

Garlic In Your Garden

A fun crop to grow and use!

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Topics to be covered

- What is garlic
- Planting
- Fertilizing
- Weed Control
- Watering
- Insects & Diseases
- Harvesting & Storage

What is Garlic?

- It has been called:
 - An herb
 - A spice
 - A miracle food
 - Protection from vampires
 - Often people just call it “garlic”.
- It is loaded with folklore and mystique and some myths!

What is Garlic?

- A member of the allium family
- Garlic – (*A. sativum*)
- Onions – (*A. cepa*)
 - Shallots (*A. cepa*)
- Leeks (*A. ampeloprasum*)
 - Elephant Garlic (actually a leek)
- Chives (*A. schoenoprasum*)

What is Garlic?

- Garlic is used in many ways and we do not produce enough in the US to meet domestic needs.
- Fresh
- Dried (minced)
- Powder
- Green

What is Garlic?

- Origin is likely south central Asia.
- From there it apparently went east and west.
- Average annual US consumption is 2.5 pounds.
- Vegetatively reproduced.
- 25,000 acres of production in the US produces 400 million pounds annually (16,000 pounds per acre).

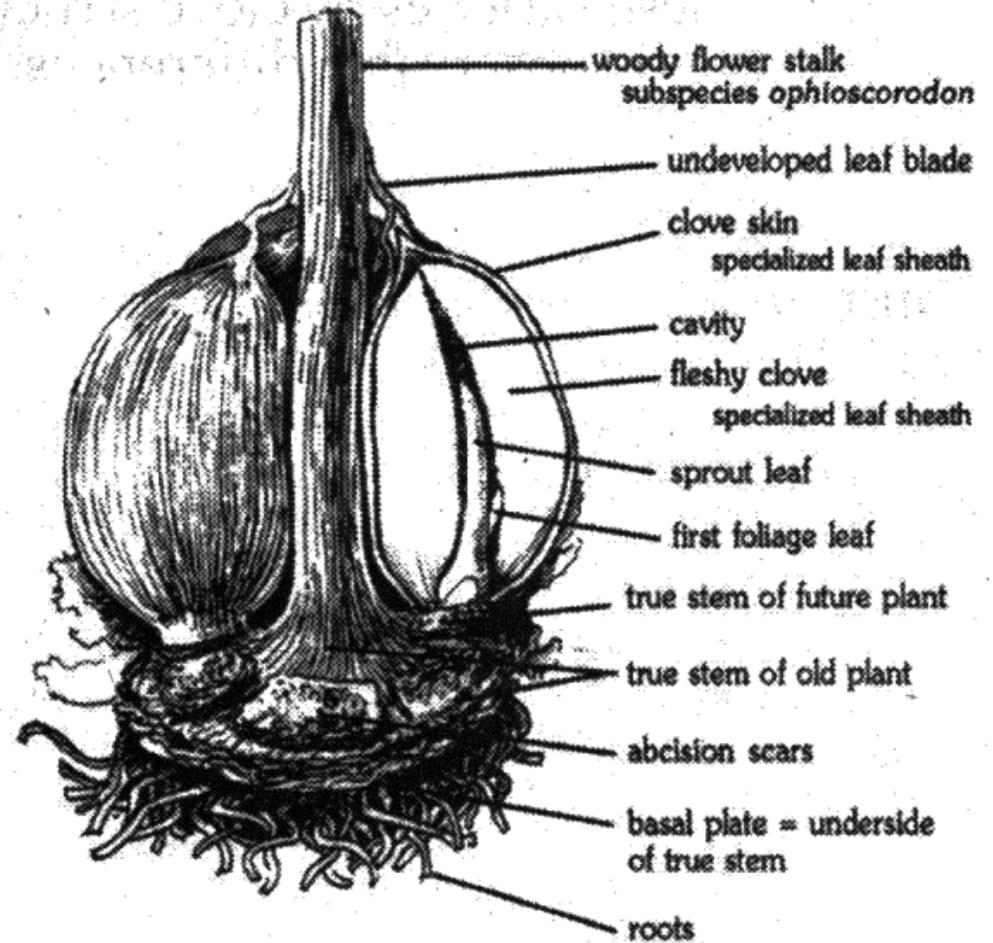
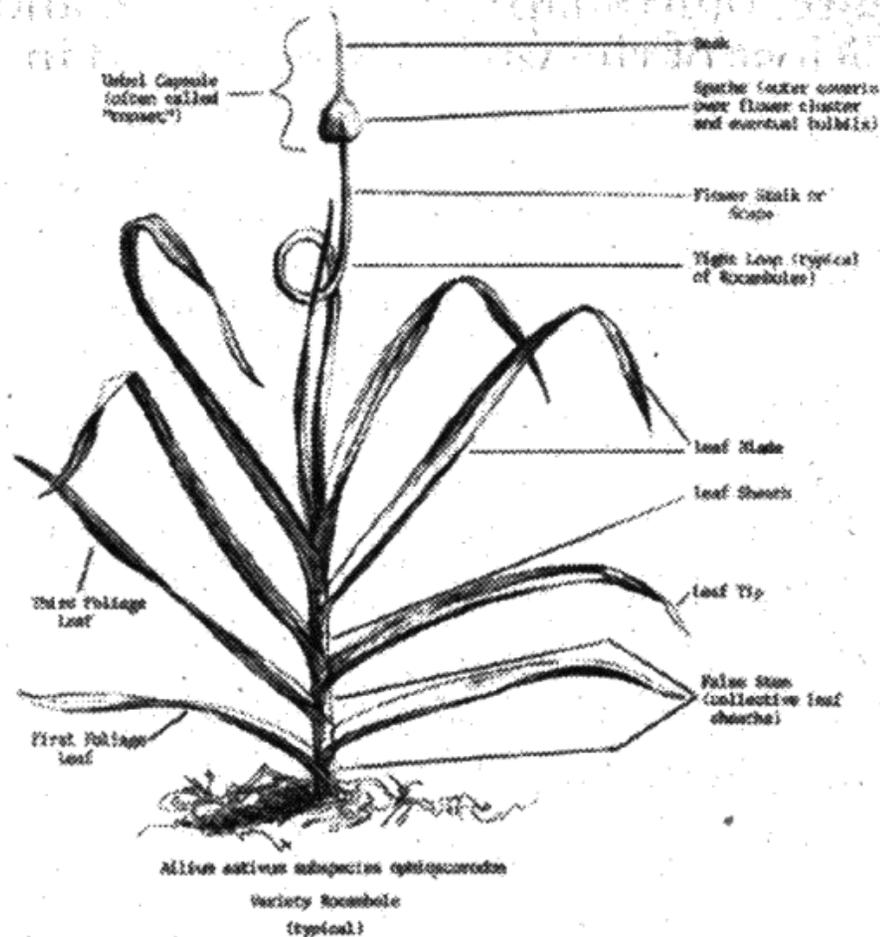
What is Garlic?

