

Getting a Jump Start on Your Veggie Garden



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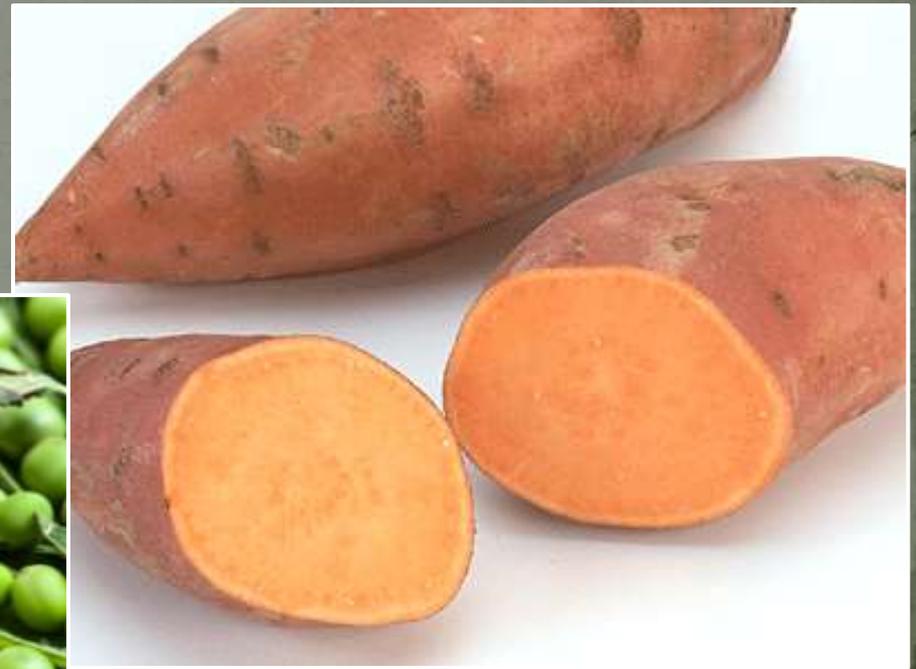


Focus of this class:

- Planning- wants/needs, location, etc.
- Starting your own plants from seed
 - Light
 - Soil
 - Moisture
 - Temperatures
 - Seed packet information
- Preparation for in ground sowing
- Methods to protect your seedlings/starts

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>

Planning

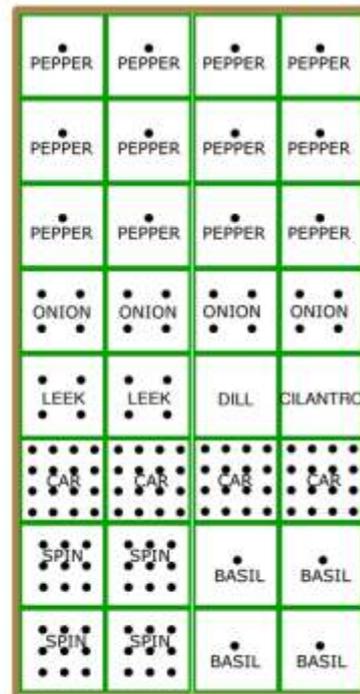
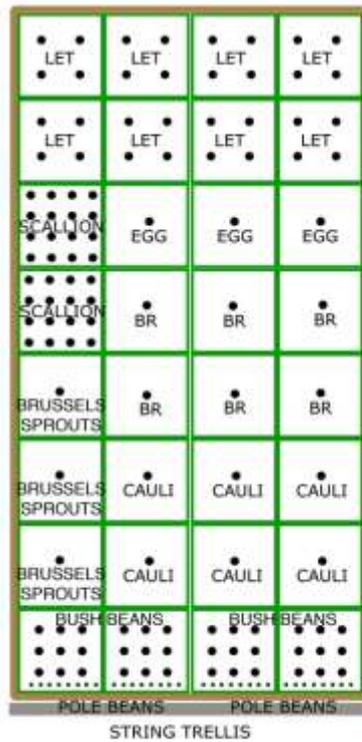
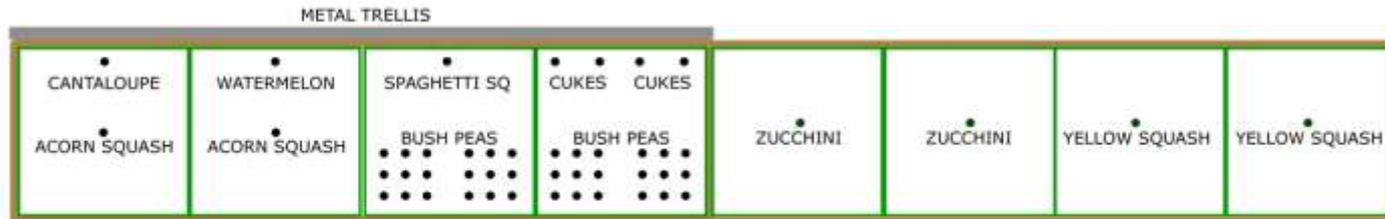
- Record keeping (write it all down)
 - Varieties (try some new things from time to time)
 - Locations (where you plant each year)
 - Weather – frost dates, seed dates, etc.
 - Track successes and failures
- Crop rotation year to year
- Companion planting or interplanting with flowers

