

Vegetable Gardening



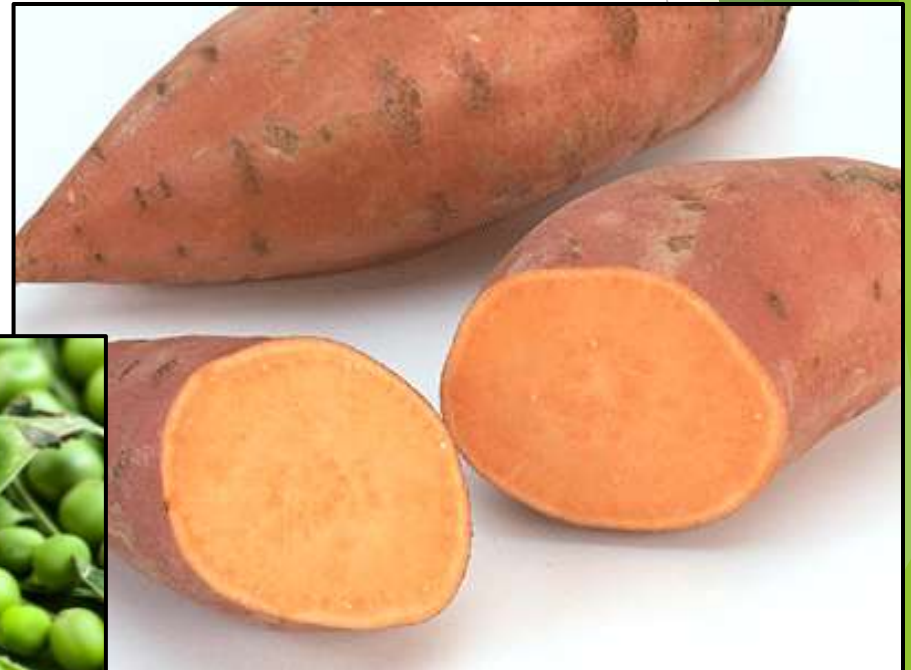
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Before You Start

- ▶ What veggies do you like to eat?
- ▶ How much time and money do you want to invest. (You can do this without major expense)
- ▶ Do you have space? **(Of course you have space)**
- ▶ To avoid waste, do you have others to share with?
- ▶ When should you start planning?



Resources to Know

- ▶ <http://extension.usu.edu/yardandgarden/garden-care>
- ▶ <http://utahpests.usu.edu/ipm/>
- ▶ <http://utahpests.usu.edu/ipm/htm/vegetables>
- ▶ <http://extension.usu.edu/yardandgarden/gardening-basics>

General Basic Principles

1. Planning (record keeping)
 - a. Raised beds or traditional?
2. Soils (preparation and amendment)
3. Fertilization (when and how much)
4. Planting (Seed vs. transplants)
5. Irrigation (spray, drip, other)
6. Maintenance (weeds, pests, techniques)
7. Harvesting (fresh eating or storing)

Cool Season Crops



- ▶ Peas
- ▶ Spinach
- ▶ Lettuce
- ▶ Carrots
- ▶ Radish
- ▶ Beets
- ▶ Cabbage



- Turnips
- Swiss Chard
- Broccoli
- Cauliflower



There is a general rule, that if the soil is workable, plant peas and other cool season crops on (about) St. Patrick's Day. Some plants like spinach actually germinate better when the soils are cooler.

