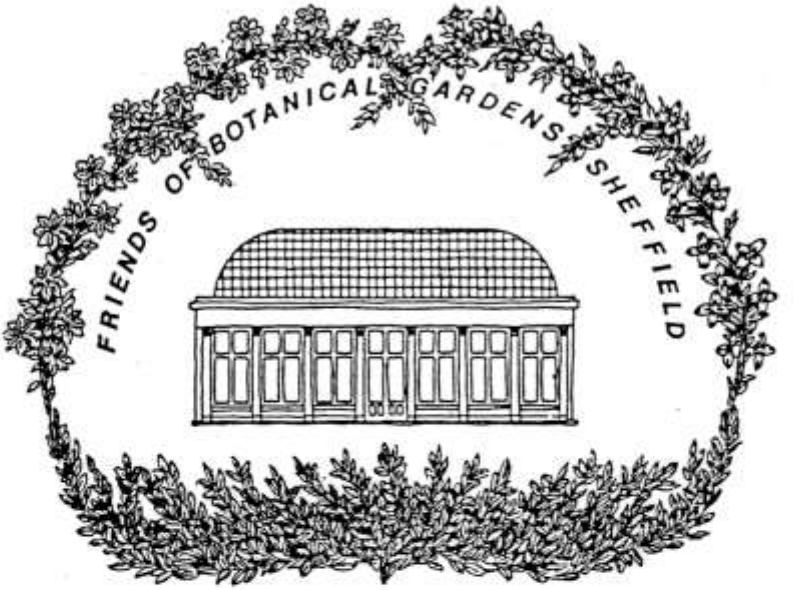

F.O.B.S

LEAFLET NUMBER 2

HARDY BULBS FOR SHEFFIELD

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INDEX

Friends of the Botanical Gardens (**FOBS**) was set up in 1984 with two main aims:

To help extension work of the Botanical Gardens, including seed collection and distribution, guided tours, and gardening for the disabled.

To promote an interest within the general area for gardens and a wide range of plants.

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HARDY BULBS FOR SHEFFIELD

I. INTRODUCTION

Bulbs and corms can provide enormous variety and interest throughout the year, and make excellent long-term fillers within other ornamental plantings. They evolved as underground storage organs, and are developed either from swollen leaf bases (bulbs) or swollen stem bases (corms). Both structures enable the plant to survive long periods of extreme climatic conditions - either intense heat or cold, or prolonged drought. Both groups show great variety in their form and character. Thus, bulbs may consist of many tightly fitting and overlapping scales, giving the rather rounded structures found in many of the daffodils and flowering onions. Conversely, they may consist of a very few, rather loosely packed, fleshy scales, as found in the large fritillary group and in many of the lilies. Corms may be small, covered in an outer fibrous skin, and increase by offsets, as in the crocuses. These contrast strongly with the bare corms of the cyclamens, which do not produce offsets, but simply increase in size; (under favourable conditions, the corms of Cyclamen hederifolium may grow to over a foot in diameter). In the general discussion sections of this leaflet, the word "bulbs" will be used to cover both bulbs and corms.

Management of bulbs in our gardens (especially the more unusual varieties) should try to reflect the original conditions of climate and soil for the different species; for example, the Tulipa genus, whose main centre of diversity lies in Turkey, normally requires a good baking in the summer, after flowering. A south- or west-facing rockery would therefore suit such plants very well. On the other hand, erythroniums and bluebells, coming from lightly shaded woodland areas, should not dry out fully in the summer.

II CULTIVATION.

Certain bulbs, notably the snowdrops, many Narcissus, Scilla and Crocus species will tolerate quite a wide range of soil types, including wet clays. Others, however, are very sensitive to poorly drained soils, whatever the reason for that condition - heavy clay soil and impeded drainage, high water table, etc. Such species include the lilies, many of the tulips, Colchicum and Iris species. In wet conditions, these sensitive species either die (usually from rotting) or refuse to flower consistently. With clay soils (which occur all too widely in Sheffield) it is best therefore to incorporate a layer of sand and gravel into the area to be planted with bulbs. It is impossible to fix a specific rate, but as a general guide one to two shovelfuls per sq. yd. would greatly improve porosity. If it is not possible to treat large areas in this way, pockets of sand and gravel are quite effective in improving drainage locally. For example, a 6" pot of sand and gravel (about 3/16") would be enough to treat a group of 5-10 bulbs of any tulip species, while a little less (say a 5" pot full) would be enough for 5-10 smaller bulbs, e.g. Muscari or Crocus. However much is used, about half the sand and gravel should go under the bulbs, and the rest be distributed around and above them. All sand and gravel additions help to reduce both slug damage and bulb rotting (and slug pellets give valuable added protection).

