly for its silver foliage, which makes an excellent filler in flower arrangements.

A. ludoviciana* var. *albula

ghostplant
d 90 cm

The foliage of the cultivar Silver-king is a useful foil to flowers in arrangements. The flowers are inconspicuous.

A. schmidtiana

d 30 cm

The cultivar Silver Mound produces distinctive, silvery hummocks useful for edging.

ARUNCUS

goat's-beard

A. dioicus

goat's-beard
June–July d,s 90–120 cm

Best suited to the larger border, goat's-beard can reach shrub-like proportions. The large, divided leaves are attractive all summer long. The plumes of creamy flowers are very distinctive. It is good for part shade and for wet locations. It is usually listed as *A. sylvestris*.

ASTER

aster

As the aster is such a common wildflower throughout Canada, gardeners tend to belittle this most useful addition to the flower bed. Plant hybridizers have combined many of our native species to produce plants that range from a few centimetres to 2 m tall and come in all shades of mauves, blues, pinks, and reds. The addition of some of the European species has given rise to early-flowering cultivars that extend the season.

A. alpinus

alpine aster
June d,s 25 cm

This dwarf, summer-flowering species is useful for small gardens.

A. amellus

Italian aster
Aug. d 60 cm

This species comes in a range of early-flowering hybrids with grayish foliage.

A. novae-angliae

New England aster
Sept.–Oct. d 90–150 cm

These comprise the taller of the groups of fall-flowering asters.

A. novi-belgii

New York aster
Sept.–Oct. d 15–150 cm

Together, the New England and New York asters make the group of plants known as Michaelmas daisies, named after their season of flowering. The New York asters are the largest group, with the greatest range in height. This section includes the many cushion and mound-shaped plants used as edging. See also the Agriculture Canada publication 1271, *Hardy asters for the autumn garden*.

ASTILBE hybrids

astilbe
June–July d 60–90 cm

Few plants can equal the soft feathery elegance of astilbes growing in a suitable location. Given a moist, lightly shaded site, they bloom freely for a considerable period. Even in full sun they grow well, provided they do not suffer drought. There are many cultivars in shades of white, pink, rose, and red.

AURINIA

A. saxatilis

May c,s madwort
25–30 cm

This species forms a sheet of yellow in the spring. It is slightly invasive. The named forms, such as Dudley Neville with biscuit-colored flowers, are preferable. It is generally listed as *Alyssum saxatile* and also has gold-dust or goldentuft madwort as common names.

BERGENIA

B. cordifolia

giant rockfoil
spring d 30 cm

Only this species is generally available, although others are equally worth growing. The large, leathery leaves persist all winter (so this plant is not a true herbaceous perennial). Sprays of pink flowers appear in early spring. This species thrives best in moist places, although it can tolerate drier conditions.

BOLTONIA

B. asteroides

false starwort
Aug.–Sept. d,s 150–200 cm

Looking like small-flowered asters, these plants are best at the back of the border. This species is the commonest. The flowers are white to pink.

BRUNNERA

B. macrophylla

Siberian bugloss
spring d 30 cm

Closely related to *Anchusa*, this species has paler blue flowers in clusters resembling forget-me-nots (*Myosotis*). They grow well in part shade and often flower with early shrubs and daffodils.

CAMPANULA

bellflower

Bellflowers are one of the larger groups of perennial plants. Many are low or trailing, suitable for the rock garden. Others are excellent border subjects. A few are invasive weeds. Most have cultivars that expand the range of colors.

C. glomerata

clustered bellflower
June–July *d* 60 cm

This plant has blue to purple flowers clustered at the top of the stems.

C. lactiflora

milky bellflower
June–Aug. *c,d* 90–120 cm

The flowers are white or light blue. Some cultivars are darker. This species flowers well in part shade.

C. latifolia

broad-leaved bellflower
June–July *s,d* 90 cm

This species grows even in poor soils but is apt to seed itself freely.

C. medium

Canterbury-bells
June–July *s* 30–45 cm

Sow this biennial in a shady spot or indoors in spring to give flowers the following summer. Transplant the seedlings 15 cm apart when they are large enough to handle (about two pairs of true leaves), then move to the flowering site in early fall or very early spring. Most seed catalogs list at least one strain of Canterbury-bells.

C. persicifolia

peach-leaved bellflower
July–Aug. *c,d,s* 30–90 cm

One of the best of the bellflowers, this species can be grown from seed. The named forms, however, must be propagated by cuttings or division.

C. rapunculoides

creeping bellflower
July 50–150 cm

This plant has tall, slender spikes of mauvish flowers rising from a crown of basal leaves that are wedge-shaped with toothed margins. Leaves on the flower

stems are long, without stalks. A good description is given here so that you can avoid this plant. It is one of the most invasive of garden flowers.

C. rotundifolia

harebell
July–Sept. *s,d* 30–40 cm

Although it is slightly invasive in that it seeds freely, this plant is worthwhile. The species is blue, but white and purple forms also exist.

CENTAUREA

knapweed

This tough, generally hardy genus grows best in poor, dry soils. The flowers resemble the annual cornflower and are freely produced when faded blooms are removed.

C. dealbata

Persian centaurea
June–Sept. *d* 60 cm

Attractive even when not in flower, this plant has leaves that are silvery on the underside. Flowers are pink, rose, or red, depending on the cultivar grown.

C. macrocephala

globe knapweed
June–July *s* 120 cm

This species is the giant of the family with bright yellow, thistle-like flowers. Flower heads dry well for winter decoration once the seed is shed.

C. montana

mountain bluet
May–Aug. *d* 60 cm

This species is the most widely grown of the knapweeds. It most closely resembles the annual cornflower.

CHRYSANTHEMUM

chrysanthemum

Although there are many species of chrysanthemum that can be grown in the perennial garden, the following three, with their myriad of cultivars, are indispensable.

C. coccineum **pyrethrum**
June–July *d* **60–90 cm**

Dark green, lacy foliage acts as a foil for single, anemone, or double flowers in a wide range of colors. Excellent as cut flowers, the plants should be cut almost to ground level after flowering to encourage blooming again.

C. ×morifolium **mum**
Aug.–Oct. *c,d* **20–40 cm**

This species includes all the mums grown as pot plants and greenhouse crops, as well as the fall-blooming cushion mums grown in the garden. Flower types, colors, and blooming dates vary widely. The milder the winter, the more varieties are available, but even on the prairies, fine cultivars that originated at the local research stations can be grown.

C. ×superbum **Shasta daisy**
June–Aug. *d* **80–90 cm**

This is the correct name for the plant generally listed in catalogs as *C. maximum*, which is just one of several species used to produce this group of hybrids. Foliage is lighter and coarser than in the pyrethrum. Flowers are white, or occasionally cream, and up to 15 cm across. They may be single or double and are good for cutting.

CIMICIFUGA **bugbane**

These striking plants have tall, slender spires of white flowers. The common name is a translation of its latin name. It is given because of the odor of the flowers, which is said to banish bugs.

C. racemosa **black snakeroot**
Aug.–Sept. *d,s* **200 cm**

This common species of bugbane is well worth a place in any garden.

C. simplex **Kamchatka bugbane**
Sept.–Oct. *d,s* **100 cm**

This dwarf species flowers too late in the season for many parts of Canada. Where it is able to bloom before frost, it is a very desirable plant.

CONVALLARIA

lily-of-the-valley

C. majalis

lily-of-the-valley
May–June *d* 15 cm

Because its spreading roots soon start to crowd other plants, this well-known plant is not really suited to the perennial border. It is, however, very useful as a groundcover, particularly in shade.

Only this one species is grown, and although there are pink and double-flowered forms, the common white form is the only one available. When the flowers become smaller and less freely produced, lift the plants and divide the clump. Replant in soil enriched with humus and fertilizer.

COREOPSIS

tickseed

These mostly short-lived perennials have bright yellow, daisy-like flowers. Division every 2 years is needed to keep the plants young and to make them last much longer.

C. grandiflora

large-flowered tickseed
June–Sept. *d* 25–90 cm

Although this species is rarely grown, it is the parent of several worthwhile cultivars. These cultivars vary greatly in height, but, provided the old flowers are removed, all bloom over a long season.

C. verticillata

thread-leaved tickseed
July–Sept. *d* 45–60 cm

This species looks quite unlike all the other tickseeds, having very thin, narrow, divided leaves. As in all tickseed, the flowers are bright yellow.

DELPHINIUM

perennial larkspur

Almost every garden should find space for these well-known, stately, distinctive plants. After flowering, cut off the flower stems at the next leaf down to promote a second crop of smaller blooms late in the season. There are three main groups that the amateur gardener can readily obtain.

D. × belladonna

belladonna delphinium
June c,s 90–120 cm

This group of plants has flower trusses that are fairly open rather than tightly packed. The trusses make a good cut flower because the spikes are smaller and lighter than those of other species. The cultivar Blue Bees, often found in seed catalogs, belongs to this group.

