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BULBS

For Northern Arizona



Agricultural Extension Service
University of Arizona, Tucson

Circular 264



Daffodil planting (above), Red Emperor tulips (at top of next page).

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BULBS

For Northern Arizona

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Bulbs provide the gardener with the surest means of spring color at a time when the landscape is almost bare. In addition, they grow during the time of year when very little additional water is needed.

Many of our so-called "bulbs" are really not true bulbs at all. However, the term "bulb" as used in this circular, pertains to flowers that grow from true bulbs, corm, tubers, tuberous roots and rhizomes.

Where to Plant Bulbs

Bulbs planted in beds should be grouped to include 25 to 100 bulbs of one variety, or color. Where wide beds are used, it may be desirable to plant a tall-growing variety such as one of the breeder tulips in the background against shrubbery or the foundation of a building. Shorter-growing types may then be planted in the foreground.

Clumps of bulbs are very effective in front of evergreen shrubs when 3 to 12 large flowering bulbs of one type are planted in each clump, or "drift." Formal arrangement of the bulbs in each clump is not desirable. Allow them to grow in a natural setting.

Small flowering bulbs, such as grape hyacinth, crocus, scillas, winter aconites, chionodoxas, and lily of the valley, should be planted in drifts of 50 or more to be effective. They also make an effective low border in front of daffodils or tulips.

Full shade is no friend of most bulbs. Tulips and narcissus species will grow in partial shade, but will not produce as large flowers nor bloom as early as when grown in full sun. However, they may tend to bloom over a longer period when grown in partial shade, and the blossoms will last longer.

Soil Preparation

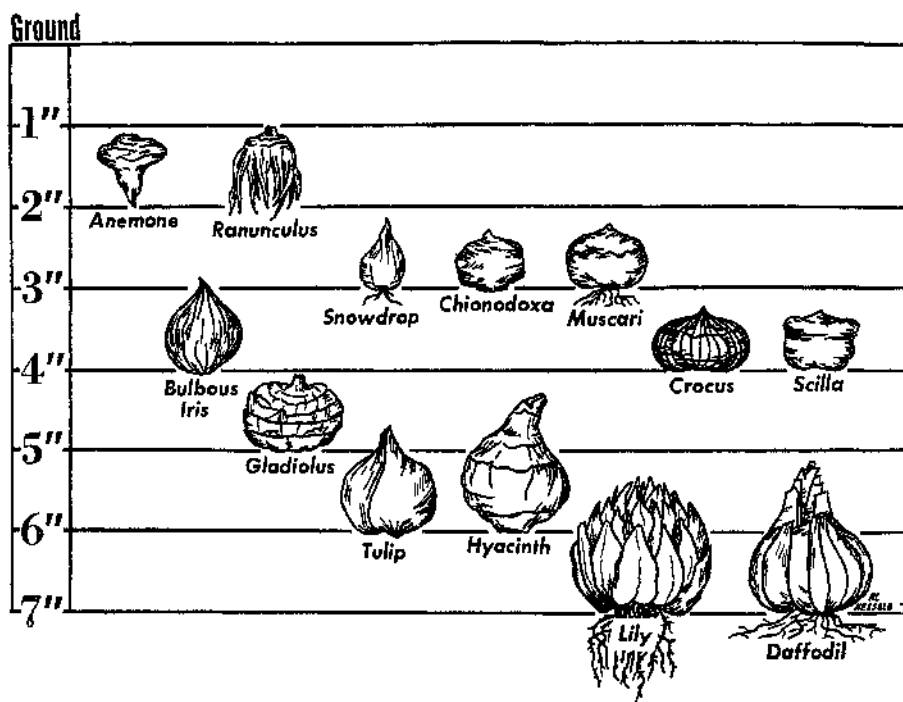
Soil preparation is perhaps the most important factor in growing bulbs. Especially is this true when planting the spring flowering bulbs that will remain in the soil undisturbed for a period of 3 to 6, or more, years.

Arizona soils are extremely low in organic matter. So composted or well rotted manures, leaves, and grass clippings should be spaded into the soil several weeks before planting. **Exception**

—Manure should never be placed directly in contact with bulbs. Rotting of the bulb is almost certain if this precaution is not observed.