Most bulbs demand well lit sites, while some, such as Scilla, Crocus and Erythronium like light shade. A very few, notably Cyclamen hederifolium, Cyclamen coum and Allium triquetrum will tolerate some degree of dry shade.

1. Soil preparation.

Areas where bulbs are to be planted should be dug over, and well rotted compost or manure, peat or leaf-mould added at the rate of about two bucketfuls per sq. yd. (fresh farm-yard manure should not be used, as it is too "strong" and would burn or otherwise damage plants as it rotted down). As mentioned above, sand and gravel should be added if the soil is at all heavy. Ground limestone applied at the rate of 2-3 oz./sq. yd. is also beneficial, as most bulbs prefer a neutral or slightly alkaline soil.

Where bulbs are to be permanently established, soil fertility can be increased by using bonemeal, John Innes Base or Vitax Q4 at the rate of 2-3 oz./sq. yd. Narcissi particularly benefit from a high potash level in the soil, and a good fertilizer mixture for the heavy feeding Long Trumpet daffodils is 1 part of potassium sulphate to 3 parts of a standard base fertilizer, such as John Innes Base. Tulips also need high soil fertility if they are to be increased at permanent planting sites (i.e not lifted or replaced every year or so).

2. Planting.

Spring flowering bulbs are best planted in the previous autumn, using dry, ripened material, although tulips should be left until November before planting, so that the new spring growth is less liable to frost and slug damage. Any bulbs planted later than November are not likely to flower well until the second season after planting. Autumn flowering bulbs such as Crocus speciosus are best planted in the spring. Daffodils should be planted as soon as they are available in the late summer,as they start into growth in the autumn, making maximum root growth while the soils are still warm.It is worth emphasising that best results for all species will be obtained from large, sound bulbs, showing no signs of physical damage, rotting or moulds.

Certain bulbs establish best when split and replanted while still growing ("in the green"); these include snowdrops (Galanthus), snow-flakes (Leucojum) winter aconites (Eranthis),Anemone blanda and cyclamen. If green plants are not available, the dry bulbs should be potted up into ordinary compost as soon as they are received, and overwintered in a cool greenhouse or cold frame. They can then be planted out the following spring, as they come into growth.

Lily bulbs consist of a very few fleshy scales, which dry out rather easily. They should therefore be planted out as soon as they are available, which is from about November to April. If they arrive during bad weather, they are best potted up, as above, and kept in a sheltered place outside, or in a cool greenhouse or cold frame, until better weather allows planting out.

Planting depths should take account of soils (and hence, drainage). In any case, bulbs should be set deep enough to avoid damage by surface cultivations which necessarily take place among herbaceous plants, trees and shrubs. As a general rule,

bulbs should be planted at a depth of twice the length of the bulb (soil depth measured to the top of the bulb). In heavy soils, they should be planted more shallowly - at about their own depth, and with sand or grit underneath the bulb to improve drainage. In very sandy or dry soils, they can be planted more deeply. Certain bulbs such as Crocus have contractile roots and are able to adjust their levels in the soil. Others such as snowdrops cannot do this and may appear at the surface; if this happens, they can be replanted after flowering. The large bulbs of Fritillaria imperialis should be planted at least 6" deep; all the fritillaries have fleshy bulbs with a concave top, and should be planted in sand and on their sides to reduce the risk of water accumulation and subsequent rotting. Cyclamen hederifolium needs a very light soil cover, and mulching every year. Some suggest that the small bulbs of Iris reticulata should be planted 4" to 9" deep, as this may help to prevent them breaking up into non-flowering bulblets.

3. Lifting.

Bulbs used in spring bedding displays, such as narcissi, tulips and hyacinths have to be lifted to make way for the summer bedding plants.They should be heeled into nursery beds to encourage further bulb development, and then dried off and stored. To do this, the bulbs should have the outer dried skins cleaned off, and then be put in net bags (e.g. of the type used to carry fruit and vegetables).They should then be dipped in a fungicide for 20 minutes (e.g. Benlate made up at the rate of 5 mls. of fungicide to 2 pints of water). After drying, the nets of bulbs should be hung in a dry, cool, frost-free place; suspending the bags helps to reduce mice damage - particularly important for tulips.