D. elatum

common delphinium
June–July c,s 90–200 cm

Under this general heading are placed all the many large-flowered hybrids that typify this genus. Most of these can only be reproduced from cuttings, but the Pacific Giant hybrids come true from seed and are available in most seed catalogs and large garden centers. Seeds should be frozen, not just chilled, for 24 h before sowing and germinate best at cool temperatures (7–10°C).

D. grandiflorum

butterfly delphinium
June–July s 40 cm

This race of dwarf, short-lived delphiniums, which often blooms the first year from seed, seems to be less hardy than the other forms and should perhaps be restricted to the milder parts of the country. Connecticut Yankees is the most readily available form.

DIANTHUS

pink

Although pinks are predominantly rock garden plants, a few species are useful at the front of the perennial border. Their mat-forming habit, which smothers weeds, freedom of flowering, and delightful perfume make them a most useful addition to the garden.

D. barbatus

sweet-William
May–June s 15–45 cm

This biennial flowers the second year from seed. Sow in late spring, transplant the seedlings into garden rows, and move to their final location in the fall. There are several named forms, of which the dwarf Indian Carpet lives for several years. They do not usually come true from self-collected seed.

D. deltoides

maiden pink
June c,s 15–30 cm

Some of the best cultivars of this widespreading plant with dark green foliage have red or carmine flowers.

D. plumarius

cottage pink
June–July c 20–30 cm

Included under this name are the many forms of border pinks and carnations that are hardy only in coastal British Columbia, as well as some of the mound pinks that are hardy on the prairies with protection. All have pale green, grassy foliage. The flowers vary from white to dark red.

DICENTRA

bleedingheart

The common bleedingheart is a long-time garden favorite, but others deserve to be better known.

D. eximia

plume bleedingheart
May–Aug. d,s 45 cm

This species is unfortunately seldom offered in catalogs. The flowers are red, on arching stems. This plant grows in part shade.

D. formosa

western bleedingheart
May–Sept. d 30–45 cm

This species is similar to the last species but spreads by underground runners. It is a shade-loving plant, with several forms ranging from white to pink to crimson.

D. spectabilis

bleedingheart
May d 90 cm

Despite its showy nature, this plant needs care in its placement. The foliage starts to die down early in the season and needs screening from view by other plants by midsummer.

DICTAMNUS

D. albus gasplant
June–July *d,s* 60–90 cm

This plant is known as the gasplant because of an ignitable gas given off by the flower stalks. It is a dependable, hardy plant, which has dark, glossy leaves. Flowers are white, tinged with pink, in tall spikes. There is also a purple form. The seed pods are good for dried-flower arrangements.

DIGITALIS foxglove

Another biennial, this plant should be grown in the same way as sweet-William (*Dianthus barbatus*). They grow best in full sun or part shade.

D. purpurea common foxglove
June–July *s* 90–150 cm

Although the species is seldom grown, two hybrid strains, Giant Shirley and Excelsior, are available in many seed catalogs. Both give imposing spires of bell-like flowers in a wide range of colors.

DORONICUM leopard's-bane

Although the need to banish leopards is small in most Canadian gardens, this plant is still worth growing for its early-flowering habit.

D. cordatum May *d* 45–60 cm

This species is the one most generally offered for sale. Flowers are bright yellow, daisy-like, and up to 5 cm across. The plants wilt badly during hot weather but recover at night. It is often listed as *D. caucasicum*.

ECHINACEA purple coneflower

A close relative of the black-eyed-Susan (*Rudbeckia hirta*), purple coneflowers are good as cut flowers when fresh, or the cones can be dried for winter arrangements.

E. purpurea

Aug.–Oct. d 80–120 cm

This species is the best for garden use. Cultivars are available with white or red petals.

ECHINOPS

globe thistle

Very hardy plants, these species have grayish leaves and globular thistle-like flower heads that dry well.

E. ritro

**small globe thistle
July–Sept. d 90–120 cm**

There is considerable confusion surrounding the correct botanical name of this species, but the gardener need only know the cultivar names. Taplow Blue is probably the best, with Blue Globe a close second, regardless of the species with which they are associated.

EPIMEDIUM

barrenwort

These spring-flowering plants are best in shade. They are distinctive and easy to identify by their leaves. One side of each leaf is larger than the other.

E. grandiflorum

**large-flowered barrenwort
May d 30 cm**

The flowers are up to 5 cm across and are red with violet inside. There is also a form with lilac flowers.

E. ×rubrum

**red barrenwort
May d 30 cm**

The red flowers are carried in clusters of 20 or more. The young foliage is also flushed a copper color. This species is often listed as *E. coccineum* in catalogs.

EREMURUS

foxtail-lily

These plants are most distinctive in the border. They are grown from a crown of very fleshy roots, which need winter protection in most of Canada. The newly

emerged flower buds may also need protection against cold winds in early spring. In spite of all this extra work, they are still worth growing. They are usually sold by bulb merchants, rather than by perennial nurseries.

E. elwesii **May–June** *d,s* **200 cm**

The flowers are pale pink and slightly fragrant.

E. robustus **May–June** *d,s* **120 cm**

The color is similar to the last species but the plant does not grow as tall.

E. stenophyllus **July** *d,s* **90–150 cm**

This striking plant has great spikes of yellow flowers. There are also several hybrids between this and other species, offering a wide range of colors, but unfortunately they are seldom available.

ERIGERON **fleabane**

This genus includes many native species with small daisy-like flowers. Cultivated forms have flowers up to 5 cm across.

E. speciosus **June–Aug.** *d* **45–80 cm**

The species itself has violet flowers but is seldom grown because the cultivars are much superior. They come in a range of colors from white through pink and violet to blue. The flowers may be single or double. They need a snow cover to survive temperatures below about -30°C .

ERYNGIUM **sea-holly**

Somewhat like a small globe thistle (*Echinops*), these plants have more prickly leaves, often with a distinct blue sheen (Fig. 16).

E. amethystinum **amethyst sea-holly**
June–Sept. *d* **40 cm**

All parts of the young growth have a steel-blue color. This species makes a striking addition to the front of a bed.

E. planum

July–Aug. d 90 cm

Although this species is the one most often offered for sale, it is not as good a plant as *E. amethystinum*. Only the flowers and the leaves just below them have the blue color.

EUPHORBIA

spurge

This genus includes the Christmas poinsettia, one very popular border plant, and others that deserve to be better known.

E. epithymoides

**cushion spurge
spring d 45 cm**

Also listed as *E. polychroma* in some catalogs, cushion spurge forms neat mounds of bright yellow in early spring. As in the poinsettia, the flowers are inconspicuous; it is the colored leaves, the bracts, immediately below them that make the display. In the fall, foliage turns bright red.

E. griffithi

**Griffith's spurge
June–July d 60 cm**

A taller, more slender species than the last, this fairly recent introduction, with its brilliant orange bracts, is becoming better known.

E. myrsinites

**myrtle euphorbia
June d,s 10 cm**

This creeping plant is grown more for its gray spiky foliage than for its yellow bracts.

FILIPENDULA

meadowsweet

This genus is closely related to *Spirea*. The plants grow best in a moist, shady location.

F. rubra

**queen-of-the-prairie
June d,s 120–250 cm**

As its common name suggests, this plant is very hardy. Its peach-colored flowers are in feathery spikes.

F. ulmaria

queen-of-the-meadow
June d,s 60–120 cm

This species is the European counterpart of *F. rubra* and is almost as hardy. The flowers are white.

F. vulgaris

dropwort
July–Aug. d,s 60–180 cm

Despite several changes in name, this very good plant can stand quite dry conditions. The foliage is ferny and the cream flowers are in upright spikes. It is probably listed as *F. hexapetala* in most catalogs.

GAILLARDIA

blanketflower

G. × grandiflora

June–Aug. c,d 15–90 cm

This group of yellow to red daisy-flowered perennials includes many cultivars that are short lived unless propagated frequently. They are good as cut flowers but the plants tend to be weak and need support. Most of the named forms grow 80–90 cm tall, but Baby Cole is a dwarf at 15 cm.

GEUM

avens

The brilliant colors of avens make them difficult to place in the border, but their long flowering season makes them a valuable addition.

G. × borisii

June–Aug. d,s 30 cm

These brilliant orange flowers are borne over a mounded plant.

G. ‘Lady Stratheden’* and *G. ‘Mrs. Bradshaw’

May–Sept. s 60 cm

These two cultivars are available in many seed catalogs. They have double flowers of yellow and red, respectively.

GYPSOPHILA

G. paniculata

baby's-breath
June–Aug. c 25–90 cm

Indispensable to flower arrangers, baby's-breath resents being disturbed. The species is white with single flowers. More generally grown are Bristol Fairy and Perfecta, with double flowers. There are also dwarf and pink-flowered forms.

HELENIUM

sneezeweed

H. autumnale

July–Sept. d 60–120 cm

The species itself is native in eastern North America and has a straggly growth habit. It has given rise to many fine cultivars, in shades from mahogany to butter yellow.