Warm Season Crops

- ▶ Corn
 - ▶ Beans
 - ▶ Squash
 - ▶ Melons
 - ▶ Eggplant
 - ▶ Tomatoes
 - ▶ Potatoes
 - ▶ Pumpkins
- Peppers
 - Zucchini
 - Cucumber
 - Kohlrabi
 - Herbs
 - Onions

Famous Vegetable Families

- Goosefoot - beets, chard, spinach
- Mustard - cabbage, broccoli, kale, cauliflower, collards, turnip, radish
- Parsley - carrot, parsley, celery, parsnip
- Gourd - squash, melon, cucumber
- Composite - lettuce, artichoke, endive, salsify, chicory
- Lily - onion, garlic, leek, chive
- Grass - corn
- Legume - pea, bean
- Nightshade - tomato, eggplant, potato, pepper
- Mallow - okra

Step 1: Planning

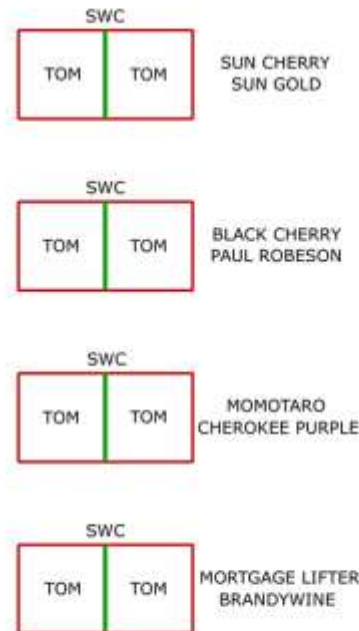
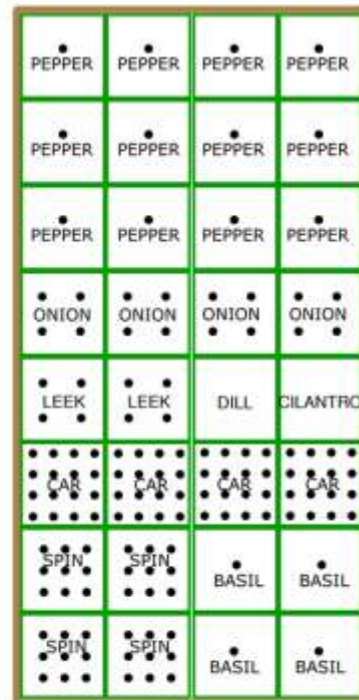
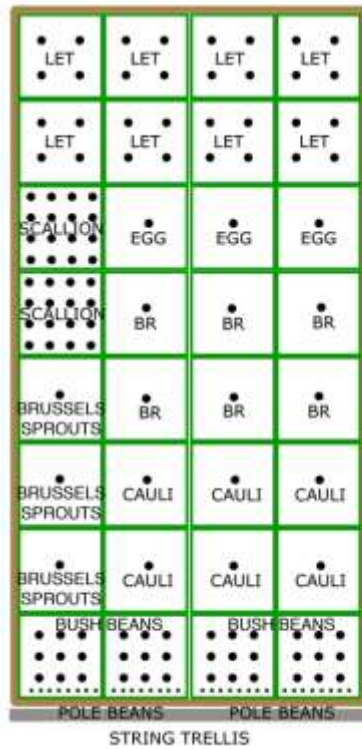
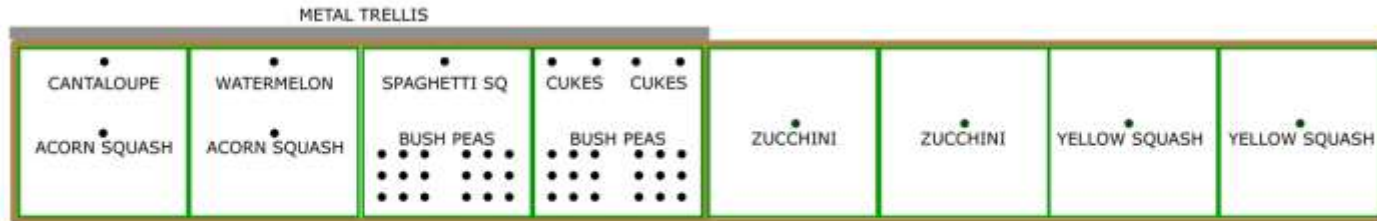
- ▶ Begin early (observe your site)
- ▶ Sun, Shade, Soil type, etc.
- ▶ Accessibility, maintenance, irrigation, and aesthetics, protection from elements or animals.
- ▶ South sides of homes, sheds, other structures works very well (at least 6-8 hours full sun; more is better).
- ▶ Stay away from large trees that will shade your veggies and compete for nutrients.
- ▶ Space available (traditional or raised bed?)



