



THE UNIVERSITY OF ARIZONA

Cooperative Extension

Pinal County - Master Gardeners



Caring for Iris and Other Bulbs

Catesby Suter, MS Botany

Let's start with Iris

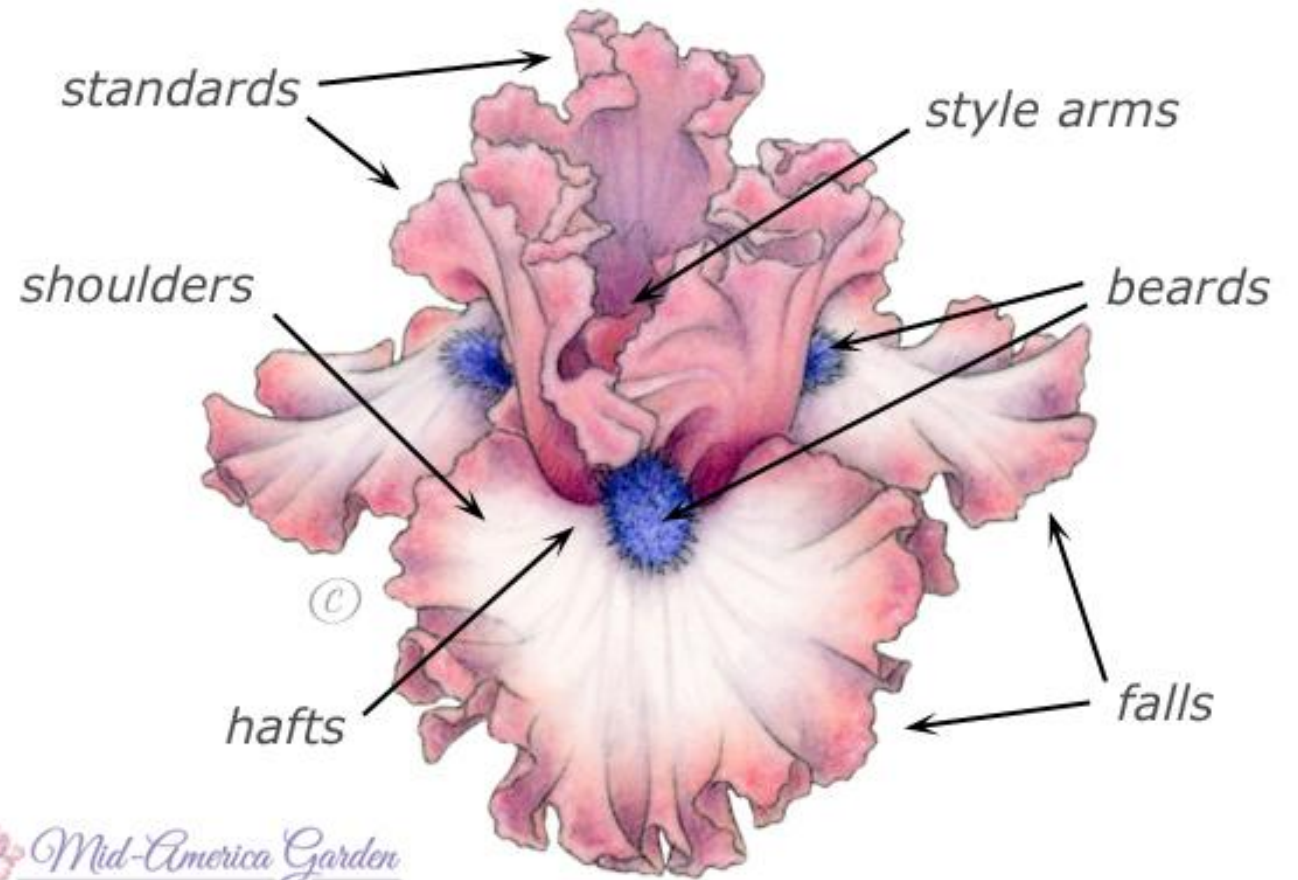
- Dizzying Diversity! Many Colors! Over 300 species and tens of thousands of varieties
- Four main types Bearded, Beardless, Crested & Bulb
- Beardless prefer moist soils, Crested like drier shade and Bulbs need long cold period

♥ Bearded Iris grow very well in our hot, dry climate – need good drainage, prefer alkaline soils and can even naturalize!



Iris Morphology

Parts of the Bearded Iris Flower



Historic Iris Preservation Society

- Founded in 1927 and Dedicated to the preservation of old Iris species.
- They offer identification services and sell historic irises
- They combine a love of detective work with a love of growing and preserving older varieties of Iris.



