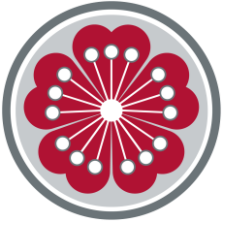


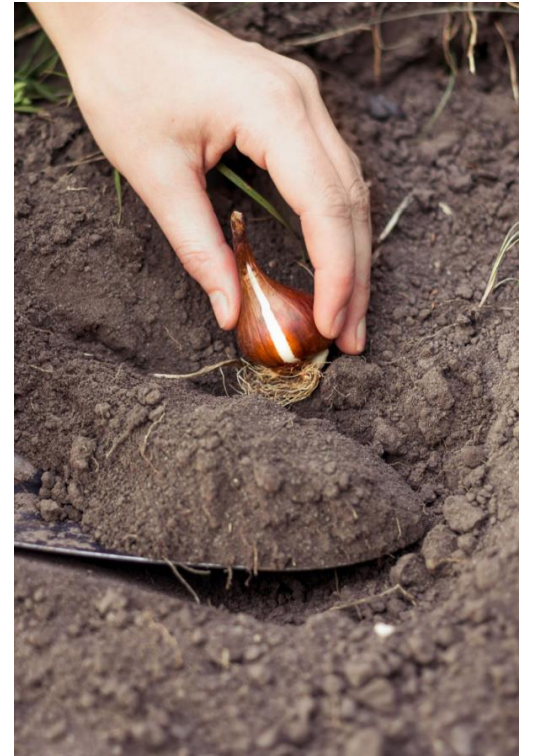


WASHINGTON STATE UNIVERSITY
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Fall Planting Bulbs and More

Dale Wheeler
October 11, 2022



WASHINGTON STATE UNIVERSITY
EXTENSION

Cowlitz County Master Gardeners





Bulbs, Rhizomes, Tubers, Crowns, and Cloves

Bulbs	tulips, daffodils, crocus, etc.
Rhizomes	iris, turmeric
Tubers	peonies
Crowns	rhubarb, daylilies
Cloves	garlic





Bulbs

- store the complete life cycle in an underground storage structure.
- are usually perennial.
- growth and flowering, followed by dormancy to end each growing season.



Tulip Bulbs



Daffodil Bulbs



Rhizomes

- tuber part grows horizontally at the soil surface, and have rooting structures attached to the tubers.
- produce pips which develop into new plants.
- are dug in the fall. Pips with developed roots are removed for replanting.



Iris Rhizomes



Turmeric Rhizomes



Tubers

- do not have a basal plate from which roots develop and does not having a protective covering.
- caladium have buds on the tuber surface where shoots and roots develop.
- includes caladiums, oxalis, peonies, and anemones.



Caladium Tubers



Peony Tubers



Crowns

- **crowns store nutrient reserves.**
- **propagated by dividing. Fleshy root crowns should be divided in the fall leaving at least three crown buds per clump.**
- **Rhubarb are hardy perennial herbaceous plants. They have clumps of rich green, smooth foliage that dies back during the winter.**



Rhubarb Crowns



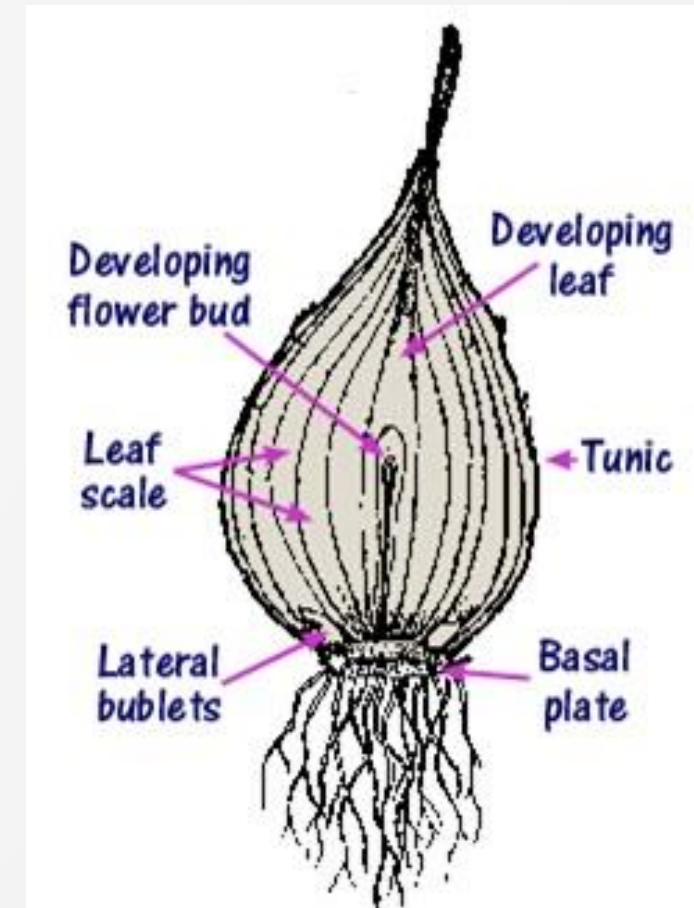
Cloves



Garlic Cloves

Cloves have five major parts.