Tulip hybrids used in mixed herbaceous plantings are said to need lifting every two to three years, although some, e.g. the Darwin hybrids seem to stay in good condition for much longer, and even multiply; (see also the lists of tulip hybrids at the end of this leaflet). The many tulip species can remain in situ for years, increasing by offsets and seed, so long as the soil is reasonably well drained. Cyclamen should be left alone once established; they seed quite freely,and the corms slowly increase in size, each one giving rise to large numbers of flowers.

4. Propagation.

Division. This is best for increasing stocks of named varieties, as the divisions all come true to the parent plant. Overgrown clumps of most bulbs can be lifted after flowering, split, and either replanted immediately while still in leaf ("in the green"), or dried for later planting. Many species produce bulblets which can be removed and grown on, either in nursery beds or pots, until they reach flowering size. Some bulbs, notably the lilies, can be increased from bulb scales. These are detached from the bulb plate, and either placed in plastic bags containing damp peat and vermiculite, or inserted into well drained compost. In due course, tiny plantlets are produced at the base of the scales; while this is an efficient propagation method, it is worth remembering that the plantlets may take more than four years to reach flowering size.

Seed. This is an excellent method for increasing stocks (cheaply) of many bulb genera, including Crocus, Muscari, Scilla, many of the species tulips and narcissi, Ornithogalum, Chionodoxa, Leucojum, Allium, Cyclamen, Crocosmia and Camassia. The

seed should be sown as soon as it is available, in any ordinary well drained seed compost. Germination may not occur consistently in the first season, and may even be delayed altogether until the second season. Bulbs may take two to five years to flower from seed. Most of the genera listed above will also seed themselves about in the garden, giving the "relaxed, unbuttoned look" beloved of Christopher Lloyd. This is a further good reason for not maintaining that perfect weed-free garden.

III. PLANTING ASSOCIATIONS.

1. Formal/Informal plantings with other herbaceous plants.

Narcissi, tulips and hyacinths are all very suitable for formal bedding schemes in parks and other open spaces of the city. They are traditionally associated with such plants as wallflowers, forget-me-nots and primulas. They are also useful for all sorts of containers, both indoors and out. A far wider variety of bulbs can, however, be mixed informally with hardy herbaceous plants; Dutch and English irises, flowering onions (Allium) of all kinds, small-flowered Gladiolus species, snowflakes (Leucojum), Crocosmia and Camassia all mix in well, flower over a long period, and do not need lifting in the winter. The planting sites need to be marked, so that the bulbs are not unduly damaged during cultivations.

2. In Grass.

Drifts of bulbs can be naturalised in grass, so long as the mowing can be adapted to their growing and flowering cycles. Narcissi, grape hyacinths (Muscari), snowdrops and crocuses are all freely available, and naturalise well in grass. Less common plants include some of the fritillaries, especially the snakeshead fritillary (Fritillaria meleagris), small-flowered gladioli, especially G. byzantinus, autumn crocus species (Colchicum), and many of the small-flowered hardy cyclamen. Colchicum, cyclamen, snowdrops and bluebells (Endymion) are particularly suitable for lightly-shaded woodland grass areas.

Bulbs in grass should look as natural as possible. One idea therefore, is to establish irregular core clumps across the area to be planted, linked by irregular patterns of minor groups. Alternatively, the centre can be planted thickly, thinning out irregularly at the edges. Another idea is simply to throw the bulbs over the area, and plant them exactly where they fall. All these ideas are meant to avoid uniform coverage, (and throwing the bulbs is easiest). Whatever idea is followed, large amounts of plant material are needed. The ultimate effect may take years to produce, as gardeners would need to propagate most of their own plant material, from seed and offsets. In any case, different species and cultivars should be kept in separate areas, or the effect is fussy. Christopher Lloyd suggests that there should be about two-thirds grass to one-third bulbs, or the area will look over-crowded. He also suggests that paths between the bulb areas should be mown often, leaving the longer grass and bulbs largely uncut. This means that the area looks managed, and the bulbs can be admired close to and in comfort.