HELIANTHUS hybrids

sunflower

This genus has daisy-like flowers. The plants are fall flowering, in shades of yellow, and are best suited to the back of the border. Propagate by division.

HELIOPSIS hybrids

orange sunflower

This genus is very similar to *Helianthus*, but generally smaller.

HEMEROCALLIS hybrids

day-lily
June–Sept. d 45–120 cm

The familiar orange day-lily that has naturalized itself in many areas is quite unlike the modern hybrids. These hybrids now come in a wide range of shades, from a near-white to bright red. Bicolored flowers may have a contrasting stripe on each petal or alternate petals in different colors. Petals may be strap-like or broad and overlapping. Cultivars with double flowers are also now becoming available (Fig. 17).

Day-lilies are tough, hardy, and reliable. They grow in almost any soil and in wet or dry locations. They make a good groundcover as long as perennial weeds, especially quack grass, are not present. Their spreading roots are particularly useful for preventing erosion on slopes and banks.

HEUCHERA

alumroot

H. sanguinea

coralbell
May–June d 45–60 cm

Not as well known as perhaps it deserves to be, this species is one parent of a group of named hybrids. They are shade and moisture lovers but can grow in dryer sunny soils. The delicate flower spikes are particularly useful in small flower arrangements and are available in many tones of pinks and reds.

HIBISCUS

mallow

H. moscheutos

common rose mallow
Aug.–frost d,s 90–150 cm

This species, with its huge, showy flowers, should not be tried in cold parts of the country. In Ottawa, even with winter protection, it is slow in coming to life in the spring. Grow in full sun, in a moist soil. There are several named varieties in various colors. Do not confuse this species with the shrubby rose-of-China (*Hibiscus syriacus*), which is hardy only in the mildest parts of Canada.

HOSTA species and hybrids

plantain-lily
May–Aug. d 30–100 cm

This is one of the most useful plants for shady areas. The foliage comes in a wide range of colors, from yellow to near-blue with central and marginal variegation (Fig. 18). The leaves may be smooth, wavy, or crinkled and are strap-like or almost circular. Flower spikes are often sweetly scented and the pendulous bell-shaped flowers may be white, mauve, or lilac.

There is much confusion in the nursery industry over naming the more than 500 species and cultivars that are known. Many nurseries offer a selection of forms, although there is no Canadian nursery that specializes in these plants.

IBERIS

candytuft

I. sempervirens

perennial candytuft
May–June c,s 20–30 cm

This species is a rock garden plant that is sometimes used as edging in borders. It is a small shrub with woody stems and evergreen leaves. The flowers are white and delicately scented.

INCARVILLEA

trumpetflower

I. delavayi

Chinese trumpetflower
May–June d,s 40 cm

This plant is slow to emerge in the spring and care must be taken to avoid damaging the shoots below ground during early cleanups.

The rose pink flowers are carried in spikes above the glossy, green foliage. This species should not be tried on the prairies; even in Ottawa it needs winter protection. It is sometimes listed in catalogs as garden, or hardy, gloxinia.

IRIS

iris

These well-known plants are one of the mainstays of the perennial border. There are several hundred cultivars, and a Canadian society devoted to their culture has been formed.

Tall bearded iris

June and Sept. d 60–100 cm

Possibly the most widely grown of any group of perennials, the tall bearded iris needs full sun and good drainage. It is subject to the borer, which is a serious pest, as well as to a bacterial rot, but when planted with the top of the rhizome above the soil, these pests can generally be detected before they do much damage.

Although most forms of the tall bearded iris bloom in June, a new race that blooms again in September is gradually coming on the market. When they come back into bloom they flower until hard frost kills the buds. Although they do not yet have the range of colors available in the spring-flowering forms, they are improving each year and are well worth looking for (Fig. 19).

Dwarf bearded iris

Apr.–May d 10–30 cm

Not as well known as the tall bearded iris, the dwarfs are much earlier flowering and play an important role in giving color early in the season. They have almost as wide a color range as their tall relatives, but because they do not have the long, many-flowered spikes, their effect is more fleeting.

Siberian iris

May–June d 60–120 cm

Siberian iris do not have the large showy flowers of the tall bearded group, but their rugged flowers last better and withstand wind and rain without bruising. Grow them in sun or part shade and in dry, moist, or even wet locations.

KNIPHOFIA

torch-lily

K. uvaria

red-hot-poker
July–Aug. d 80–150 cm

In the milder parts of the country, the striking spikes of red-hot-poker, also known as the poker plant, provide a focus in the summer border. Named forms are no longer red; they range from cream, through pink, to orange and yellow.

LAMIASTRUM

L. galeobdolon

yellow archangel
July d,s 45 cm

The cultivar *Florentinum* is a useful groundcover that can be grown at the front of a border. The yellow flowers are in dense clusters and the foliage is mottled silver and green. It is generally listed in catalogs under its old name *Lamium*.

LATHYRUS

vetchling

L. latifolius

perennial pea
July–Sept. d,s 60–250 cm

This perennial form of the sweet pea is a climber that needs some form of support early in the season. Although the flowers are not as large as those of the annual, they are freely produced and sweetly scented. Named forms with white or deep pink flowers are occasionally available. The species has blooms of rose pink.

LIATRIS

blazingstar

Blazingstars are unusual in that, unlike most plants, their flower spikes open from the top downwards. They grow best in sandy soils.

L. pycnostachya

Kansas gayfeather
Aug.–Oct. s 90–150 cm

The dense spikes of purple flowers can be used for fresh or dried arrangements.

L. scariosa

blazingstar
Aug.–Oct. d,s 60–90 cm

Similar to the last species, but shorter, there are several named cultivars of this species in shades of white and purple.

L. spicata

spike gayfeather
Sept. s 90 cm

Because this species does not need such arid conditions as the previous species, it is the most commonly grown. Flowers are usually reddish purple, but there is also a white form (Fig. 20).

***LILIUM* hybrids**

lily
June–Aug. d,s 50–150 cm

The lilies are a complex group of bulbs, divided into several different groups depending on their parentage and flower type. For the average home gardener they are colorful, dependable, and often scented. They prefer a soil rich in humus and grow well in association with shrubs. There are lily societies in Ontario and on the prairies who can supply information on types suitable for these regions. Consult “Plant Societies” in this publication for your nearest society.

LIMONIUM

sea-lavender

L. latifolium

common sea-lavender
Aug.–Sept. s 60–90 cm

Often known as *Statice*, this sea-lavender is prized for its bluish, papery flowers that dry well and are useful in winter arrangements. As its native habitat is the seashore, it may prove useful where winter road salt may cause problems for other species.

LINUM

flax

One member of this family provides the flax used in weaving. All species need full sun because their flowers remain closed in the shade.

L. flavum

yellow flax
June–July *c,d,s* 40 cm

This species is not hardy enough for all regions but worth trying in milder areas for its masses of bright yellow flowers.

L. perenne

perennial flax
June–July *d,s* 60 cm

This short-lived species is easy to raise from seed. The flowers are light blue. A related species, *L. narbonense*, is even more striking but seldom offered for sale.

LUNARIA

honesty

L. annua

honesty
July–Aug. *s* 90–120 cm

Also known as the silver-dollar-plant, this biennial is easily raised from seed. The flowers are not showy, but the flat, papery seed pods are much prized for winter decoration.

***LUPINUS* hybrids**

lupin
June–July *c,s* 80–90 cm

One of the most vivid and variable of all perennials, it is one of the few genera that has all three primary colors, red, yellow, and blue, in its flowers. The Russel hybrid strain is so superior that it has eclipsed all others.

Lupins need an acid soil and a shaded root. When conditions are favorable they flourish, but without the proper environment they can be among the most frustrating of plants to grow. They are fairly short-lived anyway, but strict attention to removing old flower spikes before they set seed can prolong life.

LYCHNIS

campion

Lychnis and the closely related *Silene* contain many weedy species. There are, however, a few of horticultural merit.

L. chalcidonica

Maltese-cross
July d,s 60–90 cm

Because of the intense red of the blossoms, care must be taken in choosing companion plants for this species.

L. coronaria

rose campion
July–Aug. s 40–60 cm

This pretty little plant is short-lived but propagates itself easily from seed. The foliage is felty with long silvery hairs.

LYSIMACHIA

loosestrife

L. punctata

dotted-leaved loosestrife
June–July d,s 80 cm

Also called garden or yellow loosestrife, this plant spreads by underground runners and can become invasive in rich soils. The yellow flowers occur in whorls between the leaves.

LYTHRUM hybrids

purple loosestrife
July–Sept. c 60–120 cm

Selections are available from two species of *Lythrum*, the european *L. salicaria* and the North American *L. virgatum*. Both have given rise to a range of cultivars in various shades of purple and of varying heights. They grow well in both shady and damp locations and in poor or rich soils. See also the Agriculture Canada publication 1285, *Lythrums for home gardens*.