Plan a Garden Layout



Square Foot Garden Plan



Planning

- ▶ Record keeping (write it all down)
 - ▶ Varieties (try some new things from time to time)
 - ▶ Locations (where you plant each year)
 - ▶ Weather - frost dates, seed dates, etc.
 - ▶ Successes
 - ▶ Failures
- Crop rotation
- Companion planting or Interplanting with flowers

Gardening gets into your blood and it won't be a bother or a chore, but will increase your desire to get out in the dirt and grow your own food!

You Can Plant Veggies Anywhere





Garden Layout or Method

▶ Traditional: Rows

- ▶ Consider walking space- room to work
- ▶ Maintenance and soils/fertilization
- ▶ Room to pick produce
- ▶ Crop rotation, placement, irrigation?
- ▶ Typically in rows, more space needed

▶ Raised Beds: Intensive planting

- ▶ Less space
- ▶ Crop rotation still needed
- ▶ Yearly soil amendments needed
- ▶ Different thought processes(maintenance, irrigation, etc.) You will want to think differently.
- ▶ Still very productive for small areas



Traditional Gardening



- ▶ Rows
- ▶ Planted with even spacing
- ▶ Walking/ cultivation between rows.
- ▶ Important to rotate crops
- ▶ Watered by furrows, drip or spray methods
- ▶ Lots of space, a lot of produce wanted and aesthetics reasons.









Raised Beds

▶ Square Foot Gardening Principles:

▶ Raised Bed Gardening :

- ▶ Elevated structure
- ▶ Temporary (no structure, just mounded up)

- **Advantages**

- Soil improvements
- Drainage
- Warm soils
- Lengthen growing season
- Irrigation methods
- Plant maintenance
- Mulch
- Location/site
- Low Tunnel Covering
- Cold Frame cover

- **Disadvantages**

- Initial Work
- Soil amendments
- Costs (variable)
- Irrigation Methods















Step 2: Soils

- ▶ Good garden soil should be deep, loose, fertile, well-drained, and be neutral pH.

Likely you don't have that in your yard but some do!

- ▶ Most northern Utah soils are generally alkaline, clay and clay loam (there is always an exception- sandy areas).
- ▶ Soil tests from USU; contact your county agent. (Cost is about \$25.00)
- ▶ Improve soil by adding organic matter every year. (This is a process of building soil and should be ongoing each year)
- ▶ Till and turn the soil to mix in organic matter and loosen to prepare for planting.
- ▶ With raised beds you are using a pre-mixed “artificial” soil, so you will know what is in it; continued compost is needed each year to add nutrients.



Loamy soil with organic matter



Dried clay as it contracts



Soil Amendments For all Veggie Gardening

Cheap/free

Compost

Manures (aged)

Sawdust*

Woodchips*

Leaves*

Garden waste

Grass clippings

Other Materials

Sphagnum peat moss

Coconut husks (water holding)

Pine needles*

Other plant materials

*will need additional nitrogen



Compost Piles



Trench Composting



Step 3: Fertilization

- ▶ Vegetables require high levels of minerals and water. Plants grown under stress lacking proper water or fertility are not as productive nor as desirable to the palate.
- ▶ Using natural fertilizer in compost is good, but some extra fertilizer may be needed.
- ▶ **Do not over fertilize!!** If a little is good a lot is not better. Proper volume and timing is everything. Do some homework- all plant needs are different- it changes throughout the year.