Commercial fertilizers containing both nitrogen and phosphate, such as 16-20-0, are recommended. One teaspoonful of 16-20-0 per square foot of bed space is suggested. When phosphate alone is added, one teaspoonful of treble-superphosphate per square foot of bed space is enough.

Depth of Planting Bulbs



Depth of planting bulbs can be determined for each type of the common bulbs by consulting the chart above. Follow these suggestions in preparing an ideal bulb bed:

1. Remove all soil to a depth of about 2 inches below the proper depth to set the bulbs. Loosen the soil below this depth if it does not already have good drainage.

2. Add commercial fertilizer or compost and manure. If composts or manure are used, do not add more than a $\frac{1}{2}$ inch layer (well rotted).

3. Add $1\frac{1}{2}$ to 2 inches of sand. Practically all bulbs require good drainage.

4. Place bulbs on the sand layer, spacing them correctly for each type bulb.

5. Replace top soil. Clay soils should be mixed with equal parts of sand and composted organic matter.

If you are unable to prepare the bed as described, be sure to place a handful of sand in the bottom of the hole you dig for each bulb and place the bulb on the sand. This method is usually used when planting drifts or clumps of bulbs near evergreen shrubs, conifers and in rock gardens, where it is not practical to disturb the soil more than is absolutely necessary.

Mulching the bulb bed with compost, leaves and vermiculite is helpful, but should not be done until the ground has frozen if you are in an area where mice are a problem.

Irrigation

Bulbs need an even supply of moisture, but spring flowering bulbs grow so early in the spring that soil moisture losses from evaporation are rather small. Give the bulb bed a thorough irrigation as soon as the bulbs are planted. Examine the soil once or twice in winter, if there has been very little snow or rain, to determine if watering is necessary.

In April and May, spring flowering bulbs have their greatest water requirements since this is the period from pre-bloom to post-bloom. Soak the soil to a depth of a foot or more when watering.

Spring flowering bulbs seldom need to be watered more often than once every 10 days to 2 weeks, even in May and June. If beds are mulched heavily less frequent watering will be necessary.

Two weeks after the plants have bloomed, no additional water should be needed, as the plants mature rapidly after this time. If you are transplanting bedding plants among the bulbs, continue to irrigate as needed.

Summer-flowering bulbs will need more regular irrigations than spring-flowering bulbs.

Summer Flowering Bulbs

Gladiolus

Gladiolus is one of the most satisfying flower plants for northern Arizona gardeners. They are usually planted about April 1 at elevations of 4,500 to

5,500 feet. Elevations of 5,500 to 7,500 feet require first plantings to begin about April 15, as a rule.

If a succession of bloom is wanted, plantings spaced about 2 weeks apart up until June in elevations above 6,000 feet, and

until July 1 at elevations below 6,000 feet are recommended.

Plant the large corm gladiolus 3 to 4 inches deep in heavy soils, and 4 to 6 inches deep in sandy soils. Otherwise, staking may be necessary to hold the plants erect, especially if grown in windy, exposed locations. Small corms can be planted an inch shallower than the recommended depth. Cormels, tiny pea-sized corms, should be planted no more than 1½ to 2 inches deep and 1 to 2 inches apart.

Treat corms at planting time with arason dust to control fungus diseases.

Plant gladiolus in full sunlight for large spikes. For show-size blooms, plant corms at least 1¼ inches in diameter and select young corms that are high crowned, rather than flat.

Lift the gladiolus corms from the soil as soon as the first killing frost has browned the leaves. Leave the harvested corms exposed to full sunlight in shallow trays for most of one day to cure, and remove soil attached to the roots. Store in a well ventilated room at 80° temperature for 2 to 4 weeks to finish curing. After this period, separate the new corms from the old ones and treat all corms with 5% DDT dust to control thrips.

For cut flowers, gladiolus should be cut when the first 2 to 3 florets on the spike have opened. Early morning or evening cutting is preferable. Leave at least 4 leaves on the plant.

Place cut stems immediately in a deep container of luke-warm water, approximately 110°. Allow them to cool in a dark place

for several hours before arranging. Change the water each day and re-cut the base of each stem, unless you have added flower preservative to the water. In the latter case it is necessary only to maintain the water level by refilling.