MACLEAYA

M. cordata

plume poppy
July–Aug. d 180–240 cm

This plant is probably too large for most gardens, and it increases so rapidly that once introduced it is hard to eliminate. The foliage is fawn green above and silver below, and the pale yellow flowers are minute but born in profusion. It is easily identified by the orange sap which is exuded by the cut roots. It should be avoided.

MERTENSIA

bluebells

M. virginica

Virginia bluebells

May d 60 cm

Best grown in shade, Virginia bluebells dies down soon after flowering. It should be interplanted with later-maturing plants such as plantain-lily (*Hosta*) or *Astilbe* to avoid having a bare spot in the border.

MONARDA hybrids

bergamot

June–Sept. d 80–100 cm

Monarda hybrids are the result of crosses between various North American species, particularly *M. didyma*, the bee-balm or Oswego-tea, and *M. fistulosa*. All have aromatic foliage that can be used in pot-pouris or drinks. Flowers are in shades of pink, red, and purple. Their one fault is a tendency to become covered with mildew, which causes the loss of the lower leaves.

NEPETA

catmint

Although cat lovers may want to grow catnip (*N. cataria*) in a perennial border, it is not nearly as good a plant as *N. ×faassenii*.

N. ×faassenii

catmint

July d 30 cm

This plant has silvery leaves and spikes of lavender flowers. Its foliage has a scent when crushed that attracts some people. Cats, however, are indifferent. It is often sold as *N. mussinii*, which is one of the parents of this plant but which is not as attractive as its offspring.

N. grandiflora

large-flowered catmint

June–Aug. d 60–120 cm

The foliage is both less silvered and scented than the last species, but the blue flowers are more showy. There are a couple of named forms, of which Blue Beauty is often available.

OENOTHERA

evening-primrose

Although many evening-primrose live up to their name by flowering at night, the best perennial forms are open by day as well.

O. missouriensis

Ozark sundrops
June–Sept. *d,s* 25 cm

This plant likes full sun, where the red buds open into bright yellow, cup-shaped flowers.

O. tetragona

evening-primrose
June–Sept. *d* 30–60 cm

This plant is still listed in some catalogs as *O. fruticosa* var. *youngii*. Whatever its name, it is one of the more brilliant yellow plants for the front of the sunny border. There are several named clones such as Illumination and Yellow River.

PAEONIA hybrids

peony
June *d* 80–100 cm

Many people grow peonies even when they have few other perennials. They are dependable and subject to few diseases, and they can be grown successfully for many years without needing to be moved.

There are several types of flowers including single, double, Japanese, and bomb, and some catalogs list their plants according to flower type. Peonies are one flower where the newer forms are not necessarily better than the traditional ones. Many of the best forms have been around for more than 70 years.

Tree peonies, which die back to a woody stem rather than to the ground, are somewhat tender and should only be grown in the milder areas of Canada.

PAPAVER

P. orientale

Oriental poppy
May–June *c* (root) 60–80 cm

Although the brilliance of this flower ensures its place in the garden, its foliage is untidy as it dies down in late summer, and care should be taken in selecting a location.

Flowers come in a wide range of colors from white through pinks and reds to a dark mahogany. Because the plants die down early, be careful during fall cleanup not to dig up the plants by mistake.

Unless pot-grown plants can be obtained, plant poppies only in late September and mulch them the first winter.

***PENSTEMON* hybrids**

beardtongue
June–Aug. c 60–120 cm

The beardtongues are a North American plant that do not get the attention they deserve. Many of the species make excellent garden plants, particularly in the dryer parts of the country, but unless you join the American Penstemon Society, they are almost impossible to obtain.

Several plant breeders have developed a range of hybrids. The colors are mostly shades of blue, mauve, pink, and red, and several are available either as named forms, such as *Prairie Fire*, or as a mix, like *Seeba* hybrids.

PHLOX

phlox

Two species of phlox are widely used in the perennial border: one for edging, the other in the main display.

P. paniculata

summer phlox
July–Aug. c,d 45–150 cm

One of the most dependable of perennials, summer phlox deserves a place in every garden, whether or not other perennials are grown. The wide range of colors makes them easy to blend into any setting and the beautiful perfume gives a welcome fragrance (Fig. 21). There are several dwarf varieties about 50 cm tall that are useful toward the front; a few varieties reach three times this height. Most phlox cultivars range from 70 to 100 cm.

Phlox grow best in full sun and rich, moist soil. However, they are very adaptable and can grow and flower in a shady soil in shade. Their one drawback is a susceptibility to mildew, which coats the leaves and causes defoliation. Combat this disease by dividing regularly to keep the clumps small and by planting only in areas with good air circulation.

P. subulata

moss pink
May c 10–15 cm

Although the moss pink is a rock garden plant, it has found great favor as an edging plant for the front of a border. It quickly forms a mat that suppresses most weeds.

PHYSALIS

Chinese-lantern

P. alkekengi

bladdercherry
July d,s 30 cm

Although this plant flowers in July, its period of display is during the winter. The bright orange lanterns enclosing a single red fruit are attractive in dried-flower arrangements. It is also commonly called the Chinese- or Japanese-lantern. The plant can become a weed because it spreads by underground runners.

PHYSOSTEGIA

false dragonhead

P. virginiana

obedientplant
Sept. d 80–150 cm

This plant is useful for flower arrangements because the individual flowers can be rearranged to face any direction on the stalk. It is a stiff, upright plant with flowers of white or shades of pink.

PLATYCODON

balloonflower

P. grandiflorus

July–Aug. d,s 30–60 cm

The flowers of this plant are upturned bells. It derives its common name from the inflated buds. Flowers may be blue or white. Dwarf forms such as Apoyama are suitable for the front of a border.

POLEMONIUM

Jacob's-ladder

P. caeruleum

Jacob's-ladder
June–Sept. d,s 45–60 cm

The leaflets are alternately placed on the mid-rib and represent a form of ladder. The flowers are blue, occurring in clusters above the foliage. This plant is useful because of its long season of flower.

POLYGONUM

knotweed

P. cuspidatum

Japanese knotweed
Aug.–Sept. d 180–240 cm

Avoid this plant, also known as Japanese or Chinese bamboo, because it is most invasive and persistent. There are dwarf forms that are said to be less invasive, but caution is indicated.

POTENTILLA hybrids

cinquefoil
June–Aug. d 40–60 cm

Hybrids have been bred from many different herbaceous cinquefoils (not to be confused with the shrubby kinds). They are valuable for edging and come in shades of yellow, orange, and red. The flowers are often double and resemble portulaca.

PRIMULA

primrose

Primroses, in general, need a soil rich in humus, freedom from drought, and a shady site. Most species are hardy only in mild parts of the country, but a few can survive, and thrive, in cold climates.

P. denticulata

drumstick primrose
spring d,s 30 cm

One of the most tolerant of primroses, it has almost globe-shaped heads of flower. The flower heads start to open down among the leaves, and, as the stems elongate, rise above them. The flowers are lilac mauve or occasionally white.

P. japonica

Japanese primrose
June s 60–90 cm

This plant likes shady, moist areas. When conditions are right, it seeds itself and forms large colonies. The flowers are in many shades of pink and red and occur in whorls on the stem.

P. ×polyantha

polyanthus
spring *d,s* 15–25 cm

This complex group offers one of the widest ranges of colors of any plant. Often sold as spring pot-plants, they are good garden plants in areas where winters do not go below about -35°C .

P. sieboldii

Siebold's primrose
May–June *d,s* 25 cm

This species can stand more sun and drier conditions than most. The pink flowers may be splashed with white in varying amounts. It is one of the best of the garden primroses.

PULMONARIA

lungwort

An easy, shade-loving, spring-flowering plant, lungwort is unusual in that its flowers open pink and then turn blue as they age.

P. angustifolia

lungwort
Apr.–May *d* 30 cm

The foliage is very rough, plain green, and narrow. Some cultivars have bright blue flowers.

P. saccharata

Bethlehem-sage
Apr.–May *d* 30–40 cm

The foliage is wider than that in the preceding species and has spots and speckles of white. Cultivars are red flowered.

RUDBECKIA

coneflower

This genus of chiefly North American origin includes the familiar black-eyed-Susan.

R. fulgida* var. *speciosa

July–Sept. *d* 80 cm

Because of its long flowering period this plant is very useful. Cultivars such as Goldquelle with double flowers are an improvement on the species.

R. laciniata

July–Sept. d 200–350 cm

The cultivar Golden Glow is familiar to many gardeners. It spreads rapidly and survives well in neglected gardens. The flowers are bright yellow and almost globe-shaped.

SALVIA

sage

In addition to the well-known, tender scarlet sage (*S. splendens*) and the sage used as a culinary herb (*S. officinalis*), there are several species that can be grown in the border, particularly in milder parts of the country.

S. azurea

**azure sage
Sept.–Oct. s 150 cm**

This fairly short-lived plant is easy to raise from seed. Its blue flowers are rare this late in the season and make this plant especially useful. The cultivar Grandiflora is also known (and sometimes sold) as Pitchers sage (*S. pitcheri*).