Nitrogen (24)

Phosphorous (5)

Potassium (11)

Nitrogen - Needed for top growth (stems and leaves-green parts)

Phosphorous- useful for Blooms and fruiting

Potassium- Changes nutrients to sugars and starches needed for plant health (Root development).



Fertilization



- ▶ Most native soils have high levels of potassium.
- ▶ Phosphorus availability is often low.
- ▶ Nitrogen is readily leached from soil and must be added regularly for high yields.
- ▶ Timing makes a difference. (Soil temperatures)
- ▶ Choose your method then be consistent.

(liquid, slow release, granular, weekly, monthly, semi-annually, etc.)

Too much nitrogen will create vegetative growth but not stimulate fruit development.

Fertilizer for Veggies

- **Low N users:** 1-2 lbs. N/1,000 ft²
 - 1/4 cup 21-0-0 per 10 ft. row
 - Beans and peas
- **Moderate N users:** 2-3 lbs. N/1,000 ft²
 - 1/3 cup 21-0-0 per 10 ft. row
 - Almost all vegetables
- **High N users:** 4-6 lbs. N/1,000 ft²
 - 1/2 cup 21-0-0 per 10 ft. row
 - Corn
- Split applications
- Never apply more than 1.5 lbs N/1,000 ft² at one time

Step 4: Planting Seeds vs. Transplants



- ▶ Timing - cool and warm season crops

Follow instructions on seed packets . General Rule May 15th frost free. March 17th for cool season crops. (Earlier with protection)

- ▶ Seed Viability- some short lived (peas, corn).
- ▶ Purchase seeds from a reliable source that are well labeled. ([great info. in seed catalogs](#))
- ▶ When using transplants, look for plants that don't have bugs, avoid root bound plants, don't just assume the biggest is the best!

Look for plants that are short, stocky and dark green.
Very root bound plants are not desirable



Planting From Seed

- ▶ Using small containers with a potting mix
- ▶ Using peat pellets
- ▶ Follow seed packet instructions.



Transplant Type

- Bare Root
 - Strawberry, asparagus, some field crops like brassicas (usually commercial growers)
 - Less transplant shock, no root bound plants
- Solid Flats
 - Herbs and plants for transplant
- Cell-grown
 - Most common, easy to handle
 - Established root systems



Planting Seed

- Seedling depth
 - (3x rule)
 - 3 times as deep as size of seed)
- Seeding dates vary
 - Cool crops 55-75°F
 - Warm crops 70-90°F
- Soil crusting
 - Add organic matter



Seed Viability and Storage

- ▶ Know how and what to store.
- ▶ Store in cool, low humidity place.
- ▶ Less oxygen and cooler temps. Will keep seeds longer. (Vacuum packed and frozen)
- ▶ If you are going to store seeds, know how to grow them and start them indoors.
- ▶ Growing starts from seed will give you greater variety options.
- ▶ Recent changes in economy have stirred interest in these areas.
- ▶ Seeds don't stay viable forever. Store them correctly for better viability, but get new seeds if you are not getting germination.

Difficult to Establish Seeds

- Slow germination
 - Onion, beets, carrot
 - Can't allow soil to dry or crust
- Can improve success by soaking seeds in water for 24 hours before sowing



Companion Planting & Intercropping

- ▶ Practice to increase yields and reduce problems
- ▶ Examples:
 - ▶ Corn, beans, squash and pumpkins
 - ▶ Tomatoes, peppers, peas, lettuce
 - ▶ Mixing in flowers for color and plant diversity
and to help deter various bugs, pests, and diseases.

There is a lot of info. available on this topic, much has to be learned by observation.