Dahlias

Dahlias are well adapted to northern Arizona growing conditions. The starchy tubers multiply rapidly and they are the major source of new plantings. However, dahlia seed sown in March indoors and transplanted to the garden as soon as danger of frost is over will bloom the first year.

Dahlia Classes

Class	Description
Single	Single row of petals; yellow centers.
Mignon	Under 18 inches tall.
Collarettes	Single, but marked by row of smaller petals forming a collar between the center and the ray petals.
Anemone-flowered	Single; tubular florets in center of flower.
Duplex or Semi-double	Often confused with true double, but are not fully double.
Peony-flowered	Several rows of petals resembling peonies with a row of twisted and curled petals around open centers.
Decorative	Double flowers, symmetrical in outline, but more flat than rounded in form.
Informal Decorative	Irregular in outline but otherwise same as decorative.

Ball-shaped Double	More globular than flat, with more or less quilled petals. Florets show regular spiral arrangement.
Colossal or Hybrid Show	Closely related to above with florets more loosely arranged.
Pompon	Similar to Ball dahlias, but never more than 2 inches across.
Cactus	Definitely fluted petals.
Miniature	Flowers not exceeding 4 inches across. (Pompons not included in this group.)

Plant dahlia tubers (be sure an "eye" from the stem is attached to the tuber) with the crowns 4" to 6" below the soil surface. For largest flowers allow only one or two shoots to develop. Disbud to one or two buds on each stem when the buds form if you wish to produce exhibition flowers.

Staking the plants may be necessary if grown in rich soil or in a windy location. A medium fertile soil is best if you wish many blooms. Full sun, ample moisture, and at least 3 feet between plants are "musts" for dahlias.

Lilies

Lilies are often called the aristocrats of the flower garden. As the gardeners learn about the different kinds and varieties they are appreciated more each year. They give a "regal" look to the perennial border.

Lilies are not at their best in highly alkaline soils. They prefer rich loam soils, high in rotted organic matter and must have

rapid and perfect drainage. Prepare the bed at least to a depth of 12 to 15 inches and work in an inch or two of well rotted organic matter, such as peat moss or leaf mold. A generous application of superphosphate should be worked in with the organic matter.

Most lilies do well in northern Arizona. Sometimes the early spring flowering ones may be damaged by frost. There should be a protected area for these early flowering lilies.

The Regals and other later varieties, such as umbellatum, and many of the hybrids which bloom in August are very successful. The Tiger lilies do exceedingly well, and are not bothered by many of the pests found in other areas.

Lilies are usually planted 6" to 8" deep. The bulbs should be treated with a fungicide-insecticide mixture before setting in. (Day lilies, which are not true lilies, are discussed in Agricultural Extension Circular No. 242, "Flowers for Northern Arizona.")

Amaryllis

These beautiful plants are not hardy and are usually grown indoors for winter blooms. Mid-October is a good time to pot them in 6" or 8" pots with a good potting soil. At least 1/2 of the bulb should be left uncovered above the soil.

A window sill in a warm, well lighted room is a good location for amaryllis. The soil should be moist, but not saturated. Occasional use of liquid manure is helpful. Use very little water during the rest period, just after blooming.

Autumn-crocuses

Autumn-crocuses are ideal for that bit of color in the autumn rock garden. They bloom in August after the foliage has disappeared. Colors are white to lilac, depending on the variety. Use with foliage plants because the leaves turn yellow in early summer and fade slowly.

Plant in July or early August, or as soon as the bulbs are available, since they bloom from the bulb in late August or September.

Colchicum

Colchicum, or Meadow Saffron, should be planted in full sun in early August. They bloom as do the autumn crocuses, a few weeks after planting and before the foliage appears. The foliage

is produced in the spring, turns yellow and disappears. Plant 2 inches deep.

Montbretias

Montbretias resemble gladiolus in miniature. Their care is identical to gladiolus. Planted in groups of 6 or more, they provide sharp contrasts in the shrub or perennial borders. Plant in full sun.

Sternbergia

Sternbergia adds a golden yellow color to the autumn rock garden. They usually bloom in early or mid-September. Plant the bulbs 3 inches deep in well drained soil in late August in full sun.

