



Planning Your Garden Starting From Seed

Agenda



Introduction

Materials

Planting and Germination

Caring for Seedlings & Transplanting

Garden Plan



Why Start From Seed?

- ♦ Seeds are less expensive than buying starts at the nursery
- ♦ Many more varieties are available in seed catalogues versus what you can buy at the nursery
- ♦ Getting a head-start on the growing season
- ♦ Playing with dirt during winter months
- ♦ The deep satisfaction of creating a garden from beginning to abundance



The Importance of Garden Planning

With a clear plan, gardeners can make better use of space, water, and effort—resulting in a more productive and enjoyable garden

What we need to know when planning a garden



Growing season length



Type of veggie/s to be planted
(cold vs. warm season)



Days to maturity



Weather

the one thing gardeners can't control

Climate

average freeze dates dictate growing season length

USDA Hardiness Zones

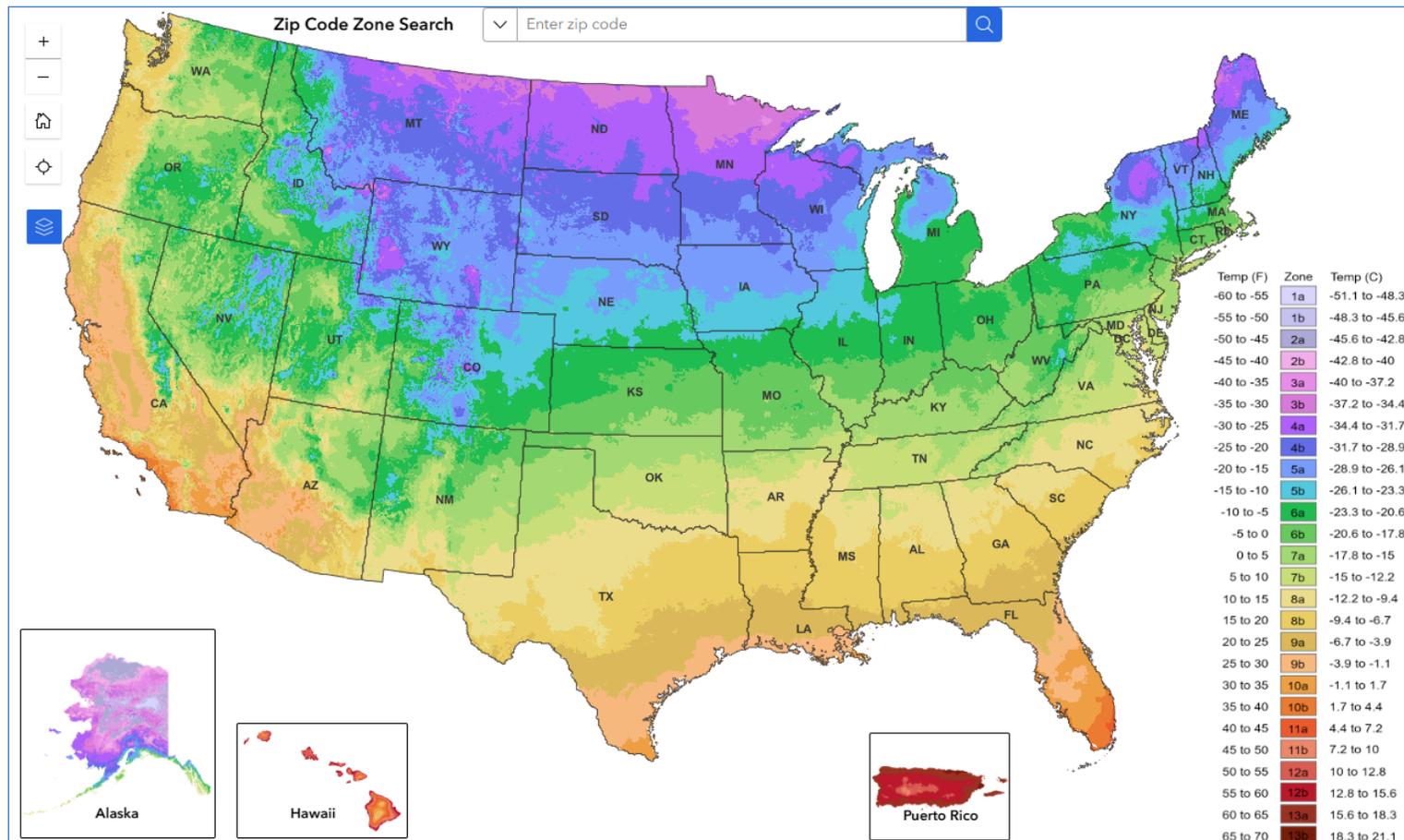
helps you match plants to your region's climate, ranging from zone 1 (arctic) to zone 13 (tropical).