Helps and Techniques

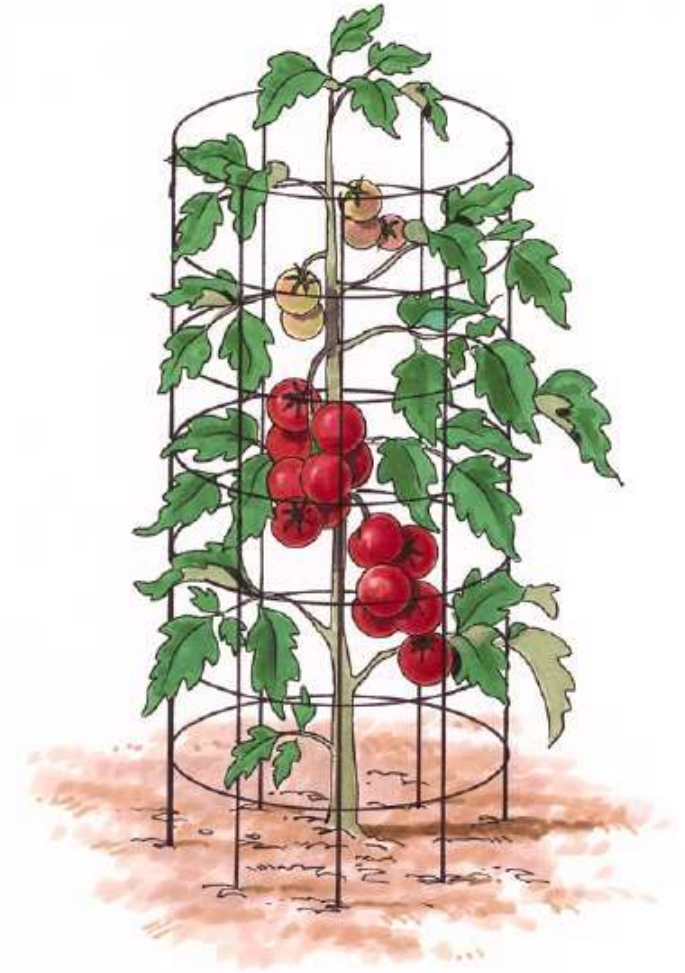
- ▶ Plants that prefer some support:
 - ▶ Peas, pole beans, tomatoes,
- ▶ Getting started early (cold frames, wall of water, hot caps, floating row covers).
- ▶ Training squash, melon and pumpkin vines on fences or walls using trellises and shelves.
- ▶ Hilling - used for melons, squash, etc.