- 1) **basal plate** (bottom of clove from which roots grow),
- 2) **fleshy scales** (primary storage tissue)
- 3) **tunic** (skin-like covering that protects the fleshy scales)
- 4) **the shoot** (consisting of developing flower and leaf buds)
- 5) **lateral buds** (develop into offsets).



Imbricate Bulbs



- Asiatic lilies have imbricate bulbs.
- Bulbs do not have a tunic (papery covering) to protect the fleshy scales.
- must be kept constantly moist before planting so they are not injured by the scales drying out.
- propagated from bulbils that develop in the leaf axils of the plant.
- takes more than one year for the bulbils to become flower size.



Asiatic Lily Bulbs



Bulbs



Crocus

Crocus
(Zones 3-8)



Hyacinths

Defil

Hyacinthus
(Zones 4-8)





Bulbs

Red Spider Lilies (*Lycoris*)

Lycoris

(Zones 7-10)



Harlequin Flowers (*Sparaxis*)

Defil

Sparaxis

(Zones 8-10)



Bulbs



Alliums

Allium

(Zones 3-9)



Guinea-Hen Flowers (Fritillaria)

Defil

Fritillaria

(Zones 4-9)





Bulbs

Grape Hyacinth (Muscari)

Muscari

(Zones 4-9)



Squill (Scilla)

Defil

Scilla

(Zones 2-10)





Bulbs

Grecian Windflowers (Anemone)

Anemone blanda

Defil

(Zones 4-8)



Snowflake (Leucojum)

Leucojum

(Zones 4-8)



Bulbs



Snowdrops (Galanthus)

Galanthus
(Zones 3-8)



Arabian Starflowers

Defil *Ornithogalum arabicum*
(Zones 7-10)





Bulbs

Paperwhites

Narcissus papyraceus
(Zones 8-11)



Defil

Wolfsbane (Aconite)

Aconitum
(Zones 4-7)



Bulbs



Tulips

Tulipa

(Zones 3-8)