Grass cutting should be resisted, in spite of an overwhelming desire to "tidy the place up a bit", until the bulb leaves have started to die down, having completed rebuilding the bulbs for the following year. Work at Wisley Gardens has shown that for most daffodil hybrids, the leaves can be removed six weeks after flowering without damaging the future

bulbs. Hence, the first cut of grass containing spring flowering bulbs can take place about the beginning of July. It should also be possible to mow again in late August, just before the autumn-flowering crocuses and colchicums appear. A final cut may be possible in late November (depending on the weather), after these have died down, and before the narcissi, etc. begin to appear. This would keep the garden reasonably tidy, and leave the grass fairly short to display the small bulbs flowering in early spring.

3. Under trees and shrubs.

Trees, shrubs and bulbs form natural communities in the wild throughout the world. Many of the spring-flowering bulbs are well-adapted to the growth cycle of deciduous trees and shrubs. They have completed their entire life cycle, using moisture from the previous winter's rains, by the time the trees come into leaf. The dry conditions often developed under trees during the summer may even benefit bulbs by helping them to ripen. Snowdrops, crocuses, scillas, bluebells, cyclamen and dog-tooth violets (Erythronium) all grow well in some shade, although the erythroniums should not dry out in the summer. Allium ursinum (wild garlic) and Allium triquetrum flower when the trees are in leaf, and the latter is remarkably tolerant of dry shade.

Rhododendrons and azaleas, which associate well with lilies as well as all the smaller bulbs, are often planted under a light tree cover. Trees with deep tap roots, like oak, or less demanding genera like Sorbus and Prunus provide the best conditions for such associations. Otherwise, dry shaded conditions develop (see FOBS Leaflet No. 1) which many plants - bulbous and herbaceous alike - will not tolerate. Many choice bulbs, including the lilies, need sheltered sites either in full sun or lightly shaded, and deep soils which are at the same time well drained and moisture retentive.The soils should be dug deeply, and bonemeal and organic matter added - with sand also if the soil is at all heavy. All bulb plantings under trees should be as informal as possible. It is worth remembering that choice bulbs should not be planted too close to vigorous shrubs, as they will quickly be smothered.

4. In rock gardens.

Well made rock gardens provide marvellous conditions for a wide range of dwarf hardy bulbs. They are usually in full sun, should be well drained, and can be built to provide pockets in which bulbs can be baked and ripened all summer. Dwarf bulbs associate beautifully with carpeting alpine plants, growing through them at flowering time, but remaining covered during their long dormant season. It is essential to mark the planting sites, and to move the bulbs if they appear to be suffering from too much competition from surrounding plants. Slug control is important, especially for tulips - metaldehyde, sand and gravel all give some protection. (Grit also improves the general appearance of all the plants on a rockery). Some suitable and lovely bulbs for the rockery include: Crocus, Chionodoxa, Scilla, Oxalis adenophylla, Tulipa species - kaufmanniana, linifolia, greigii, batalinii, aucheriana, tarda, urumiensis, dwarf Allium species - cyaneum, ostrowskianum, beesianum, and snowdrops (Galanthus). Also, Star of Bethlehem (Ornithogalum umbellatum) and Ornithogalum nutans, cyclamen in variety (C. europaeum and C. cilicium both prefer sunny conditions), Ipheion uniflora, Fritillaria meleagris (which prefers damp conditions, e.g. at the bottom of a rockery slope), and dwarf Narcissus

species - N. cyclamineus is particularly lovely, long-lasting and very early. Dwarf Iris species - reticulata, danfordiae and histrioides - flower very early, but do not always flower reliably from year to year. Excellent drainage and a thorough summer baking may help to make them more reliable. Most of the plants listed have light foliage which dies down relatively gracefully, without smothering the surrounding alpine plants.

5. In a bulb frame.

This is for the enthusiast who wants to grow rare and expensive bulbs, which cannot be entrusted to general garden conditions. The frames have glass covers which allow the grower to protect the bulbs in severe weather, control the amount of water available in winter, and to thoroughly ripen the bulbs in summer.

The bulb frame is built of breeze blocks, railway sleepers, etc., enclosing a raised bed of appropriate compost - usually a mixture of peat, loam, grit and sand - to ensure perfect drainage and good moisture retention. The base of the frame should be covered in fine wire netting, to exclude mice. Further details of bulb frames can be found in "The Bulb Book" by Rix and Phillips.

Hardy bulbs can also be grown in cool greenhouses and alpine houses, where they can likewise be given winter protection and a summer baking. Here, the plants are usually grown in pots, and should not be allowed to dry out in their growing season, or they will go dormant. If strong enough staging is available, the pots (clays) can be plunged into sand, which is watered, so that the bulbs have cool moist root conditions when needed.