Use Concrete reinforcement steel to make your own cages



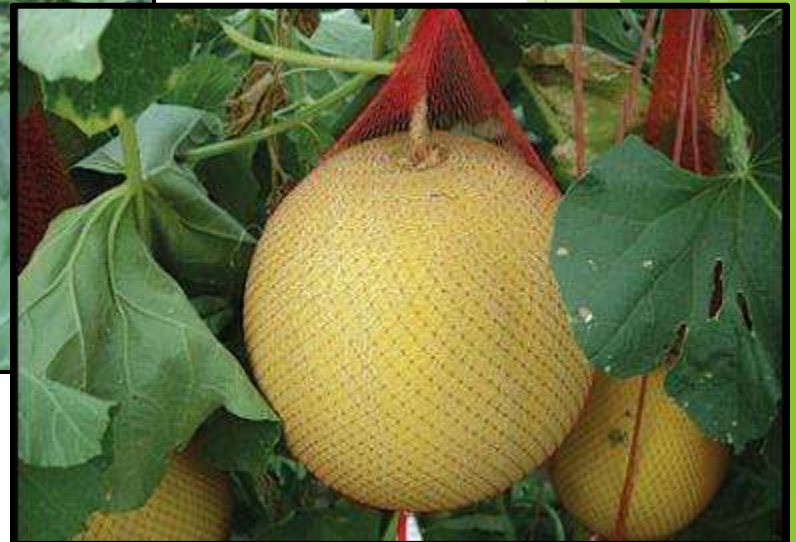












Spunbonded polyester, netting or perforated plastic





Step 5: Irrigation/ Proper Watering

- ▶ 1. Trickle or Drip - Slow, deep and directly to the plants.
- ▶ 2. Weeping Hose- usually only last one season, not very effective at equal volume output for length of hose.
- ▶ 3. Spray system- Waters everything including weeds, can lead to fungal or pest issues.
- ▶ 4. Furrow irrigation- Need to constantly watch this. Very time intensive and not efficient.
- ▶ All methods can be automated or manually operated.
- ▶ Water appropriately to have good produce, reduce pests and other problems. **Veggies do need plenty of water but most likely do not need water every day (except in some raised bed applications).**

Drip Tubing in Traditional Rows: Trickle Tape/ Drip Tape





Step 6: Maintain Your Garden

- ▶ Spend some time in your garden weeding- Daily or weekly
- ▶ Weeds take nutrients and water
- ▶ Use mulches to reduce weeds
 - ▶ Newspaper, cardboard, grass clippings (thin layers)
- ▶ Chemicals can be used but should be used with caution. Always read the label and use as directed. Pre- emergent can help but do your homework and read/follow label directions or you may affect veggie plant growth.
- ▶ How you irrigate can effect the maintenance needed.

Control Pest and Disease

- ▶ USU extension has a lot of info. for biological and chemical controls.
- ▶ If you have bug problems, use caution when using chemicals. Inter-planting/companion planting may be used to discourage pests.
- ▶ Proper irrigation, crop rotation, proper cultural practices will eliminate most problems.
- ▶ There are bound to be issues year to year so don't get too worried about things.



Step 9: Harvest, Eat Fresh or Store

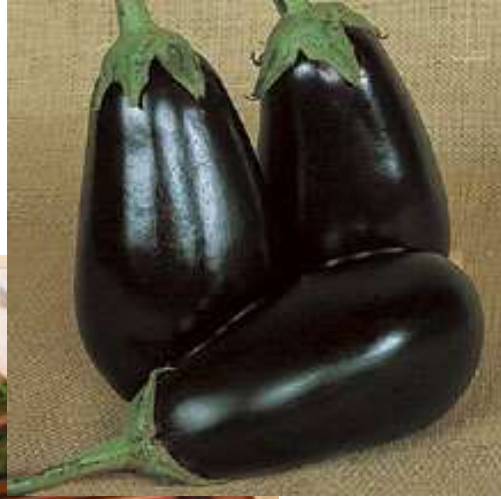
- ▶ Pick when veggies are at their peak, ripe and ready to eat.
- ▶ If you can't eat all you have when ripe, learn how to properly store it (bottles, dried, cold storage, etc.)
- ▶ Learn how to use your produce.
- ▶ You will love the flavor and quality and be at ease because you will know what has been used to grow your food, and who has handled it.











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Sweet Corn

se (sugary enhanced)

se+ (fully sugary enhanced)

sh2 (super sweet- extra tender)

su (normal hybrids) - require no isolation

when planting

se/sh2 hybrid crosses



- Solid Yellow
 - White,
 - Bicolor
(many varieties to
chose from)
- **Plant hybrid varieties
at least 250 ft from
other varieties for best
results.**



Herbs

- ▶ Chives
- ▶ Basil
- ▶ Cilantro
- ▶ Parsley
- ▶ Thyme
- ▶ Rosemary
- ▶ Mint
- ▶ Horseradish
- ▶ Dill Weed
- ▶ Garlic
- ▶ Oregano



Chose a site that gets 8 hours of sunlight, is easy to access, is close to the home where you can admire the beauty, smell and functionality of this small area.

Soils should be loose, but not too rich as it can lead to more disease prone herbs.





Happy Gardening!!

► Resources:

1. USU Extension Service
2. The internet (don't believe everything you read)
3. Local nurseries and garden supply stores
4. Seed catalogs
5. Books
6. Other Gardeners. Most love to share what they have done and what they have learned.

Questions?

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