USDA Zones

planthardiness.ars.usda.gov

Home How to use the Maps Map Downloads Map Creation

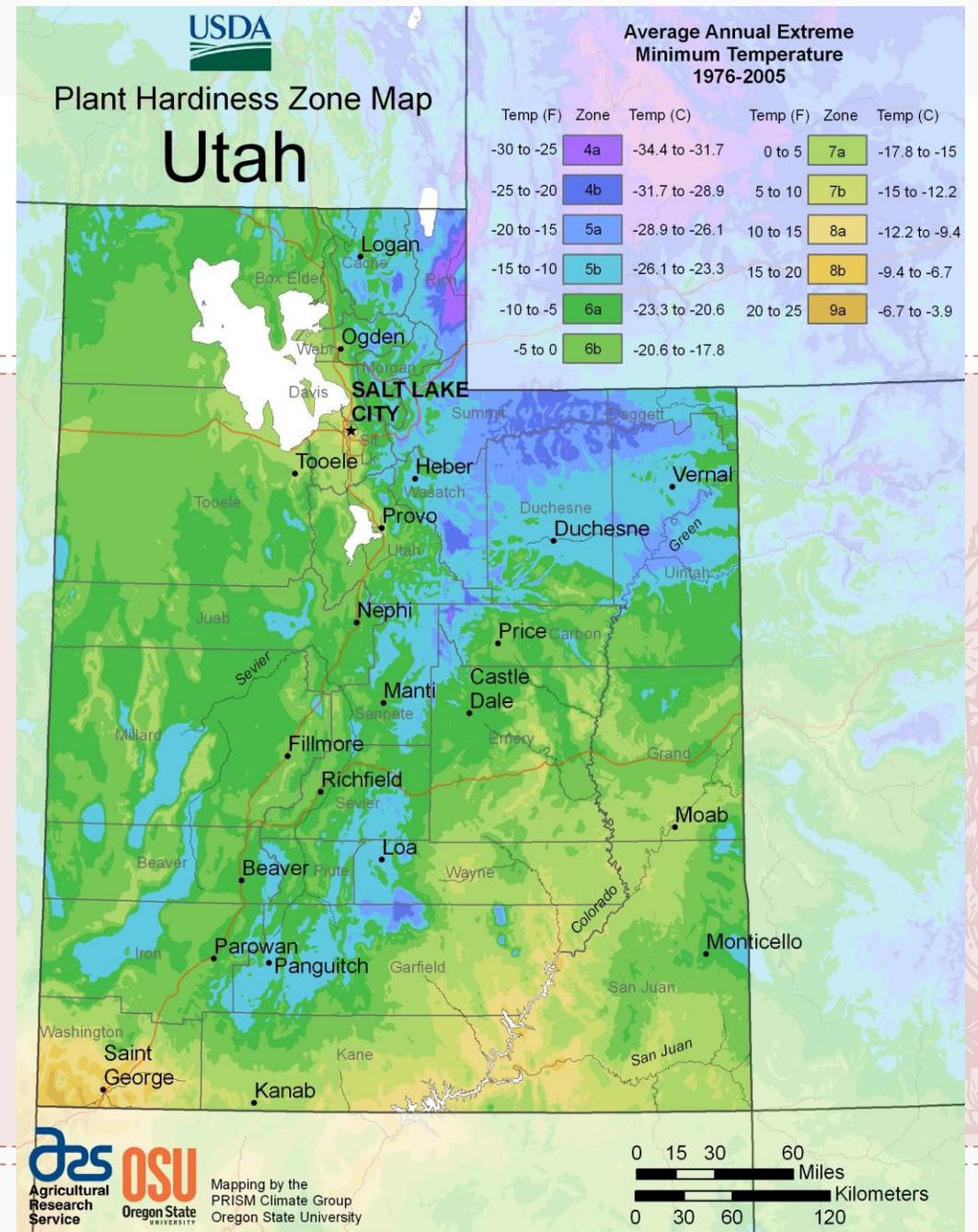
2023 USDA Plant Hardiness Zone Map



Sources: Esri; U.S. Department of Commerce, Census Bureau; U.S. Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), National Geodetic Su... Powered by Esri

Hardiness Zones – Utah

Zone 4 – Zone 9



Average Freeze Dates

Network: **GHCN** ▾

Country: **United States** ▾

State: **Utah** ▾

[Help](#) [Export to CSV](#)

HITE	28-Feb	24-Mar	24-Mar	24-Apr	19-Oct	05-Nov	03-Nov	23-Nov	204	229.7	228.5	259	1900-1962	20
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Results: IN - LA ▾

Results: LA - LO ▲

Station Name	Last spring freeze				First fall freeze				Freeze-free				Period	Years
	Early	Avg	Median	Late	Early	Avg	Median	Late	Short	Avg	Median	Long		
Lasal Mountain-Lower	01-May	21-May	22-May	23-Jun	08-Sep	06-Oct	07-Oct	28-Oct	91	138.7	146.0	158	2012-2025	12