S. sclarea

**clary
Aug.–Oct. s 100 cm**

This biennial or short-lived species is sometimes available from the larger seed houses. It is of particular use to flower arrangers because the colored bracts can be dried for winter use.

S. ×superba

**superb sage
June–Aug. d,s 40–80 cm**

One of the most showy of all sages, this species forms stiff, well-balanced plants with spikes of purple flowers. The cultivar East Friesland is smaller but just as free flowering.

SANGUINARIA

bloodroot

S. canadensis

**bloodroot
Apr. d,s 25 cm**

A plant native to eastern woodlands, this species takes almost full sun. Flowers appear before the bluish green leaves. The double form, Multiplex, is worth searching catalogs for.

SAPONARIA

soapwort

S. officinalis

bouncing-Bet
July–Oct. s 100 cm

Although this plant is attractive when in flower, its rampant nature and abundant seed make it invasive. The species has pale pink to mauve flowers. Double-flowered cultivars with white, rose, or red flowers are much superior.

SCABIOSA

scabious

S. caucasica

bluebonnets
July–Sept. d,s 100 cm

A plant that likes an alkaline soil and cool summers, bluebonnets are difficult to establish, but given the right conditions they are quite showy. One of the common names, pincushionflower, best describes the blooms. Named forms in a range of colors are occasionally available.

SEDUM

stonecrop

S. spectabile

showy stonecrop
Sept.–Oct. d 40–60 cm

This species is the only one of a large genus that is commonly grown in perennial borders. Most of the species in this genus are dwarf forms more suitable for the rock garden, although they can also be used for edging.

The showy stonecrop is an erect plant with fleshy leaves. The species is pink-flowered but cultivars such as Autumn Joy, Carmen, and Meteor have more brilliant blooms. There is also a form with variegated foliage.

SIDALCEA hybrids

prairie mallow
June–Sept. d 80–120 cm

Although not well known, prairie mallows are impressive perennials with flowers like hollyhocks. They need a moist soil and should be cut back after flowering and not be allowed to go to seed. There are over 20 named hybrids in colors from pale pink to deep red.

***SOLIDAGO* hybrids**

goldenrod

As goldenrod is native to much of Canada, gardeners tend to despise this plant. Breeding work in Europe, crossing the North American and European species, has given rise to cultivars that flower from June to October, at heights from 30 to 180 cm and in a range of yellow shades. Few ever appear in nursery catalogs.

×*SOLIDASTER*

×*S. luteus*

Aug.–Sept. d 80 cm

This plant is a result of crossing goldenrod with aster. It has small, yellow, aster-like flowers in arching sprays.

STOKESIA

Stokes' aster

S. laevis

**cornflower aster
July–Sept. d 40 cm**

Best in milder areas, cornflower asters produce blue flowers similar to the annual China aster (*Callistephus*). It requires full sun and well-drained soil.

THALICTRUM

meadow-rue

These attractive perennials have fine, often blue green leaves. The flowers have no true petals but give a mist-like appearance. Meadow-rue likes part shade or a moist soil in full sun.

T. aquilegifolium

**columbine meadow-rue
May–June d 60–90 cm**

This early-summer-flowering species has fluffy mauve or white flowers. Of the several named forms Thundercloud is one of the best.

T. flavum

**yellow meadow-rue
July–Aug. d 60–90 cm**

Flowering later than the preceding species, this plant has pale yellow flowers. Illuminator is a brighter shade.

T. rochebrunianum

lavender-mist
July–Sept. *d* 120–180 cm

The last species to flower in this genus, this is one of the best of the meadow-rues. Its common name is an apt description.

TRADESCANTIA hybrids

spiderwort
June–Sept. *d* 60 cm

A group of showy, upright plants, the hybrids display flowers in shades of white, blue, mauve, and carmine red. Their one fault is a tendency to self-sow. Generations of seedlings gradually revert to blue.

TRILLIUM species

wake-robin
May *s* 30–40 cm

Although they are best suited to shaded areas, wake-robins can also grow in the sun in damp soils. Several species are sometimes offered for sale. *T. grandiflorum* is the easiest to cultivate and the most commonly available of these species.

TROLLIUS

globeflower

These useful, early-flowering plants often bloom again in the fall. They grow best in slightly wet locations but can flower well in dryer light soils.

T. asiaticus

Asiatic globeflower
May–June *d,s* 40 cm

The flowers of this species are cupped rather than globular. This plant is worth growing for its unusual orange flowers, which differ from the more usual yellow forms.

T. europaeus

European globeflower
May–June *d* 60–90 cm

This species is one parent of a range of hybrids with flowers that shade from pale yellow to vivid orange. First Lancers, Goldquelle, and Orange Princess are probably the best known of the cultivars.

VERONICA

speedwell

Blue flowers in midsummer make speedwell almost indispensable. Many species are dwarf, trailing plants suitable for the rock garden but the following are good border specimens.

V. incana

wooly speedwell
June–July *c,d,s* 40 cm

Spikes of pale blue or pink flowers above silver gray foliage make this species a most attractive plant for the front of the border.

V. latifolia

Hungarian speedwell
June–July *d* 30–40 cm

The cultivar Crater Lake Blue belongs in this species and is probably the best known of all the speedwells. The flowers are bright blue in spikes over dark green leaves.

V. spicata

spiked speedwell
July–Aug. *d* 30–40 cm

A plant of stiff, upright habit, this species is a parent of several cultivars such as Barcarolle, Minuet, and Wendy, with flowers of blue, pink, or white.

VIOLA hybrids

violet, pansy
Apr.–Oct. *c,s* 10–30 cm

In most of Canada both violets and pansies are best treated as biennials and should be overwintered under a deep mulch. Occasionally the odd plant is able to survive very low temperatures, living to flower a third year.

These low plants flower best in light shade and moist soils. Most seed catalogs list several named forms. Chill the seed for at least 24 h below 4°C for best germination.

USING PLANTS

Consult the following list to determine which species are suitable for special purposes or for growing under unusual conditions.

Species and hybrids	Uses									
	SHADE	MOIST SOILS	WET AREAS	DRY SOILS	SPRING FLOWERS	SUMMER FLOWERS	FALL FLOWERS	CUT FLOWERS	DRIED FLOWERS	FRAGRANT FLOWERS
<i>Achillea</i>										
<i>A. filipendulina</i>				X		X		X	X	
<i>A. millefolium</i>				X		X		X		
<i>A. ptarmica</i>		X		X		X		X		X
<i>Aconitum napellus</i>	X	X	X			X		X		
<i>Ajuga</i>										
<i>A. pyramidalis</i>		X	X		X					
<i>A. reptans</i>	X	X	X		X					
<i>Alcea rosea</i>						X				
<i>Anchusa azurea</i>						X				
<i>Anemone</i>										
<i>A. hupehensis</i>	X						X			
<i>A. ×hybrida</i>							X			
<i>A. sylvestris</i>	X					X				
<i>A. vitifolia</i>						X				
<i>Anthemis tinctoria</i>				X		X				
<i>Aquilegia hybrids</i>	X			X	X					X
<i>Arabis</i>										
<i>A. ×arendsii</i>				X	X					
<i>A. caucasica</i>				X	X					X
<i>Artemisia</i>										
<i>A. ludoviciana</i> var. <i>albula</i>				X				X		
<i>A. schmidtiana</i>								X		X
<i>Aruncus dioicus</i> (= <i>A. sylvester</i>)	X	X			X					

Species and hybrids	Uses									
	SHADE	MOIST SOILS	WET AREAS	DRY SOILS	SPRING FLOWERS	SUMMER FLOWERS	FALL FLOWERS	CUT FLOWERS	DRIED FLOWERS	FRAGRANT FLOWERS
<i>Aster</i>										
<i>A. alpinus</i>						X		X		
<i>A. amellus</i>						X		X		
<i>A. novae-angliae</i>							X	X		
<i>A. novi-belgii</i>							X	X		
<i>Astilbe</i> hybrids	X	X	X			X		X	X*	
<i>Aurinia saxatilis</i> (= <i>Alyssum saxatile</i>)				X	X					
<i>Bergenia cordifolia</i>		X			X					
<i>Boltonia asteroides</i>				X			X			
<i>Brunnera macrophylla</i>					X					
<i>Campanula</i>										
<i>C. glomerata</i>	X					X				
<i>C. lactiflora</i>	X	X				X				X
<i>C. latifolia</i>	X	X				X		X		
<i>C. medium</i>	X					X				
<i>C. persicifolia</i>	X					X		X		
<i>C. rapunculoides</i>	X	X				X				
<i>C. rotundifolia</i>	X	X				X	X			
<i>Centaurea</i>										
<i>C. dealbata</i>						X	X			
<i>C. macrocephala</i>				X		X			X*	
<i>C. montana</i>					X	X		X		
<i>Chrysanthemum</i>										
<i>C. coccineum</i>						X				
<i>C. × morifolium</i>							X	X		
<i>C. × superbum</i> (= <i>C. maximum</i>)						X		X		
<i>Cimicifuga</i>										
<i>C. racemosa</i>	X	X					X	X		
<i>C. simplex</i>	X	X					X	X		

* Seed heads.