Spring Flowering Bulbs

Crocuses

Crocuses bloom in late February to late April in northern Arizona. Next to eranthis and snowdrops they provide the earliest of bloom. They have white, yellow, lilac and purple blossoms. The crocus prefers full sun, but will do well on an eastern or western exposure in northern Arizona, provided there is full sun at least half the day. They prefer a well drained, light soil and should be planted 2 to 3 inches deep.

Crocuses are best planted in "drifts" of 15 to 50. Do not plant in grass that must be mowed before the crocus leaves have rip-

ened. You need not divide the clumps until they begin to crowd, usually 4 to 5 years.

Eranthis, or Winter Aconite

Eranthis, or winter aconite, is a winter blooming bulb in northern Arizona. They bloom from mid-January to early March, with the snowdrops. Their bright, buttercup, blossoms make a pleasing complement to the white of the snowdrops. They bloom for about 2 weeks.

Plant 2 inches deep in late summer as soon as you receive the tubers from the nursery. Plant in

partial shade and along with snowdrops, scillas, and chionodoxa, for a succession of early spring color. Drifts of 15 to 50 tubers are the most pleasing.

Glory-of-the-Snow

Glory-of-the-snow, or chionodoxa, burst forth with their bright blue flowers in April in northern Arizona. Group them in the rock garden or near spring flowering shrubs, or in huge masses under trees, if you prefer. They should be planted about 3 inches deep in October. A late fall top dressing of manure will give them a boost.

Grape Hyacinth

Grape hyacinth, or muscari, will grow readily in northern Arizona. It spreads rapidly from seed once it becomes established. The variety listed as Heavenly Blue, with large flowers, is preferred to the common grape hyacinth.

The tiny bulbs are set 2 to 3 inches deep, preferably in loamy, well drained, soil, in full sun. Eastern or western exposures are satisfactory. Blue and white are the two colors available. Plant in October. These bulbs multiply quite rapidly and may be divided and replanted in early August.

Hyacinths

Hyacinths offer northern Arizona gardeners several shades of pink, red, blue, purple, yellow and white flowers to bloom along with the daffodils.

Well fertilized, sandy soil is ideal for hyacinths. Fertilizer

must not touch the bulbs, but should be dug well into the subsoil. Plant in late October. Formal beds or informal drifts are equally satisfactory. The bulbs need not be moved for several years.

For forcing indoors the so-called Dutch Roman and French Roman hyacinths are excellent. These small flowered hyacinths are merely the plants produced by small bulbs of the familiar Dutch types.

In forcing hyacinths, plant the bulbs close together in pots in early October and set them in a cool, dark place until the pots are filled with roots. Then introduce them gradually to light and heat. Eight weeks is usually sufficient for the roots to develop. (Burying the entire pot on the north side of a building will substitute for a cool, dark cellar.)

Iris

The iris is widely grown in Arizona. There are many types and species from which to choose, but the most popular is the bearded iris.



Since iris have a preference for slightly alkaline soils, most of our Arizona soils are ideally suited to growing them. They prefer a well drained soil and full sun, but will endure partial shade. They will thrive on a poor soil, but the best blooms come from plants that get good culture and fertilization. Iris are noted for drouth endurance, but will respond well to ample water if grown in well drained soil.

Iris may be grown in beds by themselves. They also mix well with other perennials when grown in good sized clumps.

Transplanting can be done anytime from one to three months after flowering, generally from July to September. The clumps should be divided every 3 or 4 years. Cut the old clump apart with a sharp knife and save the outer rhizomes and discard the inner portions. Save only the strong, vigorous rhizomes.

Clip the roots to 2 to 3 inches and cut back the top leaves to 4 to 6 inches in length. Set the rhizomes about 1 inch or less below the surface of the soil. Use 4 to 6 rhizomes per clump and space them 6 to 8 inches apart. Water well after planting.

The hardy bulbous iris are an excellent garden flower for northern Arizona. The culture is about the same as for bearded iris, except the bulbs are set 2 to 4 inches deep. They make an excellent cut flower. (See picture at left.)



Lily-of-the-Valley

Lily-of-the-valley, or convallaria, can be used as a ground cover in shady spaces and even under trees in northern Arizona gardens. They will stand neglect, but respond well to rich soil and care. They are excellent for rock gardens.