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Acknowledgements are made to Sue Kohler, Don Williams and Arroll Winning who prepared this leaflet.

BULB LISTS

Name	Description	Comments
Allium aflatunense	Pink; early summer; 30".	Easy. Sun. Staking.
A. albopilosum (syn. christophii)	Silver-pink; summer; 24-30".	Sun; huge flower heads good for drying.
A. caeruleum	Blue; summer; 24-30".	Full sun.
A. cernuum	Drooping pink; summer; 18-24."	Full sun. Seeds freely.
A. flavum	Lemon yellow; summer; 18".	Sun. Blue/grey leaves.
A. karataviense	Lilac; early summer; 9-12".	Sun. Large marbled lvs.
A. moly	"Yellow Garlic"; summer;12-18"	Easy. Sun or part shade.
A. murrayanum	Rose; early summer; 12-18".	Sun; rockeries.
A. narcissaeflorum	Deep pink, drooping; summer;9".	Sun; rockeries. Choice.
A. neapolitanum	White; summer; 9-12".	Sun or part shade.
A. ostrowskianum (syn. oreophilum)	Deep pink; early summer; 6-9".	Sun; rockeries; easy; large flowers.
A. pulchellum	Lilac; late summer; 18-24".	Sun. Rounded heads.
A. sphaerocephalum	Dark red; late summer; 18-24".	Sun; seeds freely.
A. triquetrum	White with green line; late spring; 12-18". Seeds freely.	Sun or shade, including dry shade. Invasive.
A. ursinum	"Wild Garlic"; white;May; 12".	Native; woodland plant.
Anemone blanda and varieties.	Blue, white, pink; early spring; 4-6";	Part shade; damp leafy soil; plant "in green".
A. coronaria	Various colours; spring; 9-12".	Sun; cut flowers.
A. nemorosa and varieties.	"Windflower"; white or blue; early spring; 4-6".	Part shade; damp leafy soil; not to dry out.
A. ranunculoides and varieties	Yellow; spring; 4-6".	As above; naturalises well in light shade.
Chionodoxa luciliae and varieties	"Glory of the Snow"; blue, pink, white; early spring; 4-6".	Easy; sun; seeds freely.
Colchicum autumnale and varieties	"Autumn Crocus"; pink; autumn; 9-12"; coarse leaves, 12-18" tall through early summer.	Damp leafy soil;shelter needed.
C. speciosum and varieties	"Autumn Crocus"; pink or white; autumn; 9-12".	As above.
Corydalis solida	Pale purple; spring; 4-6".	Sunny; well drained.
Crocosmia masonorum and varieties.	Flame; autumn; 30-36".	Sun; hardy; can be invasive.
C. "Citronella"	Yellow; autumn; 18-24".	Sun; well drained; less hardy than type.
C. "Emily McKenzie"	Wide-flowered; orange; autumn; 12-15".	Sun; good drainage and shelter; less hardy.
C. rosea	Soft pink; autumn; 12-18".	As previous entry.
Crocus biflorus	Lavender; early spring; 4".	Sun or part shade.
C. chrysanthus and varieties	Various colours; very early; 4".	As above.