Species and hybrids	Uses										
	SHADE	MOIST SOILS	WET AREAS	DRY SOILS	SPRING FLOWERS	SUMMER FLOWERS	FALL FLOWERS	CUT FLOWERS	DRIED FLOWERS	FRAGRANT FLOWERS	FRAGRANT FOLIAGE
<i>Convallaria majalis</i>	X				X			X		X	
<i>Coreopsis</i>											
<i>C. grandiflora</i>				X		X	X	X			
<i>C. verticillata</i>						X	X				
<i>Delphinium</i>											
<i>D. ×belladonna</i>						X		X	X		
<i>D. elatum</i>						X		X	X		
<i>D. grandiflorum</i>						X		X	X		
<i>Dianthus</i>											
<i>D. barbatus</i>					X			X			
<i>D. deltoides</i>				X		X		X			
<i>D. plumarius</i>				X		X		X		X	
<i>Dicentra</i>											
<i>D. eximia</i>	X				X	X					
<i>D. formosa</i>	X				X	X	X				
<i>D. spectabilis</i>	X				X				X		
<i>Dictamnus albus</i>						X		X	X*	X	X
<i>Digitalis purpurea</i>	X					X					
<i>Doronicum cordatum</i> (= <i>D. caucasicum</i>)	X				X			X			
<i>Echinacea purpurea</i>						X	X	X	X*		
<i>Echinops ritro</i>				X		X		X	X		
<i>Epimedium</i>											
<i>E. grandiflorum</i>	X				X						
<i>E. ×rubrum</i> (= <i>E. coccineum</i>)	X				X						
<i>Eremurus</i>											
<i>E. elwesii</i>					X						
<i>E. robustus</i>					X						
<i>E. stenophyllus</i>						X					

* Seed heads.

Species and hybrids	Uses										
	SHADE	MOIST SOILS	WET AREAS	DRY SOILS	SPRING FLOWERS	SUMMER FLOWERS	FALL FLOWERS	CUT FLOWERS	DRIED FLOWERS	FRAGRANT FLOWERS	FRAGRANT FOLIAGE
<i>Erigeron speciosus</i>						X					
<i>Eryngium</i>											
<i>E. amethystinum</i>						X	X	X	X		
<i>E. planum</i>						X		X	X		
<i>Euphorbia</i>											
<i>E. epithymoides</i>					X						
<i>E. griffithi</i>						X					
<i>E. myrsinites</i>						X					
<i>Filipendula</i>											
<i>F. rubra</i>		X				X				X	
<i>F. ulmaria</i>	X	X				X				X	
<i>F. vulgaris</i>		X				X				X	
<i>Gaillardia</i> × <i>grandiflora</i>				X		X		X			
<i>Geum</i>											
<i>G. × borisii</i>						X					
<i>G. hybrids</i>				X	X	X	X	X			
<i>Gypsophila paniculata</i>						X		X	X		
<i>Helenium autumnale</i>						X	X	X			
<i>Helianthus</i> hybrids							X	X			
<i>Heliopsis</i> hybrids							X	X			
<i>Hemerocallis</i> hybrids	X	X				X	X	X	X*	X	
<i>Heuchera sanguinea</i>	X	X			X	X		X			
<i>Hibiscus moscheutos</i>							X				
<i>Hosta</i> species and hybrids	X	X				X	X	X		X	
<i>Iberis sempervirens</i>					X						
<i>Incarvillea delavayi</i>					X			X			
<i>Iris</i>											
tall bearded				X		X		X		X	
dwarf bearded					X						
Siberian		X	X		X			X	X*		

Species and hybrids	Uses									
	SHADE	MOIST SOILS	WET AREAS	DRY SOILS	SPRING FLOWERS	SUMMER FLOWERS	FALL FLOWERS	CUT FLOWERS	DRIED FLOWERS	FRAGRANT FLOWERS
<i>Kniphofia uvaria</i>						X		X		
<i>Lamiaeum galeobdolon</i> (= <i>Lamium galeobdolon</i>)						X				
<i>Lathyrus latifolius</i>						X		X		X
<i>Liatrix</i>										
<i>L. pycnostachya</i>						X	X	X		
<i>L. scariosa</i>						X	X	X		
<i>L. spicata</i>							X	X		
<i>Lilium</i> hybrids	X					X		X		
<i>Limonium latifolium</i>							X	X		
<i>Linum</i>										
<i>L. flavum</i>				X		X				
<i>L. perenne</i>				X		X				
<i>Lunaria annua</i>						X			X	
<i>Lupinus</i> hybrids						X		X		
<i>Lychnis</i>										
<i>L. chalcedonica</i>				X		X		X		
<i>L. coronaria</i>				X		X				
<i>Lysimachia punctata</i>		X	X			X		X		
<i>Lythrum</i> hybrids		X	X			X	X	X		
<i>Macleaya cordata</i>				X		X				
<i>Mertensia virginica</i>	X				X					
<i>Monarda</i> hybrids	X	X	X			X	X	X		X
<i>Nepeta</i>										
<i>N. ×faassenii</i>						X				X
<i>N. grandiflora</i>						X				X
<i>Oenothera</i>										
<i>O. missouriensis</i>				X		X	X			
<i>O. tetragona</i>				X		X	X			

Species and hybrids	Uses									
	SHADE	MOIST SOILS	WET AREAS	DRY SOILS	SPRING FLOWERS	SUMMER FLOWERS	FALL FLOWERS	CUT FLOWERS	DRIED FLOWERS	FRAGRANT FLOWERS
<i>Paeonia</i> hybrids					X	X		X		X
<i>Papaver orientale</i>					X			X	X*	
<i>Penstemon</i> hybrids						X		X		
<i>Phlox</i>										
<i>P. paniculata</i>	X					X		X		X
<i>P. subulata</i>					X					
<i>Physalis alkekengi</i>						X			X	
<i>Physostegia virginiana</i>		X	X				X	X		
<i>Platycodon grandiflorus</i>	X					X		X		
<i>Polemonium caeruleum</i>				X		X	X			
<i>Polygonum cuspidatum</i>							X			
<i>Potentilla</i> hybrids						X				
<i>Primula</i>										
<i>P. denticulata</i>	X	X	X		X					X
<i>P. japonica</i>	X	X	X			X				
<i>P. × polyantha</i>	X	X			X			X		X
<i>P. sieboldii</i>	X	X			X			X		
<i>Pulmonaria</i>										
<i>P. angustifolia</i>	X	X			X					
<i>P. saccharata</i>	X	X			X					
<i>Rudbeckia</i>										
<i>R. fulgida</i> var. <i>speciosa</i>				X		X	X	X		
<i>R. laciniata</i>						X	X	X		
<i>Salvia</i>										
<i>S. azurea</i>				X			X	X		
<i>S. sclarea</i>							X	X		
<i>S. × superba</i>						X		X		X
<i>Sanguinaria canadensis</i>				X						
<i>Saponaria officinalis</i>				X		X	X			X

* Seed heads.

Species and hybrids	Uses									
	SHADE	MOIST SOILS	WET AREAS	DRY SOILS	SPRING FLOWERS	SUMMER FLOWERS	FALL FLOWERS	CUT FLOWERS	DRIED FLOWERS	FRAGRANT FLOWERS
<i>Scabiosa caucasica</i>						X	X	X		
<i>Sedum spectabile</i>				X			X	X	X	
<i>Sidalcea</i> hybrids		X	X			X	X			
<i>Solidago</i> hybrids				X		X	X	X		
× <i>Solidaster luteus</i>							X			
<i>Stokesia laevis</i>						X				
<i>Thalictrum</i>										
<i>T. aquilegifolium</i>	X	X			X	X				
<i>T. flavum</i>	X	X	X			X				X
<i>T. rochebrunianum</i>	X	X				X	X			
<i>Tradescantia</i> hybrids						X	X			
<i>Trillium</i> species	X	X			X					
<i>Trollius</i>										
<i>T. asiaticus</i>	X	X	X		X			X		
<i>T. europaeus</i>	X	X	X		X			X		
<i>Veronica</i>										
<i>V. incana</i>				X		X				
<i>V. latifolia</i>				X		X				
<i>V. spicata</i>				X		X		X		
<i>Viola</i> hybrids	X				X	X	X	X		X

PLANT SOCIETIES

The following societies specialize in the culture of perennials. Consult them for information on the best types for growing in your area and advice on where to obtain the species and hybrids in which you are interested.