Watered Popcorn

Bearded vs Beardless Iris

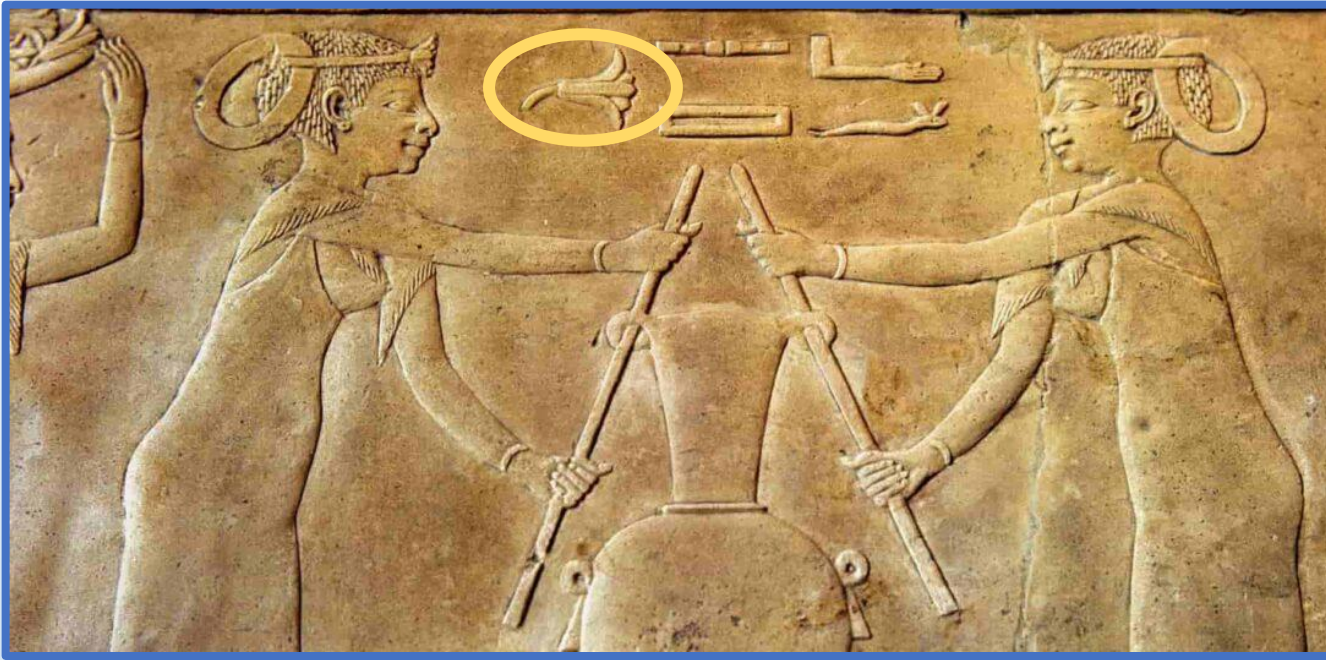


Bearded - fuzz on falls

Beardless, no fuzz!

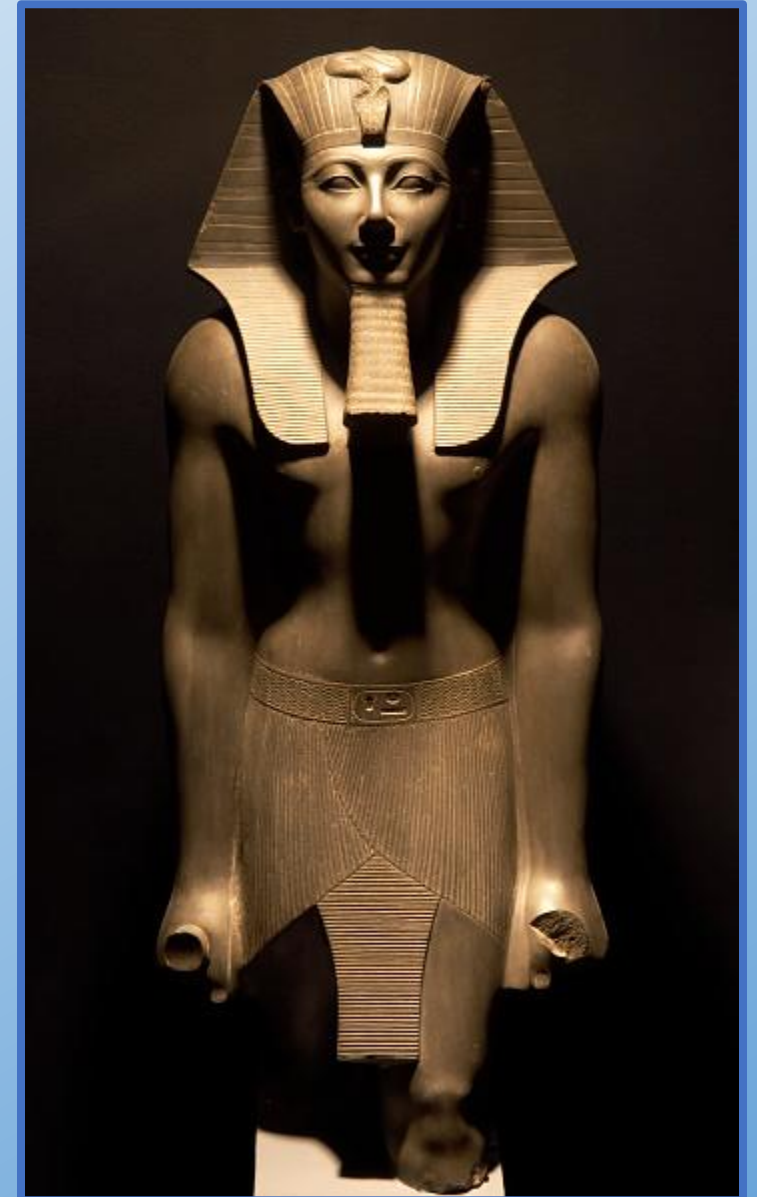


Bearded Iris has an interesting
history!



1469 BC
King
Thutmose III

- Collected iris from Syria and brought them back to Egypt
- He had extensive gardens
- He had Iris immortalized on rock pillars
- Egyptians used rhizome in medicine and perfume making