Daffodils

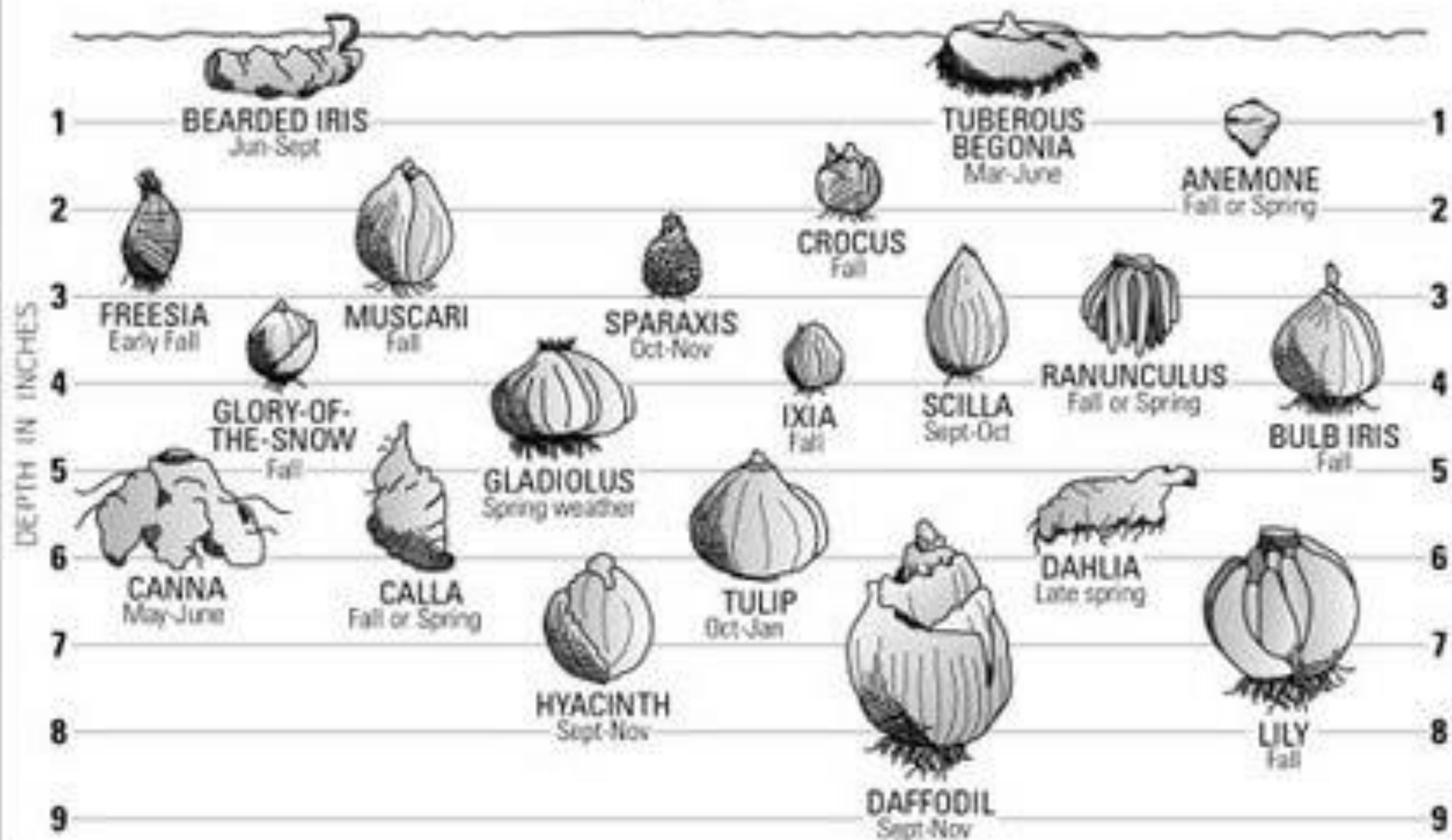
Defil

Narcissus

(Zones 3-8)



Planting Depths for Bulbs





Bulbs - Tulips and all bulbs

PLANTING

- **Plant bulbs in fall before the ground is frozen giving time for the roots to grow and become established.**





Bulbs - Tulips and all bulbs

PLANTING

- **Plant in a location with at least half-day sun and well-drained soil with a pH of 6.0 – 6.5**
- **Loosen soil 8-12" deep, mixing organic matter OM (compost) into the soil.**





Bulbs - Tulips and all bulbs

PLANTING

- Measure the height of the bulb.
- Dig a hole to a depth 3X the height of the bulb. Ex. If your bulb is 2" in height, dig a hole 6" deep.





Bulbs - Tulips and all bulbs

PLANTING

- Space holes twice the distance apart as the bulb height. Ex. If the bulb is 2" in height, space holes 4" apart.
- Plant 1 bulb per hole.





Bulbs - Tulips and all bulbs

PLANTING

- **Cover the bulbs with soil.**
- **Top-dress the bed with an organic or a balanced slow-release fertilizer. (ex. resin or polymer coated which slowly break down in soil to eliminate fertilizer burn)**





Bulbs - Tulips and all bulbs

PLANTING

- Lightly cultivate fertilizer into the upper soil.
- Thoroughly soak the bed with water. Roots will form during the fall and early winter.



Rhizomes



- **store nutrients and support the plant by growing horizontally.**
- **function as reserve organs when faced with extreme conditions.**

Rhizomes



- **Plants that have rhizomes are usually perennial.**
- **These lose their leaves and surface parts during the colder months.**
- **Rhizomes continue to preserve store nutrients the plant needs to survive.**

Rhizomes



- **The rhizomes can grow to cover large areas of the ground, since their growth is indefinite.**
- **Reproduction of the rhizomes is asexual.**
- **From a rhizome fragment, shoots, roots and new plants can emerge.**
- **Transplantation promotes reproduction and growth, usually in the fall.**



Rhizomes

- Bearded Iris
Iris germanica
(Zones 4 – 9)



Rhizomes

➤ Siberian Iris

Iris sibirica

Zones 3 - 9



Rhizomes - Iris

PLANTING

- Plant rhizomes in late August through October when nighttime temperatures are in the 40s
- This provides rhizomes time to get established prior to winter.



Rhizomes - Iris

PLANTING

- **Select a location with full sun.**

**While iris tolerate partial sun,
bearded iris will not bloom as
prolifically without abundant
sunlight.**



Rhizomes - Iris

PLANTING

- Iris grow best in well-drained, fertile soil with pH of 6.5 – 7.0.
- Loosen the soil to a depth of 12"
- Mix in 2-4" of OM (compost)





Rhizomes - Iris

INSPECT THE RHIZOMES

- **Divide an established patch of iris as shown.**
- **Reject any mushy or desiccated rhizomes.**
- **Inspect for borer damage.**
- **Sections may be clipped away using sharp pruners.**

DL







Rhizomes - Iris

INSPECT THE RHIZOMES

- Trim the leaves above the rhizome to 6"- 8" in length DL





Rhizomes - Iris

PLANT THE RHIZOMES

- Dig holes 4" deep and 10" wide.
- Create a narrow mound of soil in the bottom of the hole.
- Spread the roots over the mound. The fleshy part of the rhizome should rest on top of the mound.