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!

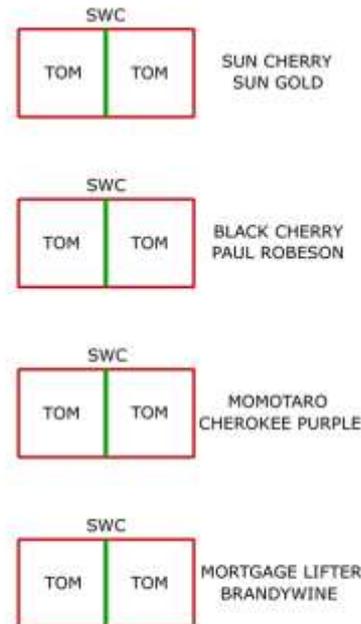
Plan a Garden Layout



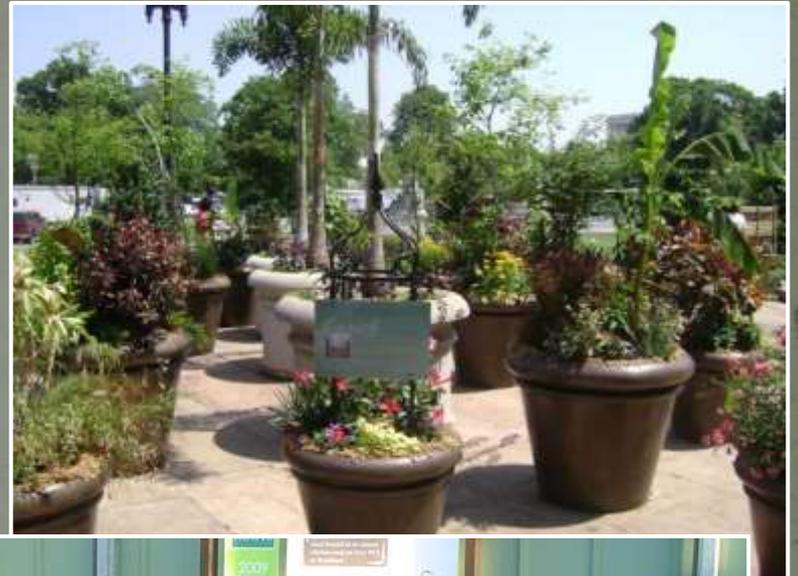
Square Foot Garden Plan



NORTH



You Can Plant Veggies Anywhere



Why Start Your Plants From Seed?

- It can save you money ??
 - Depends on how much you invest on lights, trays, soil medium, etc.
 - Seeds are relatively inexpensive for the number you get.
- Increase the varieties you can grow, because nurseries are limited on varieties they sell.
 - Heirloom or seeds from other countries (there are seed exchanges)
 - You can also choose seed source if that is a concern
- The satisfaction and pleasure of starting your own.
- Working with little green plants in winter 😊
- Knowing what has been applied/done to your plants.
- Experimentation; various methods, soils, etc.
- Not dependant on availability in stores.

Requirements for Success

1. Proper growing medium (soil mixes)
2. Right containers (sized appropriately)
3. Viable seed to germinate
4. Proper timing
5. Right amount of light
6. Proper day and night temperatures
7. Right amount of water /nutrients
8. Proper hardening before transplant into the garden.

Challenges of Growing Your Own

- Takes time, effort and patience.
- Requires regular monitoring and care.
- The plants need proper conditions to grow and thrive
- You may need additional equipment or supplies.
 - Lights, trays, work space, etc.
- Your time and effort vs how much you plan to grow.