Egypt's foremost warrior Pharaoh

Iris in ancient Egypt was a symbol of faith, wisdom and valor



Syrian Irises



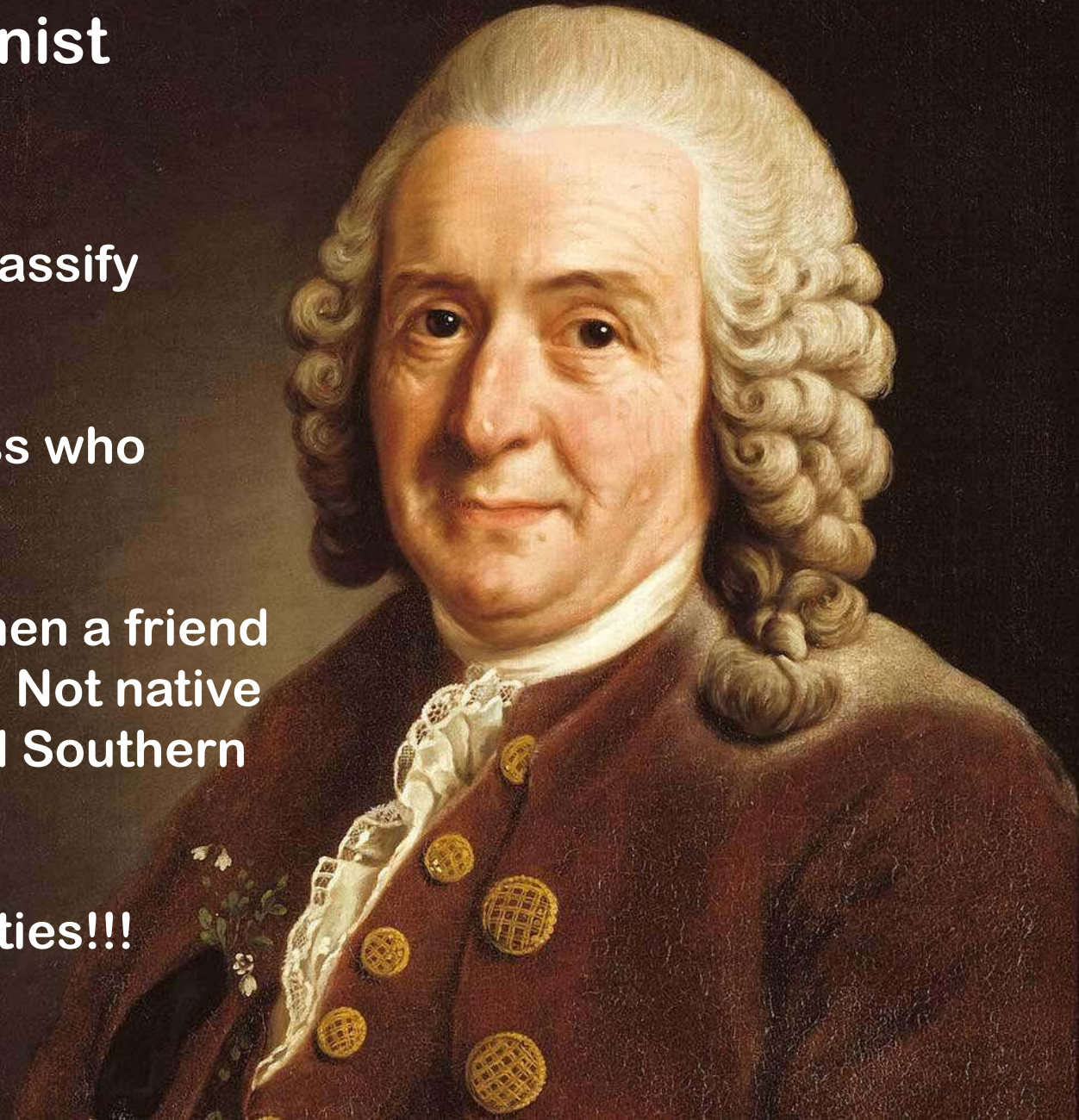
Early uses of Iris

- Greek Dioscorides traveled the ancient world collecting and documenting medicinal plants in *De materia medica* in the first century AD. Iris is the first entry in this book.
- This illustration comes from a copy called *Medicus graecus* prepared for a roman princess in 512 AD
- Among other uses, Iris rhizomes were used to “help sleep, provoke tears and cure colic”
- Egyptians used the rhizome in medicine and perfume making



Carl Linnaeus, early Swedish botanist (1707-1778)

- In 1737 created the system still used to classify plants and animals
- Named the Iris genus, for a Greek goddess who travels to earth on a rainbow
- Bearded Iris – or “German” Iris named when a friend sent him one from his garden in Germany. Not native to Germany, but to the Mediterranean and Southern Europe.
- *Iris germanica* now has over 60,000 varieties!!!





Madame Chereau



**Honorabile
(Lemon 1840)**



Jacquesianna

**In France:
Jean-Nicholas
Lémon (1817-1895)**

- 19 yrs old when father died and left him in charge of the Lémon Nursery
- Started breeding Iris!
- Leading purveyor of German Iris
- His most famous iris? 1844 Madame Chereau

In England 1880s Sir Michael Foster Iris Pioneer

- Passionate Iris Hobbyist
- Asked travelers and missionaries to bring him back iris
- For 20 years he collected and bred iris
- But...He didn't keep records



Sir Michael 1925

Prince Family Pioneers of American Horticulture

1724 Robert Prince and son William established a nursery in Flushing Meadows, New York. Became known for quality stock and accurate classification of plants based on Linnaeus.

In 1846 nursery's catalog advertised 40 Iris for \$1.50 or about \$66 today. Nursery closed in 1869 following the death of the William Prince (great-grandson of Robert).

1846 & 1847.

PRINCE'S LINNÆAN BOTANIC GARDEN

AND
NURSERIES,
FLUSHING, NEAR NEW-YORK.

WILLIAM R. PRINCE & CO., PROPRIETORS.

Private Wholesale Catalogue for Nurseries only where large quantities are ordered, payable by cash remittance, or by satisfactory note or acceptance. Some latitude must be allowed as to selections of the varieties of Fruit Trees, as the stock occasionally runs short of some varieties. The General Catalogues of Trees and Plants, Bulbous Flower Roots, Dahlias, Green-house Plants, Seeds, &c. will be sent to every post-paid applicant.

Yucca glaucescens, and filamentosa,	3 00	our name in
Cowslips, Red and yellow,	1 50	York is any
★ Iris, 20 species, 2 each,	1 50	et.
Pæonies, of 12 varieties, not less than 2 of a kind,	4 50 to 6 00	y variety.
Do. other varieties, 2 of each, at 25 per cent. discount from our large Catalogue.		et, \$20 00
Do. do.	6 to 8 do.	22 50
Do. do.		
Do. dwarfs, on Paradise stocks,		30 00
Pears, of all the usual kinds, one year from inoculation,	4 to 4½ feet,	30 00
Do. do. two years do.	5 to 5½ do.	34 00
Do. do.	5½ to 6 do.	50 00
Do. do. strong and vigorous,	6 to 7 do.	65 00
Do. do. do.	7 to 8 do.	85 00
Do. do. very strong, with heads,	8 to 9 do.	100 00
Do. do. dwarfs for training, 2 years grown.		
Do. do. Quenouille, 2 years grown.		
Cherries, do. vigorous growth,	5½ to 6 feet,	35 00
Do. do.	6 to 8 do.	40 00

In New England...

- **Grace Sturtevant, America's First Lady of Iris and founding member of American Iris Society**
- **Bred many beautiful Iris varieties 1912-1927**
- **In 1918 developed Shekinah**
 - **Can survive in warm climates!**
 - ★ **Included in all subsequent yellow iris family trees**



Shekinah



**Sharlot Hall:
1870-1943
Poet, journalist,
first woman
appointed to
Arizona's
Territorial
Legislature and
Iris fan!**



**Sharlot Hall
Museum,
Prescott, AZ**

In Arizona



- 2006 Prescott Area Iris Society planted over 200 historic bearded iris, dating from Arizona's presettlement to 1943
- April is bloom time!
- July is Iris rhizome sale!

Meanwhile, in Oracle...