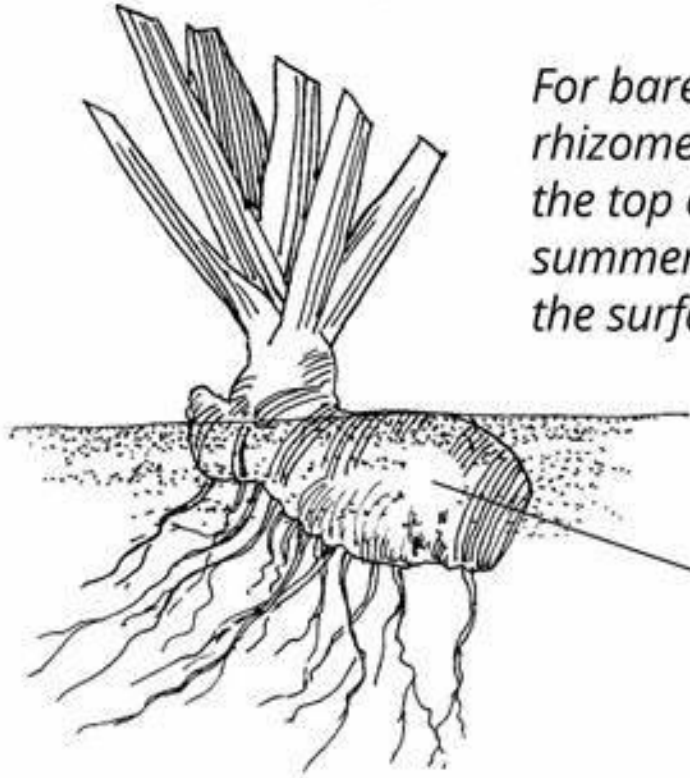
Rhizomes - Iris

PLANT THE RHIZOMES

- **Fill the hole with amended fill soil.**
- **Tamp the soil firmly down against and around the rhizome and leaves.**



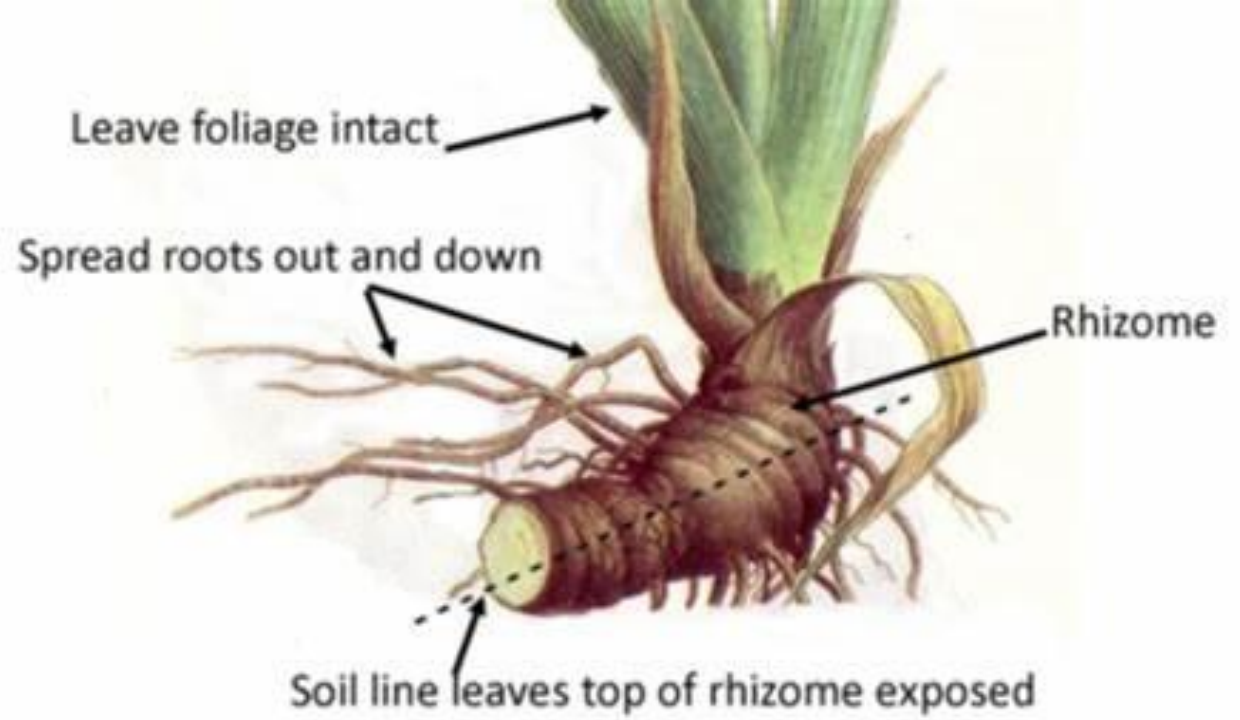
Planting a Bearded Iris



For bareroot Iris, plant the rhizome horizontally with the top exposed or, in hot summer climates, just below the surface of the soil.