Divide the roots when they become crowded. Plant in early November. Convallaria can easily be forced indoors and will bloom 30 days from planting time when "pips" are used that have been held in cold storage. Storage for two weeks in a dark place is necessary before planting the pips.



Daffodils

Narcissus is the scientific name applied to all daffodils, jonquils and narcissus. Daffodil is the common name for the long trumpet varieties of narcissus with a single flower per stem. Those with short trumpets and several flowers at the end of the stem are commonly called narcissus. The commonly cultivated poeticus, which bears one flower per stem is included in this group.

There are eleven main divisions or groups of narcissus. Those most commonly grown in Arizona are:

1. Trumpet daffodils — Long trumpet varieties with one flower per stem. Color — yellow, white and two-color.

2. Jonquilla hybrids — Two or more small fragrant flowers on one stem. Long lasting and withstand wind and heat better than other daffodils.

3. Poeticus group — Flowers have pure white petals with small scarlet cups. Some flower late. Good for natural plantings.

4. Poetaz hybrids — Plants are tall, vigorous growers with heads of large, well shaped flowers. Good for indoor forcing, also hardy for outdoor plantings.

There are other groups with many variations in each type.

Daffodils are one of the best and most commonly grown bulbs in northern Arizona gardens. They are hardy and well adapted to all areas. The double-nosed bulbs are best for outdoor culture. The large, single ones are



best for pot culture. Always buy the best bulbs of good quality from a reliable dealer or nurseryman.

Good drainage is important. Prepare the soil 12 to 15 inches deep and work in generous amounts of well rotted manure and phosphate fertilizer. Prepare the beds 6 to 8 weeks before planting. An open, sunny location is preferred for best flowering.

Plant the bulbs in October. Space them 5 to 6 inches apart and plant them 5 to 8 inches deep. Plant in groups or clumps the types that blossom at the same time.

Water well, but not excessively, or the bulbs will rot. Water after planting if the soil is dry.

After the flowers have bloomed **do not cut off the foliage**. Keep the foliage growing as long as possible to store food in the bulbs. When the foliage has died down, rake up and destroy the dried leaves. After this period the daffodils and related bulbs enter into a natural rest period.

Scilla

Scilla are hardy, early flowering bulbs. The blue flowered variety, *Scilla siberica*, or Siberian squill, is most common, but a white variety is available. The Spanish Bluebell, *Scilla campanulata*, is taller, reaching 18 inches. The latter is available in blue, white and pink varieties and should be planted 4 to 6 inches deep. Plant Scillas in October, in either sun or shade.



Snowdrops

Snowdrops, or *Galanthus*, bloom in January in Prescott, and similar elevations. They are often confused with Snowflake (*Leucojum*) which has more foliage and larger flower spikes. They will readily adapt themselves to partially shaded conditions under shrubbery and trees. Their small, white blossoms hang

from delicate stems. Plant in late September through October in rich loam soil.

Snowflakes

Snowflakes, or *Leucojum*, bloom in April as a rule. They prefer full sun, but will do well in partial shade. They grow best in small clumps of a dozen or so bulbs. Well drained soil is a requirement. Their white, bell-like blossoms are borne on 12 inch stems. A later flowering type, *Leucojum aestivum*, the Summer Snowflake, is also satisfactory.

Tulips



Tulips are the showiest flowers in the early spring border. They offer a wide range of color, stem height, and blooming period, and are hardy in all parts of northern Arizona.

There are several kinds of tulips. The early dwarf ones start the season. Some of the species are in this group — Red Emperor being one of the best. Cottage Breeder and Darwin tulips furnish the main season's bloom, with the Darwin tulips being the last of the season. There are many novelty types that are interesting to include in the bulb garden.

Prepare the well drained bed by digging in rotted organic matter and phosphate fertilizer. Spade to a depth of 12 to 15 inches. Tulips will not tolerate standing water. A mulch of well

rotted manure may be added for winter protection.

Good sized bulbs to plant are at least 1½ inches in diameter. Store in a cool place before setting.

Plant the dwarf tulips 4 inches deep and from 4 to 6 inches apart. Set the Cottage and Darwin tulips 6 inches deep and space them 6 to 9 inches apart. Plant all of one type at the same depth so they will all bloom at the same time. They are best in mass effect. Deeper planting will delay blooming.