Soil or Starting Media

- Many Options- You decide by experimentation
 - Home mixed-
 - Compost, Vermiculite/Perlite, Coconut Coir, Peat Moss. Some use worm castings
 - Mix it in a bucket or bin and use as needed. Add starter fertilizer if you are not using compost.
 - Store purchased-
 - Many options available and brands
 - Germination Mix (finer texture, good water holding)
 - Potting Soil (bags, trays, etc).

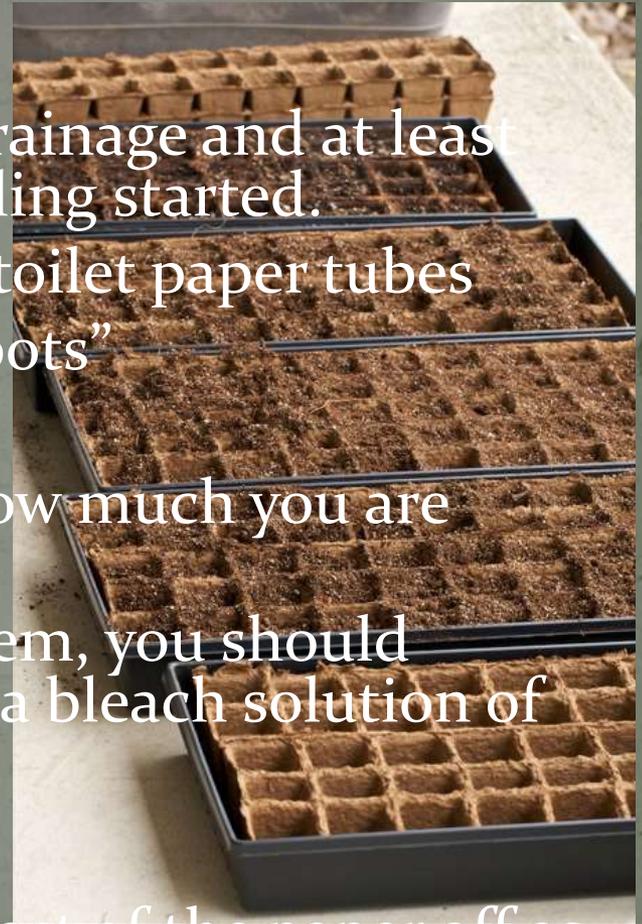


Soil Mixes (Not real soil)

- Soil mixes must be loose, fertile and disease free.
- Do not use garden soil because it introduces pathogens and is too heavy.
- Water the mix before planting
- Some mixes do not absorb the water well when really dry (peat becomes hydrophobic)
- Most mixes are soil-less. They don't contain any soil. Most are peat moss, compost and other materials.
- Most home gardeners will buy a mix and have good success with starting all their seeds.

What Container Should be Used?

- Anything works as long as you have drainage and at least enough growing media to get the seedling started.
- Some more economical – Newspaper, toilet paper tubes
- Some pre-packed- Peat pellets, “jiffy pots”
- What you do may be determined by how much you are doing and the ease you want.
- If used before, and fungus was a problem, you should sterilize your starting containers. Use a bleach solution of 1 part bleach to 9 parts water.
- Peat Pots may not break down- tear most of the paper off as you transplant into the garden.



Planting From Seed

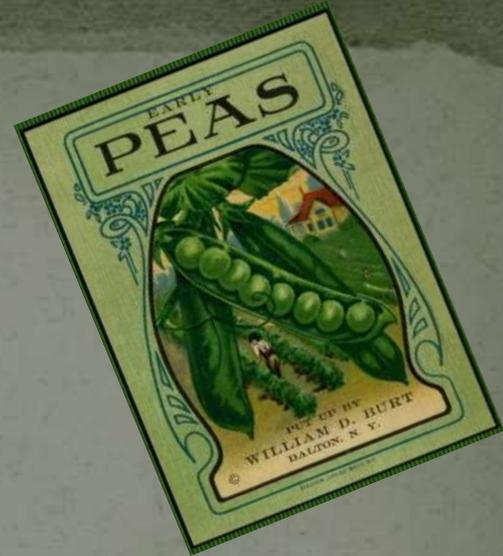
- Using small containers with a potting mix
- Using peat pellets
- Follow seed packet instructions.