LAVA POINT UTAH	11-May	05-Jun	07-Jun	30-Jun	30-Aug	22-Sep	22-Sep	23-Oct	70	110.3	110.0	153	1995-2025	29
LAYTON	28-Apr	14-May	14-May	30-May	25-Oct	26-Oct	26-Oct	27-Oct	150	165.0	165.0	180	2011-2013	2
LEEDS NEAR	28-Mar	17-Apr	19-Apr	13-May	11-Oct	06-Nov	12-Nov	28-Nov	175	204.2	196.0	239	1912-1939	13
LEHI	01-May	04-Jun	13-Jun	23-Jun	14-Sep	14-Sep	14-Sep	16-Sep	93	108.0	95.0	136	1914-1923	3
LEMAY	10-Mar	28-Apr	24-Apr	05-Jun	10-Sep	06-Oct	09-Oct	27-Oct	102	163.9	168.0	229	1911-1931	16
LEVAN	09-Apr	22-May	21-May	30-Jun	29-Aug	30-Sep	30-Sep	28-Oct	79	131.3	129.0	192	1893-2025	124

Cold Tolerance

Vegetables are divided into 4 CATEGORIES:

1. **HARDY** – tolerate freezing temperatures (32 degrees F) and below freezing for only short amounts of time.
2. **SEMI-HARDY** – tolerate near freezing temperatures for short amounts of time.
3. **TENDER** – near freezing temperatures will damage or kill the plant.
4. **VERY TENDER** – do not like temperatures between 50- and 32-degrees F, can cause stunting, damage or death.