- Settlers frequently brought their favorite plants with them when they came to Arizona
- Over the years, Oracle homeowners added bearded Iris to their gardens and some of them naturalized!
- Iris can be found at historic homesteads throughout AZ
- In Oracle: Iris have naturalized at Acadia Ranch, American Flag Ranch, the Oracle Cemetery, Oracle Union Church & spots all over town





In 1965, long time Oracle resident Mrs. Agnes Ramsey, had an Iris loving friend in Tucson, Edith M. Tinn (?) who donated 45 different bearded Iris varieties to the Oracle Union Church and the Oracle Cemetery – not all survived but there are still scattered patches of iris

The Iris Lady of Oracle

Alice Murphy 1908-1981

- Born in Tucson, her family spent summers in Oracle
- As a child she would take “pink” beans from the kitchen and try to grow them
- As an adult, she bought a summer house in Oracle in 1940. And starting in 1943, she began bringing in “truckloads” of topsoil to improve growing conditions at the house
- She fell hard for Iris and wanted to grow every type! Eventually, she decided to “grow only what will grow here.” Even so, she soon had over 300 different iris varieties! (all bearded!)

Tucson Newspapers Arizona Daily Star Article 9/13/1980



Alice Murphy (with Dumpling)
February 3, 1968
Arizona Daily Star (she also raised
Prize winning chihuahuas)

- 1953-63, Alice rented out her Oracle home out and required a \$100 security deposit for the trees in the front yard!
- By 1967 she was a full time Oracle resident
- So many Iris, she couldn't remember their names! (when this happens, Iris fans call them NOIDS or UFOs)
- Every year when she divided her iris, I believe she made them available to her friends and neighbors



Alice Murphy September 13, 1980, Arizona Daily Star

After she died, the new homeowners apparently weren't iris fans, so almost all the irises were given away:

Those that found good homes (or spots they liked) can still be found in Oracle gardens, at the Oracle Public Library, the old Oracle Elementary School, and along walking paths all over town, where they naturalized!

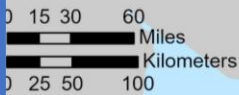
Now let's talk about Growing Iris!

Bearded Iris

Adapted to our climate
Spring flowering
Can naturalize
Rodents (mostly) leave
them alone!



2023 USDA Plant Hardiness Zone Map Arizona



Average Annual Extreme Minimum Temperature 1991-2020

Temp (F)	Zone	Temp (C)	Temp (F)	Zone	Temp (C)	Temp (F)	Zone	Temp (C)
-15 to -10	5b	-26.1 to -23.3	5 to 10	7b	-15 to -12.2	25 to 30	9b	-3.9 to -1.1
-10 to -5	6a	-23.3 to -20.6	10 to 15	8a	-12.2 to -9.4	30 to 35	10a	-1.1 to 1.7
-5 to 0	6b	-20.6 to -17.8	15 to 20	8b	-9.4 to -6.7			
0 to 5	7a	-17.8 to -15	20 to 25	9a	-6.7 to -3.9			



Mapping by the
PRISM Climate Group
College of Engineering
Oregon State University

How to tell if a plant is adapted to our climate? Check your hardiness zone!

Oro Valley, Saddlebrooke, Saddlebrooke Ranch, San Manuel, Mammoth
9a (20°-25°F)

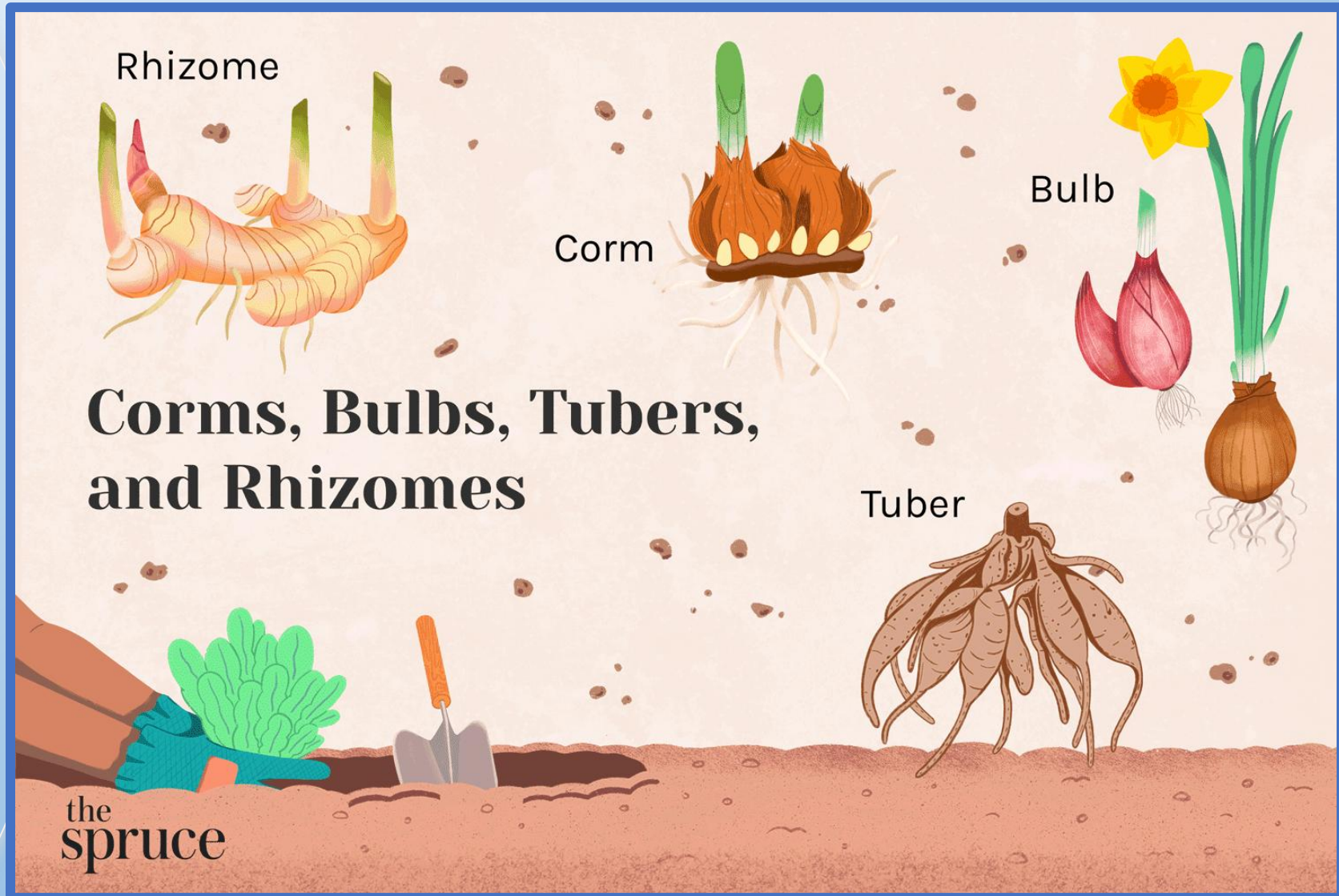
Oracle, Catalina - Variable Terrain
8b (15°-20°F)
9a (20°-25°F)