Rhizome

For potted Iris, plant them at the same soil level as in the pot with the top of the rhizome exposed. In hotter climates, plant the top of the rhizome just below the soil surface.



Leave foliage intact

Spread roots out and down

Rhizome

Soil line leaves top of rhizome exposed





Rhizomes - Iris

PLANT THE RHIZOMES

- Water generously every few days until new growth is evident.
- Then, water weekly until new rhizome is well established.



Rhizomes



- Common Ginger
Zingiber officinale
Zones 8 - 12



Rhizomes

➤ Mint

Mentha family

Zones 3 - 11





Rhizomes

- Solomon's Seal
Polygonatum biflorum
Zones 3 - 9



Rhizomes



➤ Clumping Bamboo

Bambusa vulgaris

Zones 5 - 9 (cold hardy)

Zones 7 – 9 (not as hardy)

➤ Running Bamboo

Phyllostachys family

Zones 7 - 10



Rhizomes

- Turmeric
Curcuma longa
Zones 8 - 11



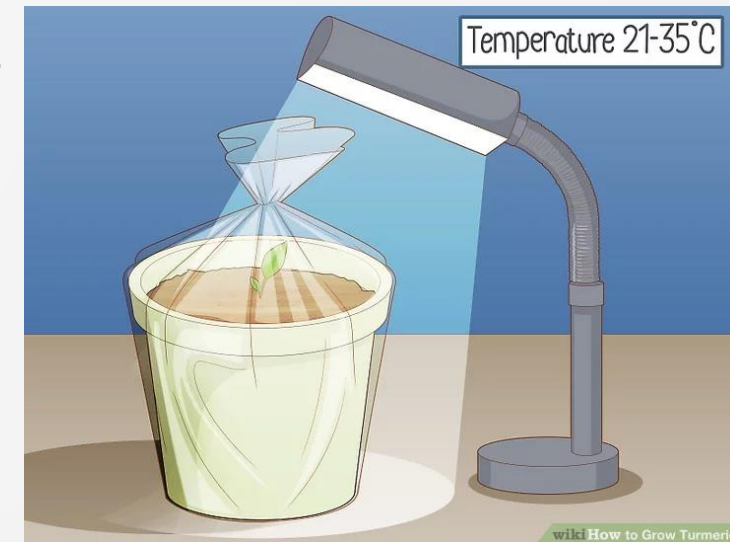
Turmeric



Cut 2" rhizomes and plant indoors in late October.



- **Turmeric requires lots of space for the roots and needs a lot of humidity to grow early on. Use a pot at least 12" deep.**
- **Plant 4" apart, 3" deep with the "buds" pointed up.**
- **Water soil until visibly moist.**
- **Slip each pots into clear a plastic bag.**
- **Store pots in a warm place, 70–95°F.**
- **Water every 2-3 days to keep the soil visibly damp.**



Turmeric



Up-pot when stalks are 6" tall (~8 months) in late June.

Defil

- **Use a pot at least 18" deep. Plant rhizome stalks into individual pots.**
- **Relocate outdoors to a partial sun location.**
- **Water soil until visibly moist at least every 2-3 days.**
- **Harvest your turmeric when the leaves and stems start to brown and dry in early Sept.**





Tubers

- Peony
Paeonia spp.
(Zones 3 – 8)



Tubers - Peony (*Paeonia spp.*)



- Cultivated for over 2000 years
- Full Sun or Partial Shade
- Rich, fertile, medium-moisture, well-drained soil
- Deer resistant
- Attractive to butterflies
- Virtually pest free
- Low maintenance
- Long-lived (up to 50 years)



Tubers - Peony (*Paeonia spp.*)



- **Best planted in the fall**
- **Wait until temperatures are in the 40s at night.**
- **Plant tubers at least 6 weeks prior to hard ground freeze.**
- **Need pronounced winter chilling to bloom well.**
- **Need at least 6 hours of sun.**
Full sun is best.
- **Soil pH 6.5 – 7.0**



Tubers - Peony (*Paeonia spp.*)



PLANTING

- **Space peonies 3-4 feet apart for good air circulation**
- **Dig a hole 24" deep and 24" across.**
- **Add 4" of OM (compost)**
- **Add 1/2cup (10-6-4) or similar fertilizer into each hole**
- **Mix in bone meal or superphosphate**

Tubers - Peony (*Paeonia spp.*)

PLANTING

- Set the tuber, so the eyes face upwards on top of the firmed soil.