Alpine and rock garden

Alpine Garden Club of British Columbia

Josephine Bridge

1310 W King Edward Avenue

Vancouver, B.C. V6H 1Z9

American Rock Garden Society

Mr. Norman Singer

Norfolk Road

South Sandisfield, MA 01255, USA

Vancouver Island Rock and Alpine Garden Society

Mrs. E. Harkness

575 Towner Rd.

R.R. 1, Sidney, B.C. V8L 3R9

Beardtongue

American Penstemon Society

Mr. O. M. Steward

P.O. Box 33

Plymouth, VT 05056, USA

Chrysanthemum

Canadian Chrysanthemum and Dahlia Society

Mr. L. Dickson

24 Eden Mills Dr.

West Hill, Ont. M1E 4L2

Day-lilies

American Hemerocallis Society

Mrs. A. W. Parry

Signal Mountain, TN 37377, USA

Iris

American Iris Society
Mr. R. Mullin
Route 3
Pawnee, OK 74058, USA

Canadian Iris Society
Miss J. Laurin
199 Florence Avenue
Willowdale, Ont. M2N 1G5

Lily

Canadian Prairie Lily Society
Dr. E. A. Maginnes
614 Acadia Drive
Saskatoon, Sask. S7H 3V9

North American Lily Society
Mrs. D. B. Schaefer
R.R. 2, Box 33
Waukegan, IL 60087, USA

Ontario Regional Lily Society
Mrs. G. Brown
R.R. 1
Harley, Ont. N0E 1E0

Peony

American Peony Society
Mrs. G. Kessenich
250 Interlachen Rd.
Hopkins, MN 55433, USA

Plantain-lily

American Hosta Society
Mrs. O. Langdon
5605 11 Avenue South
Birmingham, AL 35222, USA

Primrose

American Primrose Society
Mr. G. K. Fenderson
Grout Hill
South Acworth, NH 03607, USA

KEY TO SCIENTIFIC NAMES

Preferred common names are listed alphabetically in roman type in the left column, with the scientific names under which they appear in this publication in the right column. Synonyms for scientific names and alternate common names mentioned in the publication also appear in the left column, in italics.

alpine aster	<i>Aster alpinus</i>
<i>Althaea</i>	see <i>Alcea</i>
alumroot	<i>Heuchera</i>
<i>Alyssum saxatile</i>	see <i>Aurinia saxatilis</i>
amethyst sea-holly	<i>Eryngium amethystinum</i>
anemone, Chinese	<i>Anemone hupehensis</i>
anemone, grape-leaved	<i>Anemone vitifolia</i>
anemone, Japanese	<i>Anemone</i> × <i>hybrida</i>
anemone, snowdrop	<i>Anemone sylvestris</i>
archangel, yellow	<i>Lamiastrum galeobdolon</i>
<i>Aruncus sylvester</i>	see <i>Aruncus dioicus</i>
Asiatic globeflower	<i>Trollius asiaticus</i>
aster, alpine	<i>Aster alpinus</i>
aster, cornflower	<i>Stokesia laevis</i>
aster, Italian	<i>Aster amellus</i>
aster, New England	<i>Aster novae-angliae</i>
aster, New York	<i>Aster novi-belgii</i>
aster, Stokes'	<i>Stokesia</i>
astilbe	<i>Astilbe</i>
avens	<i>Geum</i>
azure sage	<i>Salvia azurea</i>
baby's-breath	<i>Gypsophila paniculata</i>
balloonflower	<i>Platycodon grandiflorus</i>
<i>bamboo, Chinese</i>	<i>Polygonum cuspidatum</i>
<i>bamboo, Japanese</i>	<i>Polygonum cuspidatum</i>
barrenwort, large-flowered	<i>Epimedium grandiflorum</i>
barrenwort, red	<i>Epimedium</i> × <i>rubrum</i>
<i>bea-balm</i>	<i>Monarda hybrids</i>
bearded iris, tall	<i>Iris</i>
bearded iris, dwarf	<i>Iris</i>
beardtongue	<i>Penstemon</i>
belladonna delphinium	<i>Delphinium</i> × <i>belladonna</i>
bellflower, broad-leaved	<i>Campanula latifolia</i>
bellflower, clustered	<i>Campanula glomerata</i>
bellflower, creeping	<i>Campanula rapunculoides</i>
bellflower, milky	<i>Campanula lactiflora</i>
bellflower, peach-leaved	<i>Campanula persicifolia</i>
bergamot	<i>Monarda hybrids</i>
Bet, bouncing-	<i>Saponaria officinalis</i>
Bethlehem-sage	<i>Pulmonaria saccharata</i>

black snakeroot
 bladdercherry
 blanketflower
 blazingstar
 bleedingheart
 bleedingheart, plume
 bleedingheart, western
 bloodroot
 bluebells, Virginia
 bluebonnets
 bluet, mountain
 bouncing-Bet
 broad-leaved bellflower
 bugbane, Kamchatka
 bulgeweed, carpet
 bugleweed, pyramid
 bugloss, Italian
 bugloss, Siberian
 butterfly delphinium
 champion, rose
 candytuft, perennial
 Canterbury-bells
 carpet bugleweed
 catmint
 catmint, large-flowered
 catnip
 centaurea, Persian
 Chinese anemone
Chinese bamboo
 Chinese-lantern
Chinese-lantern
 Chinese trumpetflower
 chrysanthemum
Chrysanthemum maximum
 cinquefoil
 clary
 clustered bellflower
 columbine
 columbine meadow-rue
 common delphinium
 common foxglove
common monk's-hood
 common rose mallow
 common sea-lavender
 common yarrow
 coneflower
 coneflower, purple
 coralbells

Cimicifuga racemosa
Physalis alkekengi
Gaillardia × *grandiflora*
Liatris scariosa
Dicentra spectabilis
Dicentra eximia
Dicentra formosa
Sanguinaria canadensis
Mertensia virginica
Scabiosa caucasica
Centaurea montana
Saponaria officinalis
Campanula latifolia
Cimicifuga simplex
Ajuga reptans
Ajuga pyramidalis
Anchusa azurea
Brunnera macrophylla
Delphinium grandiflorum
Lychnis coronaria
Iberis sempervirens
Campanula medium
Ajuga reptans
Nepeta × *faassenii*
Nepeta grandiflora
Nepeta cataria
Centaurea dealbata
Anemone hupehensis
Polygonum cuspidatum
Physalis
Physalis alkekengi
Incarvillea delavayi
Chrysanthemum
 see *Chrysanthemum* × *superbum*
Potentilla hybrids
Salvia sclarea
Campanula glomerata
Aquilegia hybrids
Thalictrum aquilegifolium
Delphinium elatum
Digitalis purpurea
Aconitum napellus
Hibiscus moscheutos
Limonium latifolium
Achillea millefolium
Rudbeckia
Echinacea
Heuchera sanguinea

cornflower aster
 cottage pink
 creeping bellflower
 cushion mum
 cushion spurge
 daisy, Michaelmas
 daisy, Shasta
 day-lily
 delphinium, belladonna
 delphinium, butterfly
 delphinium, common
 dog-fennel
 dotted-leaved loosestrife
 dragonhead, false
 dropwort
 drumstick primrose
 dwarf bearded iris
Epimedium coccineum
 euphorbia, myrtle
Euphorbia polychroma
 European globeflower
 evening-primrose
 false dragonhead
 false starwort
 feather, Kansas
 fennel, dog-
 fernleaf yarrow
Filipendula hexapetala
 flax, perennial
 flax, yellow
 fleabane
 foxglove, common
 foxtail-lily
 garden gloxinea
 garden loosestrife
 gasplant
 gayfeather, Kansas
 gayfeather, spike
 ghostplant
 giant rockfoil
 globeflower, Asiatic
 globeflower, European
 globe knapweed
 globe thistle, small
 gloxinia, garden
 gloxinia, hardy
 goat's-beard
 gold-dust

Stokesia laevis
Dianthus plumarius
Campanula rapunculoides
Chrysanthemum × *morifolium*
Euphorbia epithymoides
Aster
Chrysanthemum × *superbum*
Hemerocallis hybrids
Delphinium × *belladonna*
Delphinium grandiflorum
Delphinium elatum
Anthemis
Lysimachia punctata
Physostegia
Filipendula vulgaris
Primula denticulata
Iris
 see *Epimedium* × *rubrum*
Euphorbia myrsinites
 see *Euphorbia epithymoides*
Trollius europaeus
Oenothera tetragona
Physostegia spp.
Boltonia asteroides
Liatris pycnostachya
Anthemis spp.
Achillea filipendulina
 see *Filipendula vulgaris*
Linum perenne
Linum flavum
Erigeron
Digitalis purpurea
Eremurus
Incarvillea delavayi
Lysimachia punctata
Dictamnus albus
Liatris pycnostachya
Liatris spicata
Artemisia ludoviciana var. *albula*
Bergenia cordifolia
Trollius asiaticus
Trollius europaeus
Centaurea macrocephala
Echinops ritro
Incarvillea delavayi
Incarvillea delavayi
Aruncus dioicus
Aurinia saxatilis

golden Marguerite
 goldenrod
goldentuft madwort
 grape-leaved anemone
 Griffith's spurge
hardy gloxinia
 harebell
 helmetflower
 hollyhock
 honesty
 Hungarian speedwell
 iris, tall bearded
 iris, dwarf bearded
 iris, Siberian
 Italian aster
 Italian bugloss
 Jacob's-ladder
 Japanese anemone
Japanese bamboo
 Japanese knotweed
Japanese-lantern
 Japanese primrose
 Kamchatka bugbane
 Kansas gayfeather
 knapweed, globe
 knotweed, Japanese
Lamium
 large-flowered barrenwort
 large-flowered catmint
 large-flowered tickseed
 larkspur, perennial
 lavender-mist
 leopard's-bane
 lily
 lily, day-
 lily, foxtail-
 lily-of-the-valley
 lily, plantain-
 lily, torch-
 loosestrife, dotted-leaved
 loosestrife, purple
loosestrife, garden
loosestrife, yellow
 lungwort
 lupin
 madwort
madwort, goldentuft
 maiden pink