- ALWAYS choose plants adapted to your zone!
- Iris adapted in zones 3-9.
- Plant Spring Blooming bulbs in Fall
- Plant late Summer/Fall Blooming bulbs in Spring

Types of Flowering Bulbs

Fleshy Modified Stems that store food reserves underground and give rise to flowers

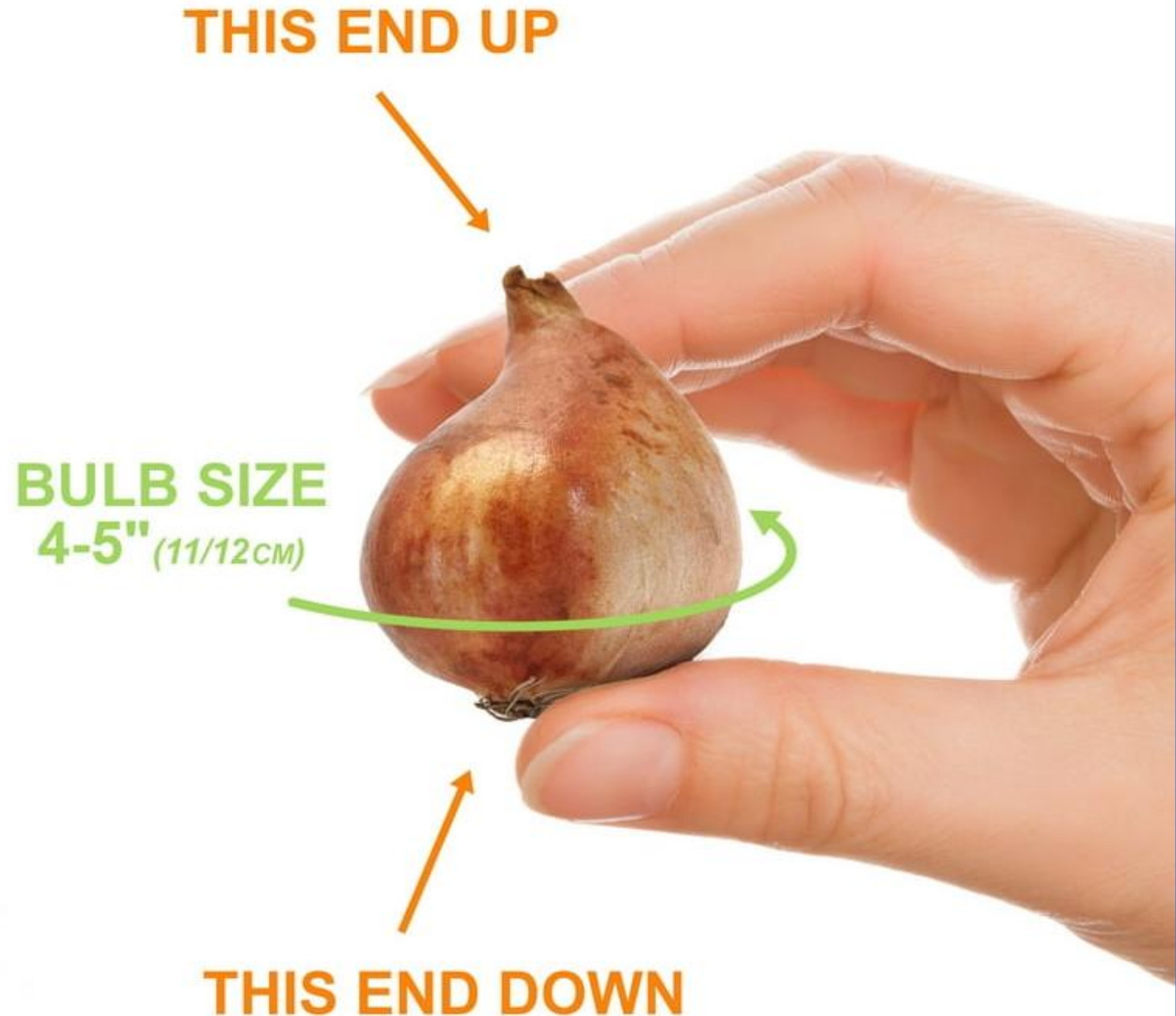
1. True Bulb fleshy scales
2. Corm – swollen base, no fleshy scales
3. Rhizome – thickened stems grow horizontally
4. Tuber – knobby underground stem, with buds/eyes



You can call them all Bulbs!

Why Underground Storage?

- Adapted to wet/dry periods
- Bloom & grow during wet, recoup and store energy during dry periods
- Spring flowering – adapted to dry summers
- Summer/Fall flowering – adapted to dry winters
- Some bulbs adapted to irregular wet/dry periods – these can flower more than once a year



Tips for growing Flowering bulbs

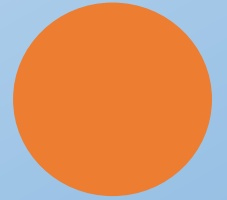
(rhizomes, tubers, corms)

- Plant Spring blooming bulbs in Fall when temps drop below 90°, Plant Summer bulbs in Spring when temps rise above 55°
- Pick the right spot
 - All types of bulbs need excellent drainage
 - 6-8 hours of Sun! Afternoon shade is appreciated, especially in the summer
- Prepare and Feed the Soil before planting!
 - Bulbs like compost enriched soil
 - Feed the soil again after flowering
- Water when top 1-2” of soil is dry
- Divide when blooms become disappointing



Flowering Bulbs for Zones 8b and 9a in Arizona

- **Spring Flowering:** Daffodils, Grape Hyacinth, Freesia, Bearded Iris, Gladiolus
- **Plant in Late Summer/Fall** after weather cools below 90°F
- **Summer Flowering:** Rain Lily, Society Garlic, Canna Lily, Day Lily, Agapanthus
- **Plant in the Spring** after weather (and soil) warms to 55°F
- They're all perennial and will continue to bloom and grow year after year



Only Plant Healthy Bulbs (Corms, Tubers, Rhizomes)

- Healthy means full, firm and free from disease or pests
- Don't store them for too long (6 months max)
- Try the "float" test – healthy bulbs sink in water
- Don't let them dry out before planting! They'll look wrinkly
- If you can't plant them right away, store them in moist (not wet!) perlite or peat moss in a cool shady area or in the frig!