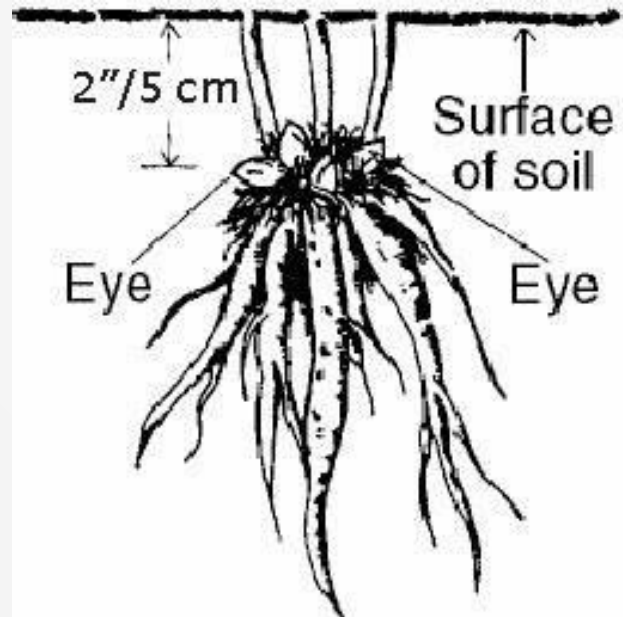
Tubers - Peony (*Paeonia spp.*)



PLANTING

➤ Set so the eyes of the tuber are just 2" below the soil surface.

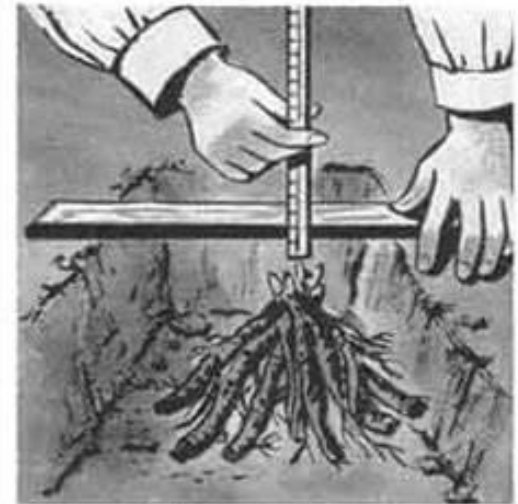
➤ Plant gently.



Pointers in Peony Planting



A star-shaped root pattern is ideal. With a sharp knife remove all fibrous and deformed lateral roots and cut back main roots.



Plant with the eyes about 2 inches below the ground level. Firm soil underneath roots to prevent settling thus dropping eyes too deep.

Tubers - Peony (*Paeonia spp.*)

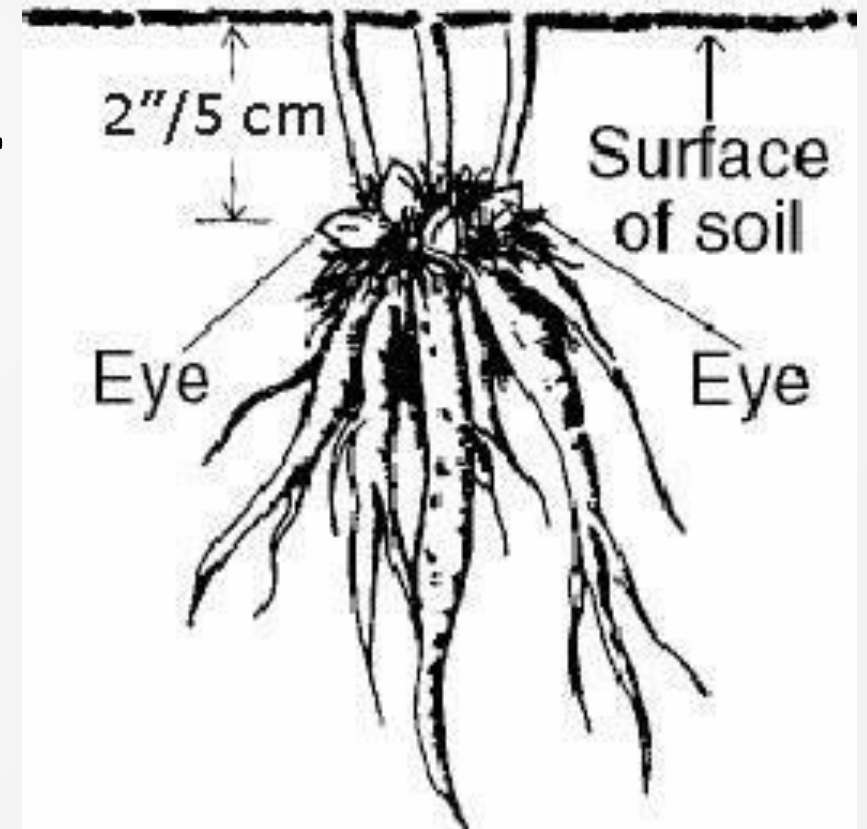


PLANTING

- Fill the hole making sure the soil does not bury the tuber deeper than 2" or your peony may not bloom.