Seeds and Seed Packets

- Use Quality Seed.
- Many companies to choose from- online or catalog
- Local sources and nurseries
- Order well in advance of when you need them. (Order now and future years do it in January)
- Check varieties for “days to harvest” to make sure that variety will work (160-170 days in our season May-Oct)

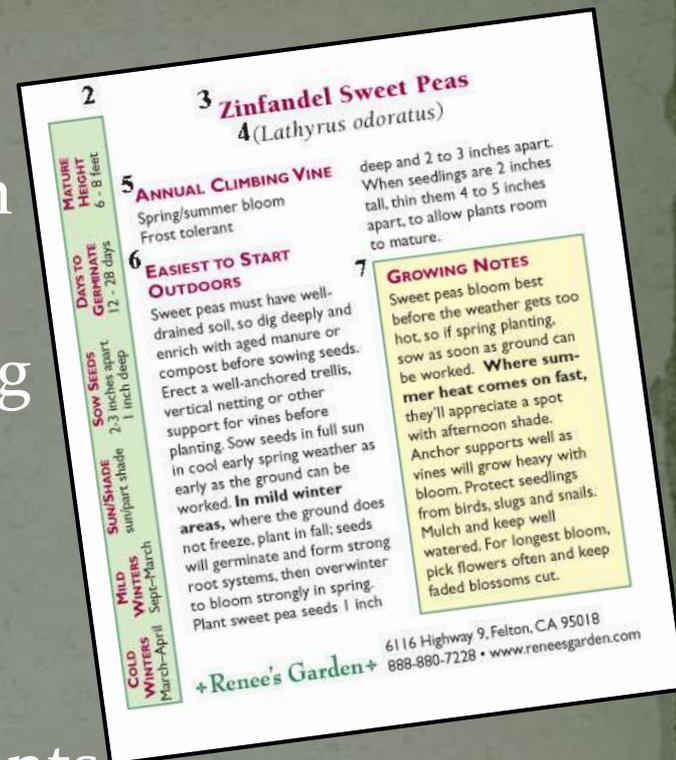


Seed Planting Depth	Seed Spacing	Days to Germination	Plant Spacing After Thinning	Plant Height	Days to Maturity
1/4 inch	6 seeds/ft	6-10	6-12 inches	3-5 feet	55

x of Can that 4-6 ked atu- 1/2". Row re is seed- bring side

Seeds and Seed Packets

- The packets have most information you need (use that information)
- Time of year to start if direct sowing
- Light requirements
- Moisture requirements
- Spacing and planting depth
- Some will have thinning requirements if needed (small seeds that may be hard to plant)



Seed Viability and Storage

- Know how and what to store and how long.
- 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.
- Recent changes in economy have stirred interest in these areas.
- Seeds you harvest yourself may have different traits from original.



Germination Test/ Seed Viability

- For larger seeds (peas, corn, etc.), soak them. If they are floating after some time in water, they are usually not viable.
- Take a few seeds, put them in damp paper towels in a bag in a warmer location. Let them germinate then count the percentage of those that didn't grow to see average viability for a packet.
- Go ahead and plant the seeds, then replant if they don't grow.



Testing Germination Rates



The Needs of Seeds

- Know what is needed by what you are planting
 - Some need light, others need dark, some need warm, others cool, some need scarified/scratching or a cold period first.
- For most veggies there is a similar requirement. They want warmth and water. No light needed until they sprout and come out of the ground.
- For some perennial, trees and shrubs, there are varied needs for germination to occur.
- READ INSTRUCTIONS on seed pack or do your homework !! 😊
- Some seeds will do best directly seeded into soil

Seed Viability

How long will vegetable seeds last if stored properly?

Seed Type	Years	Seed Type	Years
Asparagus	3	Muskmelons	5
Beans	3	Onions	1
Beets	4	Peas	2
Broccoli	5	Peppers	2
Cabbage	5	Pumpkins	4
Carrots	3	Radishes	5
Cauliflower	5	Spinach	5
Corn	2	Squash	4
Cucumbers	5	Tomatoes	4
Lettuce	5	Watermelons	4

Seed Viability

- Marjoram
- Parsley
- Onion
- Parsnips
- Oregano

1
year

When properly stored, most garden seeds will keep & remain viable (alive & able to grow) for a number of years.

- Chives
- Pepper
- Leek
- Sage
- Okra
- Sweet Corn
- Peanut

2
years

Seeds are best stored in a cool, dry, dark location with less than 40% humidity.