Why not just seed flowering bulbs?

Can take years for plants to establish and flower

Resulting plant will not be what you expect

Generally, won't match parent!

seeds in
seed pod

bulb
cross-section
with offset

Pick a Good Spot and Prepare Your Soil!

- Dig down about 12” and work 3-4 inches of compost (or new topsoil + compost) into the soil
- If area has poor drainage, choose another site or add perlite or sand
- Allow soil to settle for about a week



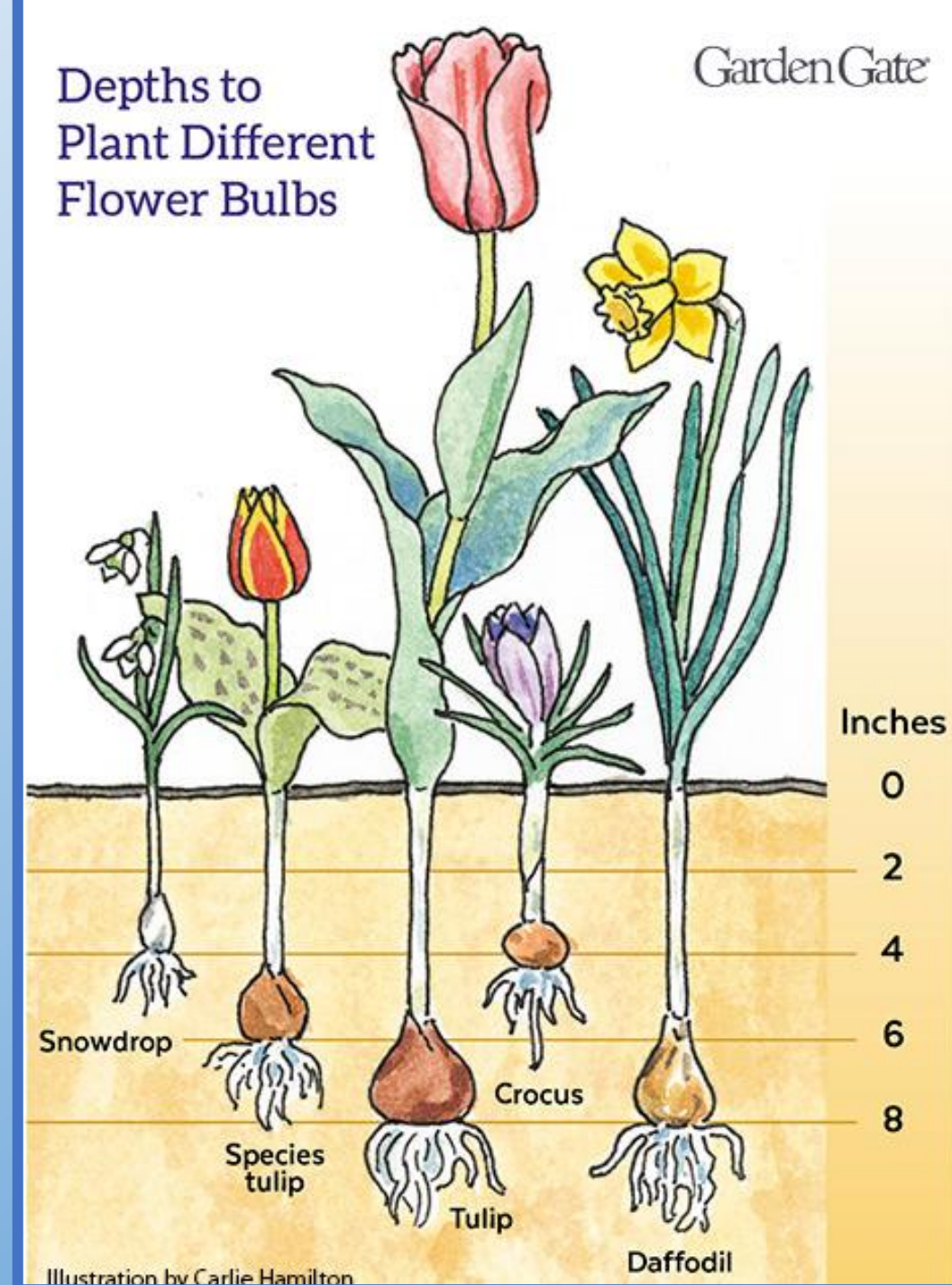
Fertilize or Compost when Planting and After Flowering

- Most bulbs benefit from low nitrogen fertilizer (3-5-8) or slow-release fertilizer dug into bottom of the hole when planting.
- Too much N = lush growth & no flowers! Check NPK #s, N should be 13 or LESS
- Or work compost into the planting hole/backfill soil
- Feed again after blooming (recharge bulbs!)
- Important for compost/fertilizer to reach the roots – Don't let fertilizer touch rhizomes! (can burn!)
- Water it in so fertilizer reaches the roots
- Mulch area to improve moisture retention



Plant True Bulbs at the Right Depth

- Plant bigger bulbs deeper than small ones
- Rule of Thumb 2-3x bulb diameter/height
- Plant deeper in sandy soils, less deep in clay soils
- Rhizomes/Tubers generally 2-4" deep – **except Iris, shallow planting and leave part of rhizome exposed**
- Check label, use internet, or reference –
- Sunset Western Garden Book
- Remember bulbs from cold regions may not survive summer heat (or hungry rodents!)





Water after planting/dividing Settles soil and stimulates root growth



**Wait until the top few inches
of soil is dry – But don't overwater!
Bulbs and Rhizomes can rot!**

If it doesn't rain...Continue to water

Why aren't my bearded Iris blooming?

- Not yet established, give them a year
- Bad Spot - Not enough sun (6-8 hours minimum)
- Lack of nutrients or water
- Prolonged drought
- Planted too deeply
- Overcrowded – need to be divided
- Too much competition from other plants
- Poor soil





How to tell when to Divide/Separate Bulbs, Tubers, Rhizomes?