THIS IS KEY!!

- Water thoroughly throughout the fall.



Tubers - Peony (*Paeonia spp.*)



BLOOMING

- Peonies typically do not bloom the first year after planting and may take 2-3 years to produce showy, fragrant blooms.



Crowns

➤ Rhubarb

Rheum rhabarbarum
(Zones 3 – 8)





Crowns - Rhubarb *Rheum rhabarbarum*

- **Originated in Asia**
- **Brought to Europe in the 1600s**
- **Stalks only edible part**
- **Perennial**





Crowns - Rhubarb *Rheum rhabarbarum*

- **Plant in its own space**
- **Grows best undisturbed**
- **Grows best with plenty of well-rotted manure or compost**
- **A single plant can grow to be 3 ft x 3 ft (or larger)**



Crowns - Rhubarb *Rheum rhabarbarum*



PLANTING

- Full sun with LOTS of space
- Well drained soil with pH 6.5-7.5
- Loosen the soil to at least 24" deep
- Mix in lots of OM (compost)
Rhubarb is a heavy feeder

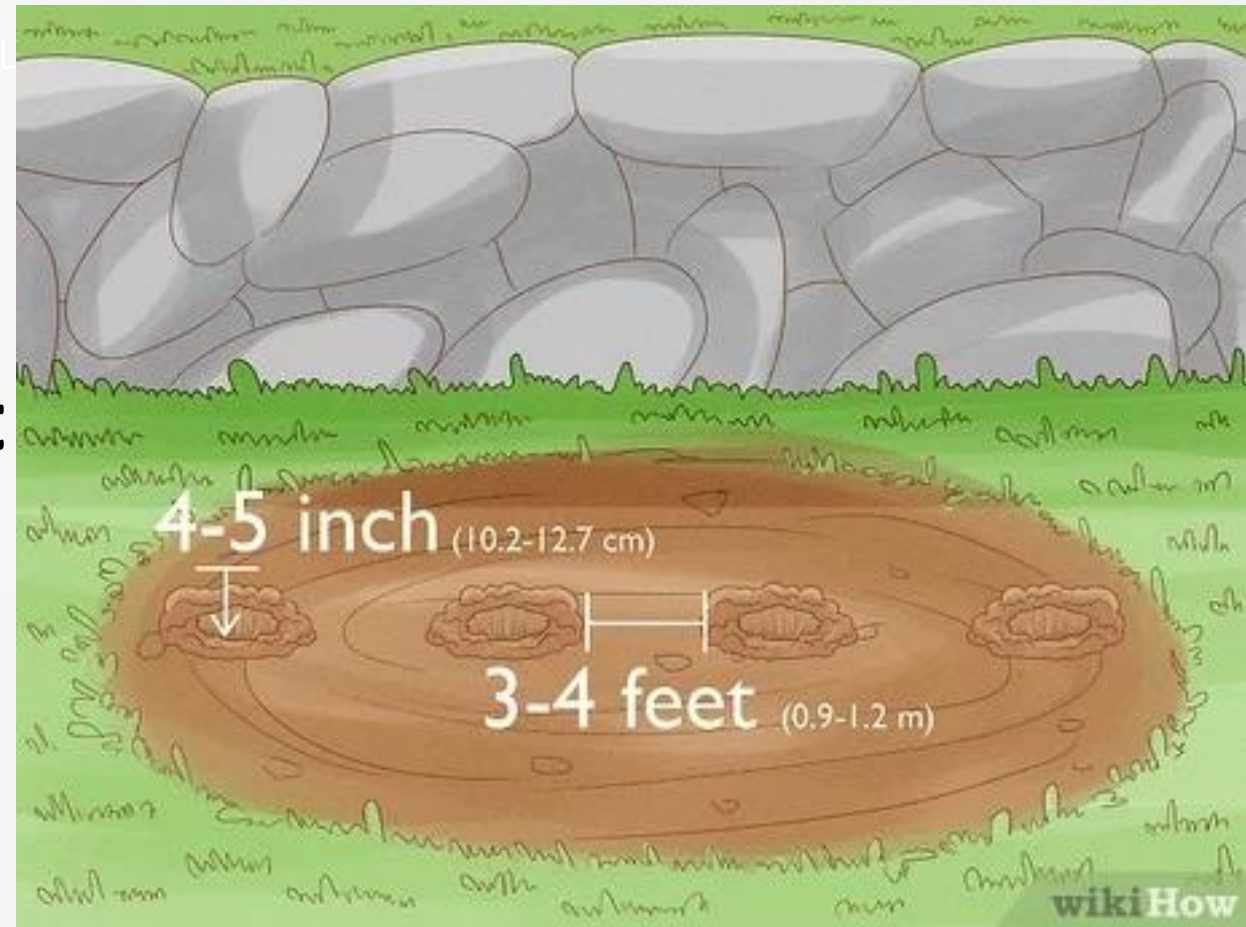


Crowns - Rhubarb *Rheum rhabarbarum*



PLANTING

- Dig 4-5" holes
- Hole should be 3-4 ft apart



Crowns - Rhubarb *Rheum rhabarbarum*



PLANTING

- Plant crowns 2" below the soil surface
- Gently fill the hole with heavy compost
- Water after planting
- Cover with 3" mulch during winter