Name	Description	Comments
C. "Dutch Hybrids"	Various colours; large flowers; spring; 6-8".	Good for naturalising in sun or light shade.
C. nudiflorus	Purple; autumn; 4".	Sun. Good drainage.
C. speciosus	Lilac; autumn; 4-6".	Sun. Good drainage.
C. tomasinianus	Purples; spring; 4-6".	Naturalise; seeds well.
C. vernus	Various; early spring; 4".	Sun or part shade.
Cyclamen cilicium	Pale pink; autumn; 2-4".	Full sun and shelter, or not hardy; seeds freely.
C. coum	Magenta; Jan./March; 2-4".	Shade, incl. dry shade.
C. europaeum	Deep pink; autumn; 2-4".	Full sun; seeds freely.
C. neapolitanum (syn. hederifolium)	Pink or white; Aug./Oct.; 2-4"; seeds freely.	Shade - some dry shade. Shallow planting.
C. repandum	Rosy red, twisted petals; March; 4-6".	Shelter and part shade; Not fully hardy.
Eranthis hyemalis	"Winter Aconite"; yellow; Jan./March; 4".	Shade;leafy soil - damp always; plant "in green"
Endymion non-scriptus	"Bluebell"; blue, white, pink; spring; 12-18";	Shade, including some degree of dry shade.
Erythronium californicum	Cream; marbled leaf; early spring; 6-8".	Part shade; damp soil not to dry out.
E. dens-canis and varieties	"Dog's Tooth Violet"; purples; marbled leaf; early spring;4-6"	As above.
E. "Pagoda"	Yellow; 9-12"; vigorous.	As above. Reliable.
E. tuolumnense	Yellow; spring; 9-12".	As above. Not as free flowering as "Pagoda".
E. revolutum and varieties	Various; "White Beauty" is creamy white; spring; 9-12".	As above.
Eremurus bungei	"Foxtail Lily"; yellow; June; 30-36";shallow rooting.	Sun and shelter; protect crowns; mulch annually.
E. "Shelford Hybrids"	Various colours; as above.	As above.
Fritillaria assyriaca	Golden brown; spring; 12".	Sun, shelter, good drainage.
F. imperialis and varieties	"Crown Imperial F";yellow or orange; spring; 24-36".	Sun or part shade; good well-drained soil; leave undisturbed once estab.
F. meleagris and varieties	"Snakeshead F"; purple, white, drooping; May; 9-12".	Sun or light shade;damp heavy soils suit well.
F. persica	Violet blue; May; 24". Variety F. p. "Adiyaman" often grown.	Sheltered well-drained warm site essential.
F. pyrenaica	Green/brown; summer; 12".	As above.
Galanthus elwesii	White; Feb./March; 6-10".	Larger than G. nivalis. Green inner petals.
G. nivalis and varieties.	"Snowdrop"; white; Feb./March; 6"; plant "in green" Feb. or after flowering.	Sun/light shade; moist sites; tolerate heavy soils; not to dry out.

Name	Description	Comments
Geranium tuberosum	Pale purple; summer; 6".	Full sun; rockeries.
Hyacinthus (especially Dutch hybrids)	"Hyacinth";Various colours; May; 12-18".	Sun; use smaller bulbs for outdoor planting.
Ipheion uniflorum	White; May; 6".	Easy in well drained
I. u. "Wisley Blue"	Lilac blue; May; 6".	sunny sites; large fls.
Iris danfordiae	Yellow; Feb.; 4".After first year - split into small non-flowering bulblets.	Sun; good drainage; plant deeply to discourage splitting.
I. histrioides	Blue; Jan./Feb.; 4-6".	As above; rockeries.
I. reticulata and varieties.	Purple, blue; Feb.; 4-6".	As above.
I. xiphioides	"English Iris"; various colours; July; 12-15".	Rich, damp soil in sun; do not lift very often.
I. xiphium	"Spanish Iris"; various colours; June; 12-24"; cut flowers.	Well-drained, sunny site; protect winter.
Ixiolirion pallasii	Blue; early summer; 6-9".	Hot; good drainage.
Leucojum aestivum espec. variety L. a. "Gravetye Giant".	"Summer Snowflake"; white, green-tipped petals; April/ May; 18-24".	Plant "in green" spring; moist soil and part shade.
L. autumnale	White/pink flush; July/Sept. 6-9".	Full sun; best to have winter protection.
L. roseum	White/pink flush; Sept; 4-6".	Sun (rockery); alpine house; bulb frame.
L. vernum and L.v. "Carpathicum"	"Snowflake"; white tipped green or yellow; Feb/Apr. 8".	Moist; part shade; plant "in green" early spring.
Lilium	a few of the best forms are listed below; see separate leaflet for further details about the classification, culture, etc. of these lovely plants.	
L. "Enchantment"	nasturtium red; June/July; 3-3.5'.	Well-drained, moisture retentive soil. Light shade best.
L. "Connecticut King"	Yellow; June/July; 2-3'.	As above.
L. "Corsage"	Peach; July; 3'.	As above.
L. "African Queen"	Apricot; July/August; 4-5'.	As above.
L. "Golden Splendour"	Yellow; July; 4'.	As above.
L. regale.	"Regal lily";white; July; 2.5 - 3'.	As above.
L. martagon	"European Turk's Cap lily"; purplish; July; 3-3.5'.	As above; may tolerate a little dry shade.
L. tigrinum	"Tiger lily"; orange; August; 3.5'.	Usual conditions.
L. candidum	"Madonna lily"; white; June/ July; 3'.	As above.