- Are you are suddenly getting fewer flowers? Smaller flowers? Or NO flowers?
- Time to divide/separate your bulbs and replant them!
- Expand your planting area or share with friends
- Wait until leaves turn yellow/brown – green leaves recharge the bulb
- Gently separate new bulbs, don't force them – just replant them and separate next time.

Dividing Iris

- When? In Fall wait until temps drop below 90°F
- Moist (not wet!) soil is easier to dig - Water thoroughly and wait a couple of days
- Using a pitch fork (or spading fork) Insert into the soil about 12" away from the iris clump – working around the clump, loosen and lift!





Iris Slowly Become Overcrowded

Competition for
nutrients and space

Blooms are greatly
reduced (or there are
no blooms)

Usually about 3-5 years
Some gardeners never
divide. In Naturalized
areas, there are no
gardeners

A Closer look:

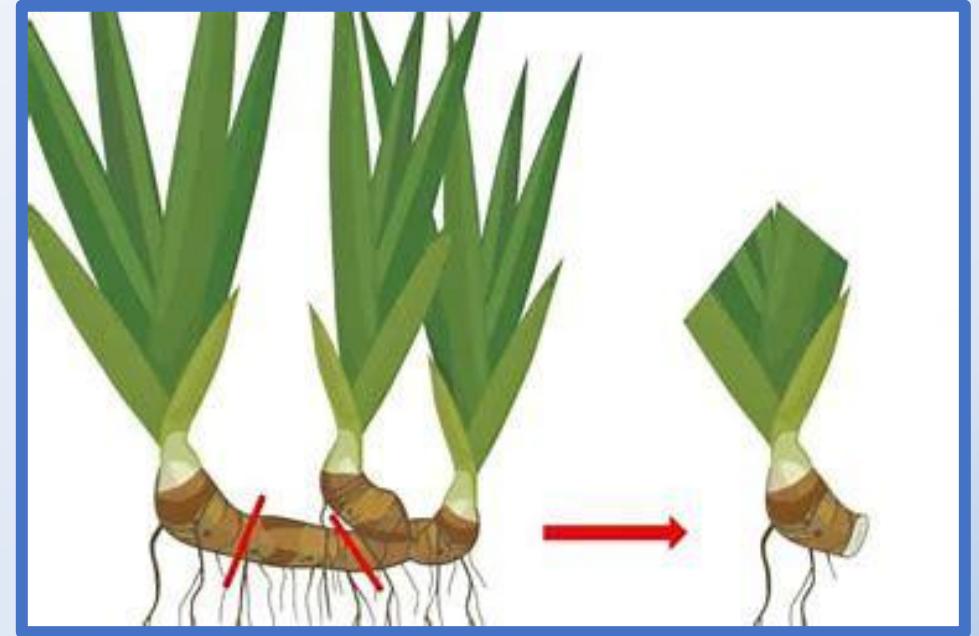
The original rhizome is called the Mother. It blooms only once, then produces daughter rhizomes.

Next year the daughters become mothers, bloom and then grow new daughters.



Dividing Iris Rhizomes

Cut between growth points
Where rhizome is thinner or pinched



Each segment (node) should have roots and leaves! Leafless segments have already bloomed and are spent, discard them.

Trim any broken roots and **cut back the leaves to one-third** on each node to reduce strain on the roots.

Rest them in the shade for a week before planting to allow cuts to seal. Don't let them dry out, keep them moist, but not wet!

Before you Replant, Feed the soil!

Dig Down about 12” and work in 3-4” of compost (or new topsoil + compost) to the planting area and your new planting areas! Water the area and let your soil settle for about a week.

Inspect each divided iris segment. Discard any that have evidence of borers or disease.



Make a mound, and spread out the roots of each node segment and cover with an Inch of soil, leaving part of the rhizome exposed

What happens if you have to plant Iris (or other bulbs) out of season?

Sometimes, you'll receive Iris nodes (or other bulbs) and it isn't the fall...What to do?

Proceed as if it were the "right" time of year.

- Cut back the leaves to reduce the strain on the roots – transplanting is hard on roots!
- Plant as usual
- Give plant extra care to keep stress down
- Don't expect blooms for a while (at least a year maybe more)
- **BUT - If you get them in the summer – if possible, store them.** If not cross your fingers and plant.



Remember Don't completely bury Iris Rhizome!

- Plant rhizome parallel to soil
- Spread out the roots & cover with soil but...
- leave top near node exposed
- Tamp down the soil
- Water right away
- Space 12" apart



For best bloom use low Nitrogen balanced fertilizer 3-5-8 (or fish emulsion, or compost) once or twice a year.

In Spring before flowering and again after flowering.

For show-stoppers, start feeding in Feb and repeat every two weeks until blooming starts

Water when top 2" of soil is dry.

Importance of Deadheading!

- Remove entire flower to prevent seed formation

WHY?

- To keep Plant's energy directed to the bulb – not seeds
- Helps bulb conserve energy for next year's blooms
- Wait to remove leaves until they turn yellow/brown – they are feeding the bulb for next year's blooms!



You can just remove the entire stalk



Rodents don't like them!

Daffodils Jonquil, Narcissus

- All related! And bulbs are hardy to -30°F
- Plant 2-3x bulb height when soil cools in fall
- Jonquil slightly less hardy, stronger scent. Narcissus tiny flowers in clusters, strongest scent
- Plant in Fall, Divide in late Summer/Fall
- Daffodils are the most Trouble-Free spring flowering Bulb! Naturalize readily, divide infrequently if ever! Replant within 3 weeks



Why bulbs fail to bloom

Planted too deep or too shallow?

- **Plant bulbs at 2-3 x bulb height. Newly planted bulbs can take a year or two to bloom.**

Planted too late in Fall? Not enough roots for blooming

Overcrowded? Competition for nutrients! Thin and divide bulbs every few years

Insufficient Sunlight? Min 6 hours of sunlight daily needed

Nutrient deficiencies? Feed soil after flowering for next year's flowers.

- **Don't cut leaves back too early!**
- **Using too much Nitrogen - leaf growth only, no blooms**
- **Fertilize after blooming with low nitrogen fertilizer or compost**

Soil/Water conditions – Need excellent draining, nutrient rich soil. Overly dry or nutrient poor soils weaken plants and reduce/stop blooming

Avoid overwatering and plant in areas with good drainage to prevent rot



Hyacinth



**Grape
Hyacinth**



- Bulbs – hardy to below zero
- Blue, purple, red, pink, salmon, buff, yellow, cream, white
- Plant 3-5” deep in fall after hot weather passes and soil cools
- needs subfreezing cold, won’t persist if winter is too mild

- Bulbs – hardy below zero
- 8-18” tall
- Blue, white, lilac
- Plant 2” deep in Fall
- Naturalizes easily
- Rabbits will eat foliage

Tulips maybe not the best choice...