Garlic Cloves - *Allium sativum*



➤ **Plant from late October through November**



➤ **Requires 8-9 months to produce a large mature bulb**



Garlic

over 600 cultivars



Hard-neck "ophio"

(Zones 0 – 6)

More flavorful

Easier to peel

Grows well with cold winters



Soft-neck

(Zones 8 – 12)

Better storage

Grows well in warm winter areas

Recommended for Cowlitz Co.

Garlic



Requires a period of cold weather (40°-50° for 6-10 weeks) to develop multiple cloves **Vernalization**

- Needs **FULL SUN** in summer
- Regular watering - 1"/week



- dry conditions will produce small bulbs/cloves

Garlic



Yield depends on BOTH **vegetative growth** (fall/winter) and **bulbing growth** (spring/summer)

- **Vegetative** – requires adequate water, establishes root growth and the sprouting of leaves
- **Bulbing** – bulb formation begins as temperatures rise and day length increases



Garlic



- **Each bulb contains several cloves**
- **Each clove is planted separately**
- **The larger, outer cloves yield larger sized mature bulbs at harvest**
- **Do not divide the bulb into cloves prior to planting**



Garlic

Plant in **FULL SUN** in well-drained soil with plenty of **organic matter** in a location left undisturbed until harvest

Organic matter – well-rotted manure or compost

- added to soil every year prior to planting
- supplies sufficient micronutrients
- apply at 1lb / sqft



Garlic



Grows well with medium to high amounts of fertilizer

Nitrogen - medium to high demand

- apply in **EARLY FALL** prior to planting
- 1lb 10-10-10, or blood meal,
or ammonium nitrate per 100sqft



Planting Garlic
in the fall



Garlic



Grows well with medium to high amounts of fertilizer

Nitrogen - medium to high demand

- apply in EARLY SPRING prior to bulbing when shoots are 4"-6" tall
- 2lb 10-10-10, or blood meal, or ammonium nitrate per 100sqft



Garlic



Grows well with medium to high amounts of fertilizer

Phosphorus / potassium - medium to high demand

- apply in **EARLY FALL** prior to planting
- **1lb 10-10-10 (or 5-15-10) / 100sqft**

Calcium / magnesium - optimum soil pH 6-7

- adding lime is recommended if soil pH < 5.8



Garlic

- **Garlic requires consistent, even watering 1" / week**
- **Water stress during bulbing will result in small bulbs/cloves**
- **Dry soil – irregular shaped bulbs**
- **Wet soil – may cause the bulbs to rot**



Garlic



- **Dig a trench or holes**
- **Place each unpeeled clove with the pointed end up**
 - this will ensure a straight neck during growth
- **Plant bulbs 4" apart in rows that are 12" apart**
- **Cover each clove with 1-3" soil**







Garlic

- **MULCH** over the winter
3" – 4" deep



Garlic

Garlic can also be grown in containers





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References



- 1) <https://extension.oregonstate.edu/news/go-underground-bulbs-colorful-spring-bloom-0>
- 2) <https://extension.oregonstate.edu/news/get-your-garlic-primer-planting-growing-harvesting-0>
- 3) <https://catalog.extension.oregonstate.edu/ec797>
- 4) <http://gardening.wsu.edu/?s=garlic>
- 5) <https://extension.umn.edu/how/planting-bulbs-tubers-and-rhizomes>
- 6) <https://web.extension.illinois.edu/bulbs/bulbbasics.cfm>
- 7) <https://content.ces.ncsu.edu/hints-for-fall-planted-spring-and-early-summer-flowering-bulbs>
- 8) <https://cabarrus.ces.ncsu.edu/2020/04/my-adventures-with-iris/>
- 9) <https://content.ces.ncsu.edu/peonies-for-the-home-landscape>
- 10) <https://lee.ces.ncsu.edu/2017/09/this-fall-grow-garlic/>
- 11) <https://www.thespruce.com/turmeric-plant-profile-4779812>
- 12) <https://howdo107.blogspot.com/2019/09/how-to-grow-turmeric.html>
- 13) <https://www.hollandbulbfarms.com/how-to-plant-flower-bulbs-in-the-fall>
- 14) <https://www.tasteofhome.com/article/how-to-grow-rhubarb/>
- 15) <https://plants.ces.ncsu.edu/plants/sparaxis-hybrids/>

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Questions?