Name	Description	Comments
Muscari armeniacum	"Grape Hyacinth"; blue/white tipped; April/May; 8-10".	Easy; sun for best flowering; seeds freely.
M. botryoides	"Grape Hyacinth"; blue; March/ May; 6-8".	As above.
M. macrocarpum	Yellow/brown tipped; April/ May; 6-9".	As above; likes a well-drained site.
M. tubergenianum	Dark and pale blue; March; 8".	As above.
Narcissus asturiensis (syn. N. minimus)	Yellow trumpet;Feb./March; 4".	Sun; well drained; good rockery species.
N. bulbocodium	"Hoop Petticoat"; yellow; Feb./ March; 2-6".	As above; split clumps often to keep flowering.
N. cyclamineus and varieties	Yellow, white; Feb./March; 3-4"; swept back petals.	Sun; moist soil; long lasting flowers; seeds freely when settled.
N. jonquillus	Several yellow fls./stem; April; 9-12"; lovely scent.	Warm, sheltered site; seeds freely.
N. minor	Yellow; March; 6-8".	Full sun; rockery.
N. poeticus and varieties.	White/orange; April/May; 15-18"; strong scent.	Sunny, or light shade; well-drained.
N. pseudonarcissus	Yellow/white; April; 6-12".	Moist soil. U.K. native.
N. triandrus and varieties.	Yellow or cream; March/April; 4-8".	Sun, good drainage; seeds when settled.
N. t. albus	White; April; 4-6".	As above.
Narcissus hybrids -	hybrids representing the divisions of the accepted classification system are listed below; see separate leaflet for much more detailed information about classification, culture, other hybrids, etc.	
N. "Golden Harvest"	Trumpet daffodil.	Sunny, sheltered, well-drained site, with high soil fertility.Good for naturalising.
N. "Ice Follies"	Large cupped narcissus.	As above. Good for naturalising.
N. "Red Devon"	Large cupped narcissus.	As for "Golden Harvest".
N. "La Riante"	Small cupped narcissus.	As above. Good for naturalising.
N. "Texas"	Double daffodils.	As above. Good for naturalising.
N. "Hawera"	Triandrus narcissus.	As above.
N. "Jack Snipe"	Cyclamineus narcissus.	As above.
N. "Trevithian"	Jonquilla narcissus.	As above.
N. "Cheerfulness"	Polyanthus narcissus.	As above.
N. "Pheasant's Eye"	Poeticus narcissus.	As above.
Narcissus species	See species listed above.	

Name	Description	Comments
N. "Cassata"	Split-corona daffodils.	As above.
Nerine bowdenii	"Nerine"; pink; Sept/Oct. 18-24"; resents disturbance.	Sun, good drainage, protect in winter.
Ornithogalum nutans	White/pale green; April/May; 6-9".	Easy; sun or part shade; prone to slug damage.
O. umbellatum	"Star of Bethlehem"; white; April/May; 6-9".	Easy; fls. close in dark or shade; seeds freely.
Puschkinia libanotica	"Striped Squill"; pale blue/ dark stripe; March/May; 4-8".	Easy; sun or part shade.
Schizostylis coccinea and varieties	"Kaffir Lily"; red,pink; Oct./ Nov.; 18-24".	Easy; hardy; invasive; best flowering in sun.
Scilla bifolia	"Squill"; blue; March; 4-6".	Easy; seeds freely.
S. peruviana	Blue; early summer; 9-12".	Sun; good drainage.
S. sibirica	"Squill"; blue; March; 6".	Sun; part shade; moist.
S. tubergeniana	Pale blue; Feb./March; 3-4".	As above.
Trillium erectum	Purple; late spring; 9-12".	Moist leafy soils; peat mulch; part shade.
T. grandiflorum and varieties	"Wake Robin"; white; late spring; 9-12"; slow spread.	As above.
T. luteum	Pale yellow; late spring; 9-12".	As above.
T. sessile	Maroon; late spring; 6-9".	As above.
Tulipa aucheriana	Pink; April; 2-4".	Full sun and perfect drainage essential; S-facing rockery ideal.
T. batalinii	Yellow/orange; May; 4-6".	As above.
T. fosteriana	Scarlet; April; 12-18".	As above.
T. greigii	Orange/scarlet; April; 9-12".	As above.
T. kaufmanniana	White/red/yellow; March; 4-8".	As above.
T. kolpakowskiana	Orange/yellow; April; 9-12".	As above.
T. linifolia	Scarlet; April; 4-6".	As above.
T. praestans	Scarlet; April; 9-12"; several flowers per stem.	As above.
T. sylvestris	Yellow; April; 9-12".	As above.
T. tarda	White/yellow; March; 4-6"; several flowers per stem.	As above.
T. turkestanica	White/cream; March; 6-10".	As above.
T. urumiensis	Yellow; April; 6-8".	As above. Seeds freely.