Anthemis tinctoria
Solidago hybrids
Aurinia saxatilis
Anemone vitifolia
Euphorbia griffithi
Incarvillea delayvayi
Campanula rotundifolia
Aconitum napellus
Alcea rosea
Lunaria annua
Veronica latifolia
Iris
Iris
Iris
Aster amellus
Anchusa azurea
Polemonium caeruleum
Anemone × *hybrida*
Polygonum cuspidatum
Polygonum cuspidatum
Physalis alkekengi
Primula japonica
Cimicifuga simplex
Liatris pycnostachya
Centaurea macrocephala
Polygonum cuspidatum
 see *Lamiastrum*
Epimedium grandiflorum
Nepeta grandiflora
Coreopsis grandiflora
Delphinium
Thalictrum rochebrunianum
Doronicum
Lilium hybrids
Hemerocallis hybrids
Eremurus
Convallaria majalis
Hosta species and hybrids
Kniphofia
Lysimachia punctata
Lythrum hybrids
Lysimachia punctata
Lysimachia punctata
Pulmonaria angustifolia
Lupinus hybrids
Aurinia saxatilis
Aurinia saxatilis
Dianthus deltoides

mallow, common rose
 mallow, prairie
 Maltese-cross
 Marguerite, golden
 meadow-rue, columbine
 meadow-rue, yellow
 meadowsweet
 Michaelmas daisy
 milky bellflower
monk's-hood, common
 moss pink
 mountain bluet
 mum
 mum, cushion
 myrtle euphorbia
Nepeta mussinii
 New England aster
 New York aster
Oenothera fruticosa var. *youngii*
 obedientplant
 orange sunflower
 Oriental poppy
Oswego-tea
 Ozark sundrops
 pansy
 peach-leaved bellflower
 pea, perennial
 peony
 perennial candytuft
 perennial flax
 perennial larkspur
 perennial pea
 Persian centaurea
 phlox, summer
pincushion flower
 pink, cottage
 pink, maiden
 pink, moss
Pitchers sage
 plantain-lily
 plume bleedingheart
 plume poppy
poker plant
 poinsettia
 polyanthus
 poppy, Oriental
 poppy, plume
 prairie mallow

Hibiscus moscheutos
Sidalcea hybrids
Lychnis chalconica
Anthemis tinctoria
Thalictrum aquilegifolium
Thalictrum flavum
Filipendula
Aster
Campanula lactiflora
Aconitum napellus
Phlox subulata
Centaurea montana
Chrysanthemum × *morifolium*
Chrysanthemum × *morifolium*
Euphorbia myrsinites
 see *Nepeta* × *faassenii*
Aster novae-angliae
Aster novi-belgii
 see *Oenothera tetragona*
Physostegia virginiana
Heliopsis hybrids
Papaver orientale
Monarda hybrids
Oenothera missouriensis
Viola hybrids
Campanula persicifolia
Lathyrus latifolius
Paeonia hybrids
Iberis sempervirens
Linum perenne
Delphinium
Lathyrus latifolius
Centaurea dealbata
Phlox paniculata
Scabiosa caucasica
Dianthus plumarius
Dianthus deltoides
Phlox subulata
Salvia azurea
Hosta species and hybrids
Dicentra eximia
Macleaya cordata
Kniphofia uvaria
 see *Euphorbia*
Primula × *polyantha*
Papaver orientale
Macleaya cordata
Sidalcea hybrids

primrose, drumstick
 primrose, evening-
 primrose, Japanese
 primrose, Siebold's
 purple coneflower
 purple loosestrife
 pyramid bugleweed
 pyrethrum
 queen-of-the-meadow
 queen-of-the-prairie
 red barrenwort
 red-hot-poker
 rock cress, wall
 rockfoil, giant
 rose campion
 sage, azure
 sage, Bethlehem-
 sage, *Pitchers*
 sage, superb
Salvia pitcheri
 scabious
 sea-holly, amethyst
 sea-lavender, common
 Shasta daisy
 showy stonecrop
 Siberian bugloss
 Siberian iris
 Siebold's primrose
 silver-dollar-plant
 small globe thistle
 snakeroot, black
 sneezeweed
 sneezewort
 snowdrop anemone
 soapwort
 speedwell, Hungarian
 speedwell, spiked
 speedwell, wooly
 spiderwort
 spiked speedwell
 spike gayfeather
 spurge, cushion
 spurge, Griffith's
 starwort, false
Statice
 Stokes' aster
 stonecrop, showy
 summer phlox

Primula denticulata
Oenothera tetragona
Primula japonica
Primula sieboldii
Echinacea
Lythrum hybrids
Ajuga pyramidalis
Chrysanthemum coccineum
Filipendula ulmaria
Filipendula rubra
Epimedium × *rubrum*
Kniphofia uvaria
Arabis caucasica
Bergenia cordifolia
Lychnis coronaria
Salvia azurea
Pulmonaria saccharata
Salvia azurea
Salvia × *superba*
 see *Salvia azurea*
Scabiosa
Eryngium amethystinum
Limonium latifolium
Chrysanthemum × *superbum*
Sedum spectabile
Brunnera macrophylla
Iris
Primula sieboldii
Lunaria annua
Echinops ritro
Cimicifuga racemosa
Helenium
Achillea ptarmica
Anemone sylvestris
Saponaria
Veronica latifolia
Veronica spicata
Veronica incana
Tradescantia hybrids
Veronica spicata
Liatris spicata
Euphorbia epithymoides
Euphorbia griffithi
Boltonia asteroides
 see *Limonium latifolium*
Stokesia
Sedum spectabile
Phlox paniculata

sundrops, Ozark
sunflower
sunflower, orange
superb sage
sweet-William
tall bearded iris
thistle, small globe
thread-leaved tickseed
tickseed, large-flowered
tickseed, thread-leaved
torch-lily
trumpetflower, Chinese
vetchling
violet
Virginia bluebells
wake-robin
wall rock cress
western bleedingheart
windflower
wooly speedwell
wormwood
yarrow, common
yarrow, fernleaf
yellow archangel
yellow flax
yellow loosestrife
yellow meadow-rue

Oenothera missouriensis
Helianthus hybrids
Heliopsis hybrids
Salvia × *superba*
Dianthus barbatus
Iris
Echinops ritro
Coreopsis verticillata
Coreopsis grandiflora
Coreopsis verticillata
Kniphofia
Incarvillea delavayi
Lathyrus
Viola hybrids
Mertensia virginica
Trillium species
Arabis caucasica
Dicentra formosa
Anemone
Veronica incana
Artemesia
Achillea millefolium
Achillea filipendulina
Lamium galeobdolon
Linum flavum
Lysimachia punctata
Thalictrum flavum

CONVERSION FACTORS

Metric units	Approximate conversion factors	Results in:
LINEAR		
millimetre (mm)	x 0.04	inch
centimetre (cm)	x 0.39	inch
metre (m)	x 3.28	feet
kilometre (km)	x 0.62	mile
AREA		
square centimetre (cm ²)	x 0.15	square inch
square metre (m ²)	x 1.2	square yard
square kilometre (km ²)	x 0.39	square mile
hectare (ha)	x 2.5	acres
VOLUME		
cubic centimetre (cm ³)	x 0.06	cubic inch
cubic metre (m ³)	x 35.31	cubic feet
	x 1.31	cubic yard
CAPACITY		
litre (L)	x 0.035	cubic feet
hectolitre (hL)	x 22	gallons
	x 2.5	bushels
WEIGHT		
gram (g)	x 0.04	oz avdp
kilogram (kg)	x 2.2	lb avdp
tonne (t)	x 1.1	short ton
AGRICULTURAL		
litres per hectare (L/ha)	x 0.089	gallons per acre
	x 0.357	quarts per acre
	x 0.71	pints per acre
millilitres per hectare (mL/ha)	x 0.014	fl. oz per acre
tonnes per hectare (t/ha)	x 0.45	tons per acre
kilograms per hectare (kg/ha)	x 0.89	lb per acre
grams per hectare (g/ha)	x 0.014	oz avdp per acre
plants per hectare (plants/ha)	x 0.405	plants per acre

DATE DUE

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Cole, Trevor J.
Perennials in your garden

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