- Bulb, hardy to -40°F, pm shade
- Spring blooming, plant in Nov, Dec, Jan
- Plant 6-8" deeper = colder soil
- Cold winters needed for naturalizing, short lived in mild winters, treat as an annual, or
- Dig them up after flowering and after leaves die back. Store in paper bags at 40°F until planting
- Rodents ❤️ them



Summer heat will COOK Tulip bulbs
Dig them up after they stop flowering!
Or grow them in a pot and keep it inside
during the heat of the summer

Refrigerating Tips

- Store in Paper Bags (or mesh) not plastic, Bulbs need to breathe!
- **Don't store with Fruits** (apples, pears) – these release ethylene which will KILL bulbs
- Bulbs mold easily – but don't let them dry out!
- Discard any that are moldy or squishy
- Standard Chill Requirement
 - 12-16 weeks 45° F - 32° F
 - BUT Don't freeze them



4 o'clocks by seed or tuber

- 4 o'clocks handle summer heat
- And will bloom in part-Shade!
- Reseed and can take over flower beds





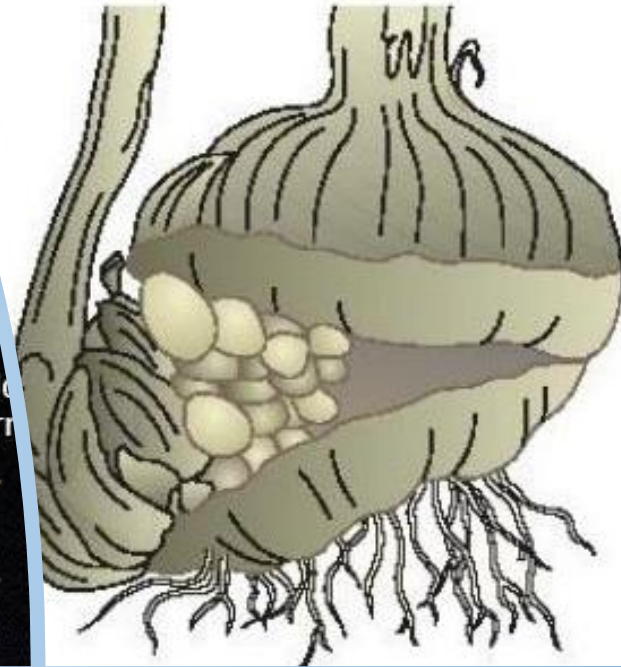
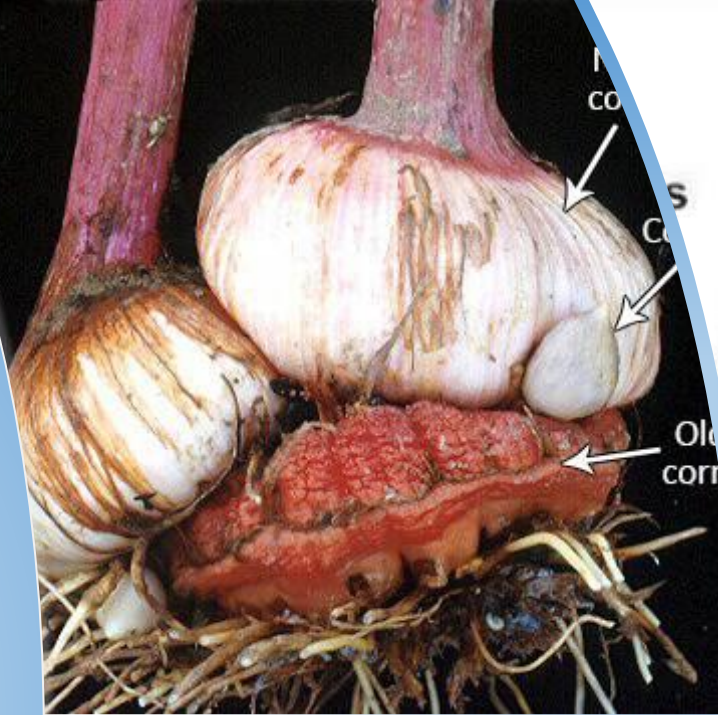
cormels

Gladiolus

- Corm Hardy to 10°F
- Blooms Late Spring, Summer, Autumn
- Plant 3-6" (4x deep as corm is thick)
- Plant less deep in heavy soils
- Deadhead to prevent seed formation
- Divide when fewer/smaller blooms

Dividing Gladiolus Corms

- Corms – separate new larger corms from old corm, discard old corm
- Smaller cormels will need a couple of years to reach blooming size



Society Garlic

- Bulb-like, hardy to 20°F
- Blooms: Spring, Summer, Autumn, Winter
- Lavender, pink, white
- Bury the bulb up to area where the stem narrows



Canna Lily

- Rhizomes, hardy to 0°F
- Grows 4-6' (dwarf varieties 2-3')
- Plant rhizome with 2-4" cover
- When stalk finishes blooming, cut it to the ground. New stems will form



In fall, flowering stalks will stop forming

- Cut the plant back
- Divide every 3-4 years in early spring, dig it, cut rhizomes apart between nodes, allow to heal over, then replant



Day Lily

- Tuber, pm shade. Hardy to 20°F
- Bloom types: early, late and extended
- 1-6' tall, many sizes, colors
- Plant in fall or early spring
- ½ to 1" deep
- Evergreen, semi-evergreen and deciduous varieties





No Space in your Yard? You Can Grow Flowering Bulbs in Pots!

**Advantages:
Complete control of soil
Easily moved
Pots can thwart rodents!**

**Recap: How to
keep flowering
bulbs looking
their best**



- **Select adapted varieties**
- **Plant in areas with good drainage and 6-8 hrs sun**
- **Add compost or mild fertilizer 2x/year, when planting (or before flowering in Spring) and after flowering**
- **Deadhead spent blooms, retain leaves to feed the bulb. Remove leaves after they turn brown!**
- **Divide when crowded**
- **Water when top 1-2" of soil is dry**



Want to know more?

**Join Tucson Area
Iris Society!**

**Monthly newsletter
Helpful growing tips
Member first sales at
Harlow Gardens
Nursery in Tucson**