The main groups of garden hybrid tulips are discussed below.

There has been an enormous improvement in the quality of several classes of hybrid tulips in the last two decades.The hybridist has produced shorter, sturdier plants, which flower earlier and have more ornamental foliage and colourful blooms. The main classes are listed on the next pages.

1. Kaufmanniana hybrids (derived from the "water lily" tulip).

In these hybrids, the typical water lily flower shape has been retained, while introducing T. greigii has increased flower size and given characteristic chocolate patternings to the leaves.They do not need to be replanted every year. They have two flowering periods:

1. Very early - early to mid-March.
2. Early - mid to late March onwards.

Some of the popular cultivars are:

Shakespeare - 2 - salmon apricot - 13".
Stresa - 2 - yellow; exterior bright red with broad yellow edge; 15".
The First - 1 - white flushed red; inside ivory; 10".
Heart's Delight - 2 - carmine inside; rose mottled leaves; 12".

2. Fosteriana hybrids.

These have been developed by crossing T. fosteriana (fresh green leaves and glowing red flowers) with T. kaufmanniana, single and Darwin tulips. The resulting hybrids are outstanding and have a wide colour range. They should be planted in a sheltered site because of their flower size and length of stem, and can be left undisturbed for 4-5 years. Flowering generally starts in mid-April. Some popular cultivars are:

Red Emperor (Mme. Lefeber) - large, bright scarlet;20".
Candela - yellow counterpart of Emperor; 18".
Purissima - white, yellow centre; 22".
Cantata - brilliant scarlet red; 22".
Juan - orange, yellow centre; marked foliage; 22".

3. Greigii hybrids

This is an exciting group of dwarf garden tulips derived from T. greigii, T. kaufmanniana and traditional tulips.They are vigorous, have long-lasting flowers and outstanding foliage, striped and spotted with chocolate brown. They should be lifted each year and the young bulbs grown on. Flowering starts in late April,and final heights vary from 8 - 20". Some popular varieties are:

Red Riding Hood - carmine; old favourite;mid-season;8".
Oriental Beauty - carmine; mid-season; 16".
Plaisir - creamy white, vermilion stripes; good foliage; 8".
Toronto - multi-flowered; salmon orange; foliage unmarked; mid-season; 12".
Cape Cod - bronze yellow, with black and red centre and reddish stripes on each petal.

4. Darwin hybrids.

These have been developed by crossing the traditional Darwin hybrids with T. fosteriana. The first cultivars produced were red only, but there is now a range of colours. Their chief practical value is that some of the earliest varieties flower relatively early (late April in Sheffield) so that they can be cleared for summer bedding by mid-May (a fortnight before many of the more traditional Darwins). Many of the cultivars multiply quickly, and need not be lifted for 2 - 3 years from mixed borders, as long as they are fed generously. Good forms are:

Apeldoorn - orange scarlet; the classic type; one of the earliest and now cheapest; 23".
Many Apeldoorn sports are now available, e.g.
Apeldoorn's Elite - golden yellow.
Beauty of Apeldoorn - yellow flushed magenta;

Also:

Elizabeth Arden - salmon; late flowering; 26".
Gudoshnik - sulphur yellow, tinted red. 26".
Holland's Glory - outstanding, large orange red; 22".

5. Triumph Tulips.

Produced by crossing single earlies and Darwins, the Triumph group is excellent for bedding displays. They are of various colours, and are 16-18" tall. Some good forms include:

Garden Party - white with broad carmine pink edge, and white centre; 16".
Preludium - deep rose, white base; 18".
Tamour Maitre - deep carmine; strong grower; 18".

6. Other hybrids.

Other hybrids well worth growing include the multi- flowered types, with 3 - 5 flowers per stem. The exact parentage of this group of tulips has not been specified yet in the catalogues. They flower from mid- to late May, and are 18-20" high . Some of the best varieties include:

Georgette - yellow with red edge.
Orange Bouquet - vivid orange.

NOTES

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