After tulips have completed flowering, do not cut down the foliage. Allow it to die naturally. The foliage manufactures food to store in the bulb for next season.

Limited experimental plantings at Prescott reveal the characteristics of some of these classes of tulips as shown in the table.

Yellow edged blossoms and some sulfur yellow blossoms turn white rapidly when grown in full sun. Typical of the former is President Von Hindenburg and one of the latter is Elsie Eloff, a novelty hybrid tulip.

Classes of Tulips

Class and Species	Aver. Bloom Date	Aver. Stem Length	Remarks
Red Emperor	3/22 to 4/10	6"-8"	Most satisfactory of all red tulips; huge blossom.
Double Early Peach Blossom and Mr. Van der Hoef Triumph	3/28 to 4/18	5"-6"	Doubtful if this class adapted to this area. Tries to bloom at ground level.
Bruno Walter	4/13 to 5/3	9"	Blooms between double earlies and Darwins.
Double Late Snow Prince	4/6 to 4/28	7"-8"	Most beautiful of all white tulips. Excellent in full sun. Fine cut flower.
Double Late Livingstone	4/12 to 4/30	8"	Flowers smaller than Snow Prince. Fine red tulip.
Hermione	4/8 to 4/30		Lovely double, pale lavender tulip.
Parrot Gadelan	4/23 to 5/13	12"	Erratic blooming habit but worth further trial for its large lilac bloom.
Blue Parrot	4/17 to 5/8	10"	Excellent color but blooms not typical of parrot type. (No wavy edges.)
Darwin	4/6 to 5/1	15"	Most dependable class for average gardener.

Other Bulbs

Arizona gardeners who have patience may want to try some of the following hardy bulbs:

Fritillaria — Obnoxious odor in some species, but loves semi-arid conditions.

Glory-Lily or **Gloriosa Rothschildiana** — A climbing lily.

Probably too tender for elevations above 6,000 feet.

Incarvillea or **Hardy gloxinia** — Blooms in May. Roots may need to be dug and stored in elevations above 6,000 feet.

Lycoris — A hardy amaryllis. Blooms on naked 3 foot stems in August, the foliage appearing in the spring and then disappearing

in summer. Plant 4" deep in October in partial shade.

Ornithogalum or **Summer snowflake** — Has a white flower

in clusters on 6" stems. Rises from grass-like foliage which disappears in midsummer. Plant 2" deep in October.

Care of Bulbs After Flowering

Care After Blooming

All of the spring flowering bulbs can be left undisturbed until they crowd. After blooming, the flower stalks should be clipped and not allowed to ripen seed. This is especially true of tulips and daffodils.

Cover-Plants for Bulb Beds

The following plants may be seeded between bulbs: Shirley poppies, California poppies, clarkia, annual phlox, portulaca, annual larkspur, nasturtiums and candytuft.

Transplants in early spring can be set between bulbs, using such plants as pansies, English daisies, sweet alyssum, candytuft, asters, gypsophila, stocks and petunias.

Lifting and Storing Bulbs

Bulbs of spring flowering types may be lifted in the early sum-

mer after the foliage ripens and browns. They should be lifted and allowed to dry in the shade. Remove the soil from the roots and store in a cool dry place until planting time in the fall.

Summer flowering bulbs, such as gladiolus and dahlias, must be harvested after frost has killed the tops. Some gardeners prefer to leave dahlias in the ground at 5,000 feet elevation until March, when they are lifted, dried off (but not dried out), and the entire clump stored in the basement in sand or vermiculite at temperatures of 35° F to 50° F. Take care not to break off the tubers from the eye on the stem.

In higher elevations dig in October or November before the ground freezes. In any event, be sure to examine the dahlia tubers periodically during storage. If they begin to shrivel too fast they can be plumped in lukewarm water and again stored.

Potting Bulbs for Indoor Bloom

Three methods of growing bulbs indoors are in common use.

1. Forcing in Water, Pebbles, Peat Moss or Vermiculite

This method can be used for hyacinths, crocuses, "paper

white" narcissus, Chinese Sacred-Lily and most daffodils. The method depends solely on the plant food within the bulb and moisture that is supplied. Water culture alone requires special containers that do not allow the bulbs to touch water, but allow roots to seek it.

