Fall Planting Spring Bulbs
Bulb is a general term used to describe five root structures

True bulbs are modified underground stems. They act as a storage organ until conditions are right for growth. True bulbs have scales which are actually a series of modified leaves held together by a basal plate where the roots emerge from. The scales contain all the food necessary for the bulb to grow in the Spring and provide protection for the next seasons plant. Inside is a tiny undeveloped plant with leaves, stems and flower buds already formed. Scales can be arranged loosely or very tightly. True bulbs are perennial.

Bulbs multiply in two ways:
- mother bulb splits into smaller ones (large tulips and alliums)
- mother bulb remains intact but develop bulblets from the basal plate.

Can take 2-3 year to reach blooming size (narcissus, lilies, most minor bulbs).
Some lilies will also develop bulblets along the stem (Tiger lilies)

True bulbs: Hyacinths, *Narcissus*, *Muscari, Camassia*, *Tulipa, Allium*, *Scilla* (squill),*Chionadoxa, Puschkinia, Lilium sp., Iris sp* (small)

2) Corms- modified underground stem tissue.
Look similar to bulbs but are slightly flattened not pointed, have a netted or fibrous tunic and have a solid interior vs layers. Roots emerge from a basal plate and one or more growth points or buds grow on the upper surface. These develop into leaves, stems and flower buds.
Corms use up all the stored food in the current years growth/flowering
Corms are annual but will develop a new corm on top of the old
Small cormels will grow off the basal plate and can be separated and grown on
Cormels take 2-3 year to develop into flowering size

Corms: *Crocus, Colchicum, Bulbocodium, Erythronium, Liatris*

Tubers- are solid underground stems bulging with nutrients. Are often irregularly shaped, fleshy (when hydrated)
Often covered with minuscule, scaly leaves especially at the top.
They lack a basal plate and tunic.
The surface is scattered with growth points which develop into plant shoots on top and roots below. Are usually planted just below the surface.

Tubers: *Anemone blanda, A nemerosa, Eranthis, Corydalis*

Tuberous roots are modified root tissue .
The elongated tuber stores nutrients and as it matures produces more shoots above ground forming large clumps that can be divided.
Usually grows horizontally and are planted just below the surface.

The swollen roots radiate from a central point (the crown) where there are growth points on the old stems.
Tuberous roots grow fibrous roots all over the tuber's surface but has no growth buds, buds are on old stem tissue
When dividing a piece of old stem must be attached as that is where the growth buds are.

Tuberous Roots: *Hemerocallus, Eremerus* (Foxtail lilies), *Paeonia*

Rhizomes- are thickened fleshy underground stems
Rhizomes can not be lifted and stored dry for very long.
Tend to grow horizontally from a primary growth point but have secondary points where growth also occurs. Growth points on top and at right angles to the rhizome become the plant and underneath become the roots.

Rhizomes: *Iris, Convallaria* (lily of the valley)

Planting Basics

Hardy bulbs are best planted in the Fall until the ground freezes.
Tulips and lilies can remain dormant until temps warm in Spring when they will send out roots but may not bloom.
Narcissus and small iris can be slow to root especially if the soil is cold so plant as early as possible. If they don't root most will rot.
Eranthis, Erythronium, Colchicum and Bulbicodium need to be planted as soon as possible.

Ensure the soil is well-drained or they will rot. Rule of thumb for planting depth is 2-3X the diameter of the bulb but planting deeper helps mitigate rodent damage, can keep tulips perennial longer, and avoid the consequences of a cold/too warm winter. Large bulbs can be planted quite deep.
Ensure the bulb is the right side up. With tubers and some corms can be difficult to tell so plant sideways.
Mix a bulb fertilizer into the planting hole.
Planting in groups and en mass provides the best effect come Spring.

Bulbs require a minimum number of cold days in order for their flower buds to develop.

Layering Bulbs

Bulbs can be planted in layers to provide a long season of bloom. Place largest bulbs first at appropriate depth, add enough soil to cover then lay out next layer etc. until the smallest bulbs are planted. Cover with a good layer of compost and water well.
Will need to replant frequently to prevent over crowding. This works well for containers and forcing bulbs too.
Keep well watered if we have a dry Fall.

Plant a groundcover over top so bulbs emerge through the groundcover.
Is a good way to remember where the bulbs are planted and is more decorative than bare soil.