Cool Season Vs. Warm Season Crops

- ♦ Cool season: Ambient 55-75 Soil 35 -75
- ♦ Warm season: Ambient 65-95 Soil 65- 85

Soil Temperature & Seed Germination

Crop	Minimum Temp	Best Temp Range
Beans	60 F	75-85 F
Beets	40 F	65-85 F
Cucumber	60 F	65-95 F
Lettuce	32 F	60-75 F
Peas	40 F	65-75 F
Spinach	32 F	65-75 F
Squash	60 F	85-95 F

Perennial Crops

undergo dormancy in winter,
regrow from crown in spring

- ♦ Asparagus
- ♦ Small fruits – brambles,
strawberries
- ♦ Rubarb
- ♦ Fruit trees, shrubs and vines –
peach tree, currants, grapes



Biennial Crops

Yr. 1 is vegetative growth, undergo dormancy in winter, yr. 2 is flower & seed production, die completely the second winter

- ♦ Many will still be harvestable for a short time the following spring:
- ♦ Swiss chard, Kale
- ♦ Beets, Carrots
- ♦ Onions, leeks



Veggie Families

Common temperatures,
 Similar fertilizer needs,
 Similar pests
 Grouping together = easier
 management (in some cases)

Family

Genus

Species

COMMON VEGETABLE FAMILIES

Cool-season crops

Warm-season crops

Solanaceae (nightshade)

Tomatoes, peppers, eggplant,
 tomatillos, potatoes

Poaceae (grasses)

Corn

Cucurbitaceae (cucurbits)

Pumpkins, squash, cucumbers

Fabaceae (legumes)

Peas, beans

Amaranthaceae

Chards, beets, spinach,
 amaranth

Amaryllidaceae (alliums)

Onions, leeks, garlic, shallots,
 chives

Brassicaceae (brassicas)

Cabbage, broccoli, cauliflower,
 kale, mustard, kohlrabi, turnips,
 radishes, arugula

Apiaceae (umbels)

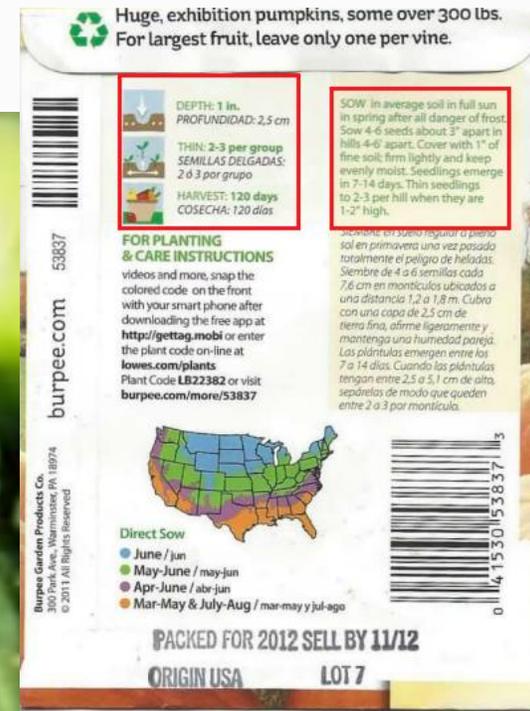
Carrots, parsnips, celery,
 parsley, dill, fennel, cilantro

Asteraceae

Lettuce, artichokes

Days to Maturity (DTM)

- ♦ Approximate number of days from planting outdoors (either direct sowing from seed, or as a transplant) until harvest begins.
- ♦ DTM can be found on the seed packet or the company website.
- ♦ DTM will vary within different varieties of the same species (ex. Sungold tomato Vs. Celebrity tomato).
- ♦ Also varies based of vegetable type and use (ex. Microgreens, baby greens, and mature vegetables)



Direct sowing Vs. Transplanting

Direct Sowing

- ♦ Crops that do best when planted in the garden directly from seed.
- ♦ Root veggies (don't do well in small containers or transplanted)
- ♦ Hardy & Semi-hardy veggies (don't do as well in warm temperatures such as household or greenhouse conditions)
- ♦ Fast maturing veggies can be directly seeded in summer for fall harvest.



Transplanting

- ♦ Tender crops that are started from seed in controlled environment and planted in the garden as “starts” when weather is suitable for growth.
- ♦ Often warm-season crops and veggies with longer DTM to ensure timely harvest in shorter growing seasons.
- ♦ Transplants or “starts” should be ‘hardened off’ before planted in the garden.