- Unlike other alliums, it doesn't generally produce viable flowers or seed.
 - Garlic improvement is a challenge as you can't crossbreed them. Changes likely have occurred through mutations over thousands of years.
- It is a bulb and the “leaves” go all the way into the soil.
- Can produce bulbils – aerial secondary cloves. Primarily in hardneck varieties (spathe).

What is Garlic?

- The true “stem” is at the bottom of the bulb.
- At the base of the inner leaves, are tiny vegetative buds.
- Specialized leaves (fertile leaves) swell into cloves around each fertile bud.
- The clove is there to protect and nourish this bud through it’s period of rest. It isn’t dormant, it’s resting.

Let's peel a garlic bulb!



What is Garlic?

- An absolutely amazing plant unlike anything else you will likely ever grow in your garden.
- Cloves are clones of the mother plant.
- But it get's no respect.
- Calling garlic just garlic is like calling wine just wine.
- Go to a store and look for garlic.



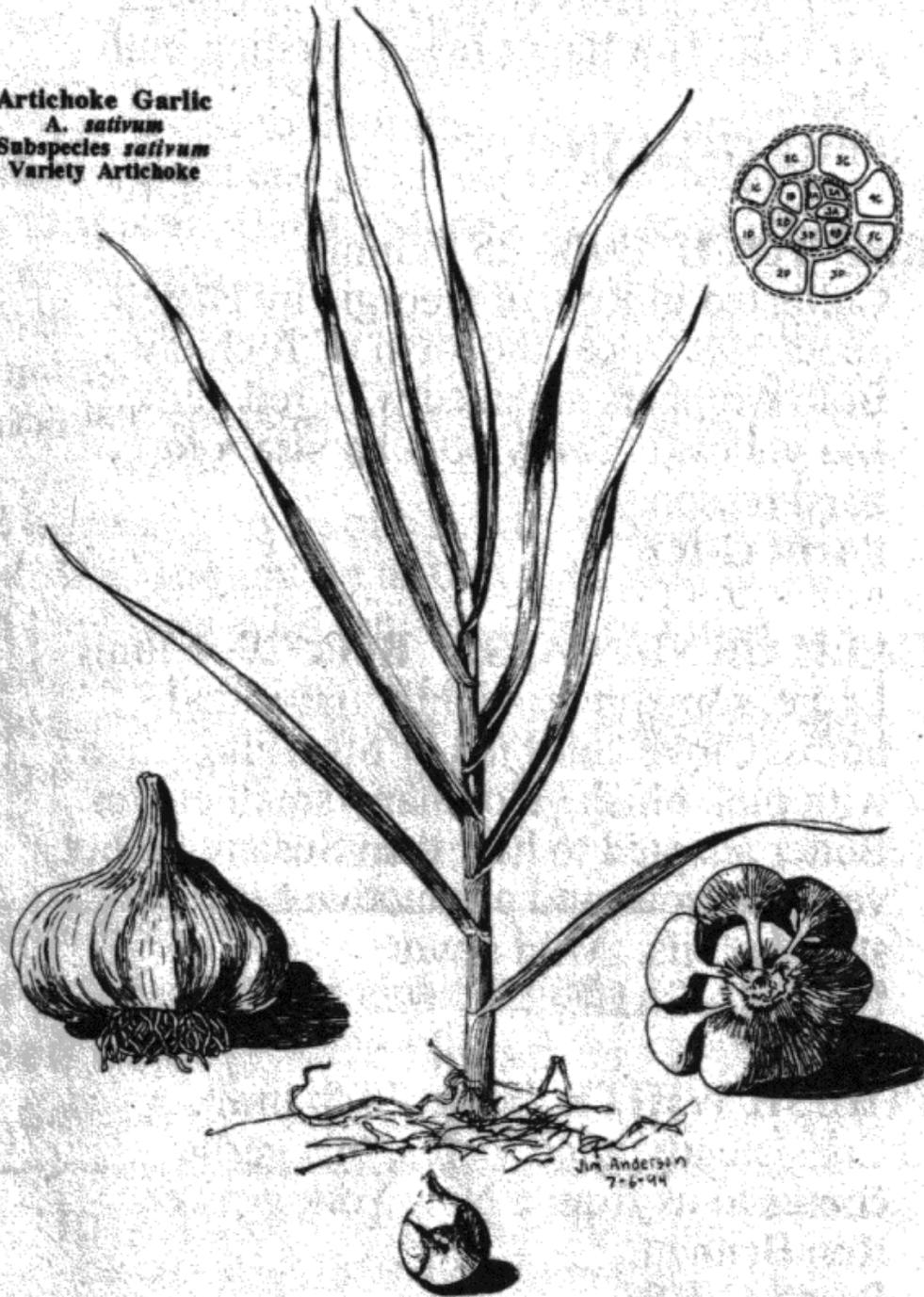
What is Garlic?

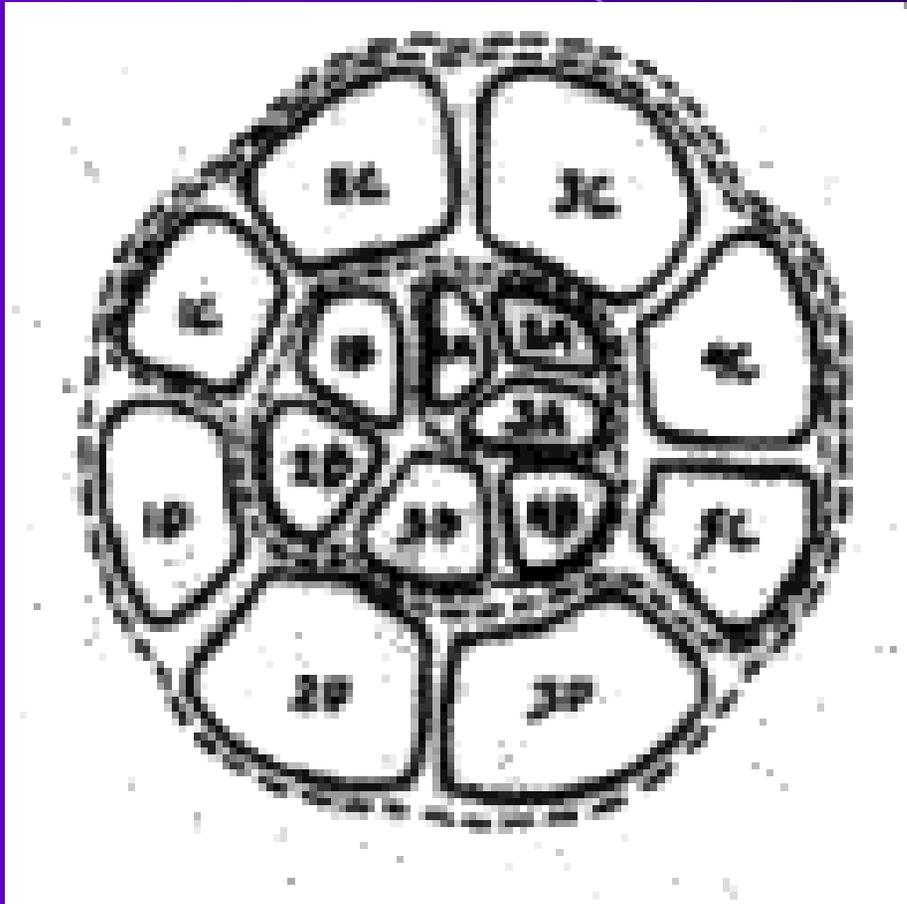
- *Allium sativum*
- Two subspecies
- Sativum (*A. sativum sativum*)
 - Partial or non-bolting
 - No flower stalk
 - “Softneck”
- Ophioscorodon (*A. sativum ophioscorodon*)
 - Bolting with a flower stalk (but the flower stalk doesn't actually flower and it produces no seed.
 - “Hardneck”