Rhizomes are planted more shallowly and are laid on their sides on the soil.
Bearded irises should be planted with the top of the rhizome exposed or barely under the soil to prevent rotting. Adding a mulch of coarse sand or gravel will prevent the rhizome from rotting.
When planting create a small mountain in the middle of a shallow excavation.
Rhizome rests on top of the mound while the roots dangle down into the soil.
Roots will grow from the rhizome bottom and anchor it in place.
Irises should be planted by late August/ early September to ensure good rooting.

What to look for when purchasing bulbs
Examine the bulbs carefully for signs of disease or rot. Mold can be wiped off or the affected part removed before planting. Any bulbs that are dehydrated or feel light should be discarded. Heavy bulbs are healthy and will produce strong flower stems. Try and find bulbs with intact tunics.
Corms should feel light. Large bulbs such as lilies can be rehydrated by submerging in a bucket of warm water with a little fertilizer added. If dehydrated bulbs fail to plump up dispose of them.

Pest Problems

If squirrels or dogs dig up your bulbs, immediately mulch and cover with wire netting after planting. They will quickly forget the planting site.
Mulch will help the soil stay warmer longer and prevent pre-emergence during a Chinook.

Post Blooming Care

Once the bulbs have flowered allow foliage to ripen completely.
Fertilize after blooming with a higher middle and end number fertilizer.
This helps to the bulbs to store enough energy to ensure a good bloom the next year.

Division
Best done in Fall or after bulb foliage has died back
If dug in summer keep dry until planting time
Division is needed if plants become too crowded seen by smaller and fewer flowering stems.
Some such as rhizomatous iris and Asiatic lilies need division every 3-4 years.
Bulbs can be dug up and carefully separated before replanting. Smaller bulbs and corms will need a few years to bulk up.

Survival Strategies

Plants that grow from bulbs or corms are able to withstand cold and drought by

resting underground until conditions are more congenial. Roots begin to to absorb and store nutrients in the fall. The plant grows and blooms in the spring followed by a 6-8 week photosynthetic process which produces sugars for the next years bloom. Once that's done it disappears before the heat of summer. Rhizomes and tubers grow much closer to the surface so are subjected to extreme weather. Most appreciate milder winters and moist, tropical summers. Daylilies and irises are the exceptions. A light mulch can help protect them from the worst in temperature fluctuations.

Designing with Bulbs

There is a huge variety of bulbs available that can take the gardener from the very first flowers of spring to the last blossoms of the fall. The tricky part is remembering where would be an appropriate place for bulbs especially in fall when the garden is lush.

Throughout the gardening season document where a little more colour is needed so can be referred to later on.

Underneath shrubs and trees are perfect for the smaller bulbs as they bloom before they leaf out and are dormant very soon after flowering.

Taller bulbs can be added between newly emerging perennials or designed to flower at the same time.

Later blooming bulbs can be used to perk up an area where the perennials have finished flowering.

Minor bulbs will naturalize well in mixed borders without interfering with emerging perennial foliage. The foliage dies down quickly. Most first year seedlings look like grass so be careful to not weed out.

Large tulips can be difficult to incorporate into a typical perennial border as the foliage takes a long time to die back. Most large tulips are hybrids and have short life spans so require lifting often.

Varieties that naturalize well are best planted in tight spots and in areas that remain dryer over summer. *Greiggi*, Darwin, *T. praestans* and other species tulips are the longest lived.

When planted deeply tulip bulbs are less likely to split and will last over more seasons than when planted too shallowly.

Species tulips do really well when planted in difficult spots. Species tulips should be planted deeply. If the soil is heavy incorporate coarse sand or grit to improve drainage.

They multiply happily for years without disturbance if they like where they are.

Planting in Lawn and Naturalizing

Minor bulbs can be planted in turf as long as it can go without mowing until bulb foliage ripens. Small daffodils, squills, small alliums, fritallary and *Chionadoxa* look lovely in the spring especially underneath a canopy of flowering trees.

*Liatris a*nd native alliums can be planted in meadows for summer bloom.

Experimenting with different bulbs and combinations could be very rewarding.

Vole and rodent damage can be an issue. Fritallary and narcissus are avoided.

Bulbs in Containers

Most bulbs do very well in containers. The container should fit the mature size of the plant.
Layer bulbs in a large pot in Fall and either overwinter in a cold place or set in-ground prior to freeze up.
Shop end of season bargains and pot up some containers for early Spring colour.

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