- Asparagus
- Fennel
- Bean
- Kohlrabi
- Broccoli
- Pea
- Carrot
- Spinach
- Celery
- Tomatillo

3
years

Germination rates of seeds decline over time. Be sure to check the germination rate of your stored seeds each year!

- Beet
- Gourd
- Summer Squash
- Brussel Sprouts
- Kale
- Swiss Chard
- Cabbage
- Mustard
- Tomato
- Cauliflower
- Radish
- Turnip
- Eggplant
- Rutabaga
- Winter Squash

4
years

- Artichoke
- Cucumber
- Arugula
- Dill
- Basil
- Lettuce & Greens
- Cilantro
- Melon

5
years

A Growing Garden

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*These are estimates only. There are many factors that affect the viability of seeds including time, temperature, moisture, & storage conditions. Germination rates may vary.

Enter spring frost-free date (include year):

05/15/2013

Crop	Number of weeks to start seeds before setting-out date	When To start inside		Safe time to set out plants (relative to frost-free date)	Setting-out date	
		From	To		From	To
Artichoke	8	20-Mar		gg frost-free date	15-May	
Basil	6	10-Apr		1 week after	22-May	
Beets*	4 to 6	20-Mar	3-Apr	2 weeks before	1-May	
Broccoli	4 to 6	20-Mar	3-Apr	2 weeks before	1-May	
Cabbage	4 to 6	6-Mar	17-Apr	4 weeks before	17-Apr	15-May
Cauliflower	4 to 6	20-Mar	17-Apr	2 weeks before	1-May	15-May
Celery & celeriac	10 to 12	27-Feb	13-Mar	1 week after	22-May	
Collards	4 to 6	6-Mar	20-Mar	4 weeks before	17-Apr	
Corn salad/mache	4 to 6	20-Feb	27-Mar	3 to 6 weeks before	3-Apr	24-Apr
Corn*	2 to 4	17-Apr	15-May	0 to 2 weeks after	15-May	29-May
Cucumber	3 to 4	24-Apr	8-May	1 to 2 weeks after	22-May	29-May
Eggplant	8 to 10	20-Mar	10-Apr	2 to 3 weeks after	29-May	5-Jun
Kale	4 to 6	6-Mar	20-Mar	4 weeks before	17-Apr	
Kohlrabi*	4 to 6	6-Mar	20-Mar	4 weeks before	17-Apr	
Leeks	8 to 10	20-Feb	6-Mar	2 weeks before	1-May	
Lettuce	4 to 5	13-Mar	27-Mar	3 to 4 weeks before	17-Apr	24-Apr
Melons	3 to 4	1-May	8-May	2 weeks after	29-May	
Mustard*	4 to 6	6-Mar	20-Mar	4 weeks before	17-Apr	
Okra*	4 to 6	17-Apr	15-May	2 to 4 weeks after	29-May	12-Jun
Onions	8 to 10	6-Feb	20-Feb	4 weeks before	17-Apr	
Parsley	9 to 10	13-Feb	27-Feb	2 to 3 weeks before	24-Apr	1-May
Peas*	3 to 4	20-Feb	13-Mar	6 to 8 weeks before	20-Mar	3-Apr
Peppers	8	3-Apr		2 weeks after	29-May	
Pumpkins	3 to 4	1-May	8-May	2 weeks after	29-May	
Spinach	4 to 6	20-Feb	27-Mar	3 to 6 weeks before	3-Apr	24-Apr
Squash	3 to 4	1-May	8-May	2 weeks after	29-May	
Swiss chard	4 to 6	20-Mar	3-Apr	2 weeks before	1-May	
Tomatoes	6 to 8	27-Mar	17-Apr	1 to 2 weeks after	22-May	29-May
Watermelon	3 to 4	1-May	8-May	2 weeks after	29-May	

Planting Timing

- Important to know the date of the average last spring frost (**generally May 10 for northern Utah but varies by several days based on location**)
- Count back from this date to know when to start indoors (following seed packet instructions)
- Some varieties require more time or less time
 - Germination
 - Growth to size ready for transplant
 - Some will suffer if started too early
 - You may need to repot into a large pot if they are getting too big.

Sometimes you will have to be very patient and wait.

Because of its distinctively different flavor and texture, this is a highly desirable cucumber for slicing and salads. Long, curved, gray-green fruits are often 2 to 3 feet long with a diameter of 3 inches. This packet will plant approximately 13 hills.