Sativium

- Artichoke
- Silverskin
- These generally have more clove layers and more cloves than the Ophios
- Also have longer storage life (longer rest period) than Ophios.
- Generally felt that they have “milder” flavor.

Artichoke Garlic
A. sativum
Subspecies *sativum*
Variety **Artichoke**





Silverskin Garlic
A. sativum
Subspecies *sativum*
Variety **Silverskin**



Ophioscorodon (Ophio)

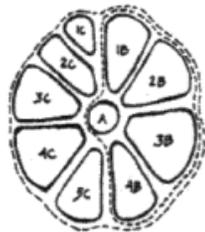
- Two groups – Hardnecks and weakly bolting hardnecks
- All of these have “flower” stalks or scapes
- Generally fewer but larger cloves
- Often much stronger and preferred flavor by gourmets.
- Shorter storage life (except Creoles).

Ophioscorodon (Ophio)

- Weakly Bolting Hardnecks
 - Asiatic
 - Creole
 - characteristics fall between softnecks and hardnecks
 - Turban

Ophioscorodon (Ophio)

- Hardnecks
 - Rocamboles
 - Porcelain
 - Purple Stripe
 - Purple Stripe
 - Glazed Purple Stripe
 - Marbled Purple Stripe



Rocambole Garlic
A. sativum
Subspecies *ophioscorodon*
Variety Rocambole
Type; Standard



Porcelain Garlic
A. sativum
Subspecies *ophioscorodon*
Variety Porcelain



	Asiatic	Turban	Creole	Purple Stripe	Glazed Purple Stripe	Marbled Purple Stripe	Porcelain	Rocambole	Silverskin	Artichoke
Cloves/ lb	45	65	80 organic 60 naturally grown	60	60	55	40	60	70	65
Cloves/ bulb	4-7	6-8	8-12	8-12	6-10	6-10	4-6	6-11	12-20	12-20
Storage (months)	4	4	10-12	4-6	4-6	4-6	6	4-6	10-12	10
Clove wrapper tightness	average	average	tight	average	average	average	tight	loose	tight	tight
Bulb Color	white	striped, purple	white	striped, purple	satin purple	mottled purple	white	white	white	white, splotched
Clove Color	brown, rosy purple	pink, brown	red	purple, pink	purple, pink brown	purple, pink brown	pink	brown	white, pink	white
Flavor	hot	hot	spicy, sweet	full, great baked	full, great baked	full, great baked	hot	rich, robust	hot	mild
Maturity	early	very early	mid	mid	mid	early	late	late	late	early
Scapes (Hardneck/ Softneck)	yes hardneck	weak- bolting	weak- bolting	yes hardneck	yes hardneck	yes hardneck	yes hardneck	yes hardneck	no softneck	no softneck
Climate Preferred	mild, Southern	mild, Southern	hot, humid, Southern	cold winters	cold winters	cold-cool winters	cold winters	cold winters	cold-hot, versatile	cool-hot, versatile

Garlic Production

- In our area we need to plant in the fall – generally mid to late October.
- “Bulbing” occurs late in growth phase. Pulling bulbs early will result in something that looks like a big thick onion.
- Harvest can be anywhere from June through August.

Garlic Production

- Once you get it planted and keep it well watered (but don't drown it), garlic is a tough survivor.
- You can ignore it and it will grow.
- To make nice big bulbs, you need to do a little bit more!