The water culture alone is not

recommended, but shallow bowls with pebbles or fiber, peat, or vermiculite may be used satisfactorily. Fiber, peat or vermiculite must be moistened thoroughly before planting the bulbs. Bury the containers of potted bulbs outdoors, preferably in a shaded spot, and leave for 6 to 8 weeks. (Bulbs in pebbles would freeze outdoors, but may be set in a dark, cool closet.)

Roots will have developed during this period and the pots can be brought indoors to room temperatures ranging from 40 to 50 degrees and in **indirect light**. When the tops are entirely green, transfer to a window or to full sunlight in a warmer room. Make sure the bulbs have enough water but are not **too wet**.

Plenty of fresh air is also needed for best results. After the plants come into blossom, the flowers will last longer if they can be kept in a cooler temperature, especially during the night.

2. Forcing in Soil

This is the most satisfactory method for hardy bulbs. A mixture of equal parts of garden loam, peat and sand works very well. Tulips (forcing varieties), hyacinths, crocuses and most of the narcissus group respond well to this method. Bury outdoors as described in first method.

When using **new** clay pots soak them in water for several hours two or three times before using. Pots with drainage holes are very necessary. Avoid the decorative, glazed or plastic pots. Five large tulip bulbs may be placed in a

6-inch pot, or 5 medium bulbs in a 5-inch pot.

Place tulip bulbs with "flat" side facing outward so the first leaves will grow away from the pot's center. For a succession of bloom, bring some pots indoors a week or two sooner than the others.

After flowering, the plants can be planted outdoors in the garden, after danger of frost is past. (This is not true of bulbs grown by water culture or fiber; peat or vermiculite.)

3. Growing Tender Bulbs Indoors

Tender bulbs, such as Amaryllis, need no preliminary rooting. However, they should start growth gradually, at a lower temperature (45 to 60 degrees) than they will require later. Give only moderate amounts of water until the foliage is 4 to 5 inches high. Unless the garden soil used in the potting mixture is very rich, some **rotted** manure should be added for best results with the tender bulbs.

After the flowering period, the plants should be kept growing vigorously for some time and dried off gradually only when the foliage shows signs of beginning to ripen by losing its normal green color. Decrease water gradually during this period.

Amaryllis, Gloxinias, Caladium, Amazonlily, Nerines (Guernsey Lily), Lycoris (Golden Lily), Gladiolus (pot from February to April), Tigridia, and Begonias are only a few of the tender bulbs that can be grown indoors.

"What's Wrong"

Troubles	Plants Affected	Treatment
Bulb Nematode	Tulips Narcissus	Destroy infested plants and treat soil with fumigant before replanting bulb plants.
Failure to bloom	Tulips Narcissus	Avoid excessive temperatures after digging. Overheating may kill flower embryo. Dig and divide bulbs after they begin to crowd.
Blooms at ground level on short stems	Tulips	Planted too deep or too late in the season to allow bulbs to develop a strong root system. Some varieties, especially double earlies, seem to be more susceptible. Lack of moisture will also cause short stems.
Short stems	Narcissus	Too short a storage (rest) period before planting bulbs.
Breaking (A virus disease spread by aphids. Both blossom and leaves may show a variegated color.)	Tulips	Usually does no harm to plants other than to cause color break. Control aphids with Malathion spray or dust.
Failure to grow	Tulips	Sanitation. Disinfect bulbs after digging by thoroughly dusting with Arasan.
Rhizoctonia rot (Native fungus in Arizona soil causes rusty-colored lesion on stems just under soil level. May cause wilt or death of some plants in some years.)	Tulips	No practical control. Usually not a serious disease.
Thrips	Tulips Gladiolus Daffodils	5% DDT dust before storing. Thrips do not often damage in northern Arizona in spring flowered bulb plants. Spray gladiolus with 50% wettable DDT (2 tsp. to 1 gal. water) when foliage is 6" high. Repeat every 10 days until buds show color.
Grasshoppers	Gladiolus Dahlias	Spray garden and surrounding fence rows, vacant lots, etc., with Aldrin emulsion (1 tsp. per 1 gal. water). Follow manufacturer's precaution in using.