Days to Germination	Days to Harvest	Planting Depth	Spacing: Hills/Row	Preserve By
8	55	1/2 in.	4 ft./8 ft.	Pickling

Late May - June
Late April - July
March - July
February - June






It is best to sow 3 seeds over a hill 12 inches tall and 2 feet across with well-drained soil. For smaller gardens, plant alongside fence or trellis.

When plants are 2 inches tall, thin to 2 plants per hill. Plant at 3 week intervals up to mid-June for fresh cucumbers all season. Keep fruits picked.

SUGGESTIONS:
 Plant cucumber seeds only after all danger of frost is past and ground is warm. They need lots of sunshine and water. Keep weeds to a minimum with a straw or leaf mulch.

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CARROT

The classic flavor favorite. Almost coreless, 6-inch roots with bright red-orange color throughout. Crisp texture and an abundant producer. Keeps and freezes well. Harvest in 55 days. Packet plants 40 ft.

					
Light	Row Spacing	Plant Spacing	Planting Depth	Days to Germination	Plant Height
Full Sun	12 in.	2 in.	1/4-1/2 in.	14-21	12-18 in.

Gardener's Notes: Sow seed directly in the garden in spring. Carrots need light, well-drained, sandy soil. Sprinkle seeds evenly in the row, about 3-4 per inch. Keep soil moist during germination and growth. Thin young seedlings. Sow every 2-3 weeks until early summer for continuous supply. Harvest when rounded, orange tops appear. For easier harvest, moisten soil. In mild climates, plant again in fall and winter.

Light Requirements

- Most veggie seeds need **NO** light to germinate.
 - Flowers and some others need light.
- Once plants have germinated, they need lots of direct light.
- Without proper light seedlings will become weak, tall and leggy- condition which can't really be fixed.
 - New actively growing plants can use 14-16 hrs. of light.
 - A sunny window sill in March is not quite enough but if you have nothing else it may do.
 - For best success, you will need artificial light
 - Buy or build a set up if you plan to start seeds every year.
 - Florescent bulbs are best (placed no more then 3" above plants)
 - Incandescent bulbs get too hot, lack full spectrum of light.

Lighting – a must for starting indoors





Moisture

- The soil mix should be pre-moistened before planting
- After planting seed, cover with soil (proper depth), and moisten with mist (won't wash the seed out).
- Cover the container with plastic to keep moisture in during germination. (remove after seedlings emerge)
- Regularly check moisture content and water as needed to maintain moist but not soggy conditions.
- Drying out will most likely lead to death.
- Good soil mix will hold moisture well. Be careful not to keep it saturated and create fungal issues (damping off).

Temperature Requirements

- Once seedlings are growing, they prefer daytime air temps between 60-80 degrees.
- Night temps should be 10-15 degrees cooler.
- Soil temps should be 50-85 degrees.
 - To warm up soil, especially during germination, use a heating pad, rope lights, etc. Your lights will help with soil temps but light not needed during germination.



Temperatures

- Too warm can create rapid growth and spindly, weaker plants.
- Temps in lower range produce tougher plants, but they will be slower growing. (stalking, sturdy plants)



Hardening Off for Transplanting

- This is a “toughen up” process
- It prepares tender leaf tissue to tolerate the outdoor environment.
- Usually takes about 2 weeks
- Start when seedlings are 4-6 inches tall or have 4-6 leaves.
- Place outside (usually starting in shaded area) and gradually increase the duration they are out. Start with 1 hour and work your way up.
- It will prevent shock, wilt and death of your healthy seedlings.
- Protect from wind and too much direct sun at first. Keep them moist.

Hardening Off

- Use of cold frames or special plant shade cloth fabric. Not required but useful for nighttime protection before final transplant.



Spunbonded polyester, netting or perforated plastic







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 St. Patrick's Day. (March 17th). 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



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 and the functionality of this small area.

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



Summary

- Use good viable seeds- if in doubt, buy new.
- Use a good soil mix for germinating seeds
- Provide proper conditions (light, temp. air flow, moisture, nutrition)
- Harden off seedlings properly
- Transplant mature seedlings outside at proper time and protect them from frost, bugs, rodents, etc.
- Enjoy the experience!!

Happy Seed Sowing!

- 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. Other Gardeners. Most love to share what they have done and what they have learned.

Time for You to Start!