Planting

- Mid to late October – probably into early November in most years.
- You want to get the clove out of rest and get root production started. Above ground growth in fall is not uncommon but not necessary.
- Don't "pop" cloves until day of planting. No more than 24 hours ahead of planting!

Planting

- Planting depth of 1 to 3 inches (I aim for 2).
- Beds vs rows. For small garden production rows work well.
- If more than one row, 6 to 12 inches between rows and 4 to 6 inches apart within rows.
- For large production, beds on 5 x 8 spacing (8 inch between rows and 5 to 6 rows per bed.)

Planting

- Know which end is up!!!!
- Cover the bulbs and firm the soil (but don't pack it.)
- Mulching can help in many ways (but I haven't done it in the past.)
- Unless it is bone dry, I wouldn't water them down afterwards. But if watered, only do it once in the fall.

Planting

- There is a direct correlation between seed clove size and bulb size that it produces.
- Much more pronounced in hardnecks than softnecks.
- Softnecks tend to be more productive and I don't worry too much about clove size.
- Smaller cloves off of hardnecks should probably be used for culinary purposes.

Fertilizing

- While garlic can survive on very little, you need to fertilize for nice sized bulbs!
- Fertilize at or before planting with one pound of nitrogen and phosphorus per 1,000 square feet. (1/10th pound per hundred square feet – 1 to 3 pounds of 12-12-12)
- Organic sources – blood meal plus bone meal (2 pounds of each).

Fertilizing

- Early in the spring repeat the planting time fertilization rates. Probably as soon as you see first early season growth.
- Don't fertilize again as it can delay maturity or cause vegetative growth at the expense of bulb development.

Weed Control

- Mulching can help. Because of narrow leaves garlic doesn't shade out a lot of weeds. Hence mulching, OR bed planting.
- Very few products labeled for post emerge weed control in garlic.
- Garden weed preventers with trifluralin are generally labeled for all allium species.
- Watch late season weeds and pull as needed.

Watering

- Garlic roots go much deeper than most gardeners think.
- If normal rainfall doesn't occur (an inch every couple of weeks) then supplemental watering will help.
- Garlic is sensitive to root and clove rots if soils are saturated regularly.
- Either light sprinkling or drip/open hose.

Insects and Disease Pests

- Onion maggots and onion thrips. Not commonly a problem in garden production.
- If you use good seed stock from a certified grower, many of the disease issues are avoided.
- Excessive moisture near harvest is likely to cause bulb/clove rots.
- Our low level of production keeps insects and diseases from generally building up.
- Rotation always helps.

Harvest

- Many sources will suggest harvesting when the tops have dried down. NO!!!!!!!!!!!!!!
- If growing hardnecks, there is fairly good evidence to suggest that snapping off scapes will increase bulb/clove size.
- There's also evidence that NOT snapping them off will give longer storage life.
- I'm working on this for our conditions.

Harvest

- Avoid late season irrigation. (Can't do anything about rain!)
- Artichoke varieties are more forgiving. But still harvest at about 5 green leaves left.
- All others harvest at 6 green leaves left.

Harvest

- Leaving garlic in the ground until all leaves are dead allows potentially hot weather to start “cooking” the bulbs.
- The more dead leaves you get the more likely some of the outer bulb wrappers will start to split and that lets dirt, moisture and disease organisms to into the bulb.

Harvest

- I like to dig using a potato fork.
- Don't leave in direct sunlight for very long.
- Carefully knock loose dirt off the roots.
- Tie 10 plants together with twine and hang in a dry warm location.
- You want tops to finish drying so there is no moisture left in the neck when you cut it. 2 to 6 weeks depending on year and location.

Cleaning & Storage

- Once necks are dry, trim the tops back to about ½ inch. Hardnecks will require pruning clippers; softnecks heavy scissors.
- Brush the remaining dirt out of the roots and trim them back to about a quarter of an inch.
- If outer bulb wrappers are dirty carefully remove them.

Cleaning & Storage

- Bulb wrappers help protect the cloves.
Remove no more than necessary.
- Carefully check soundness while cleaning –
gently squeeze the bulb to check firmness.
- Ideally store bulbs in mesh sacks.
- **DO NOT USE SOLID PLASTIC BAGS.**
 - Death by Ziplock
- Paper sacks are acceptable but pack lightly.

Cleaning & Storage

- Ideal temperatures are 32 to 35 degrees and humidity of 65 to 70%.
- Since most of us don't have those kinds of controlled storage, store at cool room temperature.
- **NOT IN THE REFRIGERATOR!**
- 36 to 50 degrees simulates fall planting conditions and starts bud swelling and sprouting.

Questions?

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