	A	B	C	D	E	
1	Crop	Direct sow (DS) or Transplant (1)	Cold tolerance group	Outside sowing time	Outside transplanting time	Notes
2	Artichoke	DS	Semi-hardy	Not recommended	NA	
3	Artichoke	Transplant	Semi-hardy	NA	2 weeks after Hardy group OR 2 weeks before average last freeze date	
4	Asparagus	DS	Hardy	Not recommended	NA	
5	Asparagus	Transplant	Hardy	NA	As soon as soil is workable(2) and soil temperature is above 40F	
6	Beet (*)	DS	Semi-hardy	2 weeks after Hardy group OR 2 weeks before average last freeze date	NA	
7	Beet (*)	Transplant	Semi-hardy	NA	Not recommended	
8	Broccoli (*)	DS	Hardy	As soon as soil is workable(2) and soil temperature is above 40 F	NA	
9	Broccoli (*)	Transplant	Hardy	NA	As soon as soil is workable(2) and soil temperature is above 40F	
10	Brussels sprouts	DS	Hardy	As soon as soil is workable(2) and soil temperature is above 40 F	NA	
11	Brussels sprouts	Transplant	Hardy	NA	As soon as soil is workable(2) and soil temperature is above 40F	
12	Cabbage (*)	DS	Hardy	As soon as soil is workable(2) and soil temperature is above 40 F	NA	
13	Cabbage (*)	Transplant	Hardy	NA	As soon as soil is workable(2) and soil temperature is above 40F	
14	Cantaloupe	DS	Very tender	1-2 weeks after Tender group and nighttime temperatures above 55 F	NA	
15	Cantaloupe	Transplant	Very tender	NA	1-2 weeks after Tender group and nighttime temperatures above 55F	Take care to not disturb root
16	Carrot	DS	Semi-hardy	2 weeks after Hardy group OR 2 weeks before average last freeze date	NA	
17	Carrot	Transplant	Semi-hardy	NA	Not recommended	
18	Cauliflower (*)	DS	Semi-hardy	2 weeks after Hardy group OR 2 weeks before average last freeze date	NA	
19	Cauliflower (*)	Transplant	Semi-hardy	NA	2 weeks after Hardy group OR 2 weeks before average last freeze date	
20	Celery	DS	Semi-hardy	Generally not recommended unless long growing season	NA	
21	Celery	Transplant	Semi-hardy	NA	2 weeks after Hardy group OR 2 weeks before average last freeze date	
22	Chicory (*)	DS	Semi-hardy	2 weeks after Hardy group OR 2 weeks before average last freeze date	NA	
23	Chicory (*)	Transplant	Semi-hardy	NA	2 weeks after Hardy group OR 2 weeks before average last freeze date	
24	Chives	DS	Semi-hardy	2 weeks after Hardy group OR 2 weeks before average last freeze date	NA	
25	Chives	Transplant	Semi-hardy	NA	2 weeks after Hardy group OR 2 weeks before average last freeze date	
26	Cowpea	DS	Tender	After average last freeze date	NA	
27	Cowpea	Transplant	Tender	NA	After average last freeze date	
28	Cucumber	DS	Very tender	1-2 weeks after Tender group and nighttime temperatures above 55 F	NA	
29	Cucumber	Transplant	Very tender	NA	1-2 weeks after Tender group and nighttime temperatures above 55F	Take care to not disturb root
30	Dry bean	DS	Tender	After average last freeze date	NA	

Time and temperature needed to grow vegetable transplants

Crop	Time from seeding to germination (days)	Optimum soil temperature (F)	Time from germination to transplanting (weeks)
Broccoli	7-10	50-85	5-7
Cabbage	4-10	50-85	5-7
Celery	9-21	50-65	10-12
Cucumber	6-10	65-85	4
Eggplant	6-10	65-85	6-9
Lettuce	6-8	50-65	3-5
Melons	6-8	65-85	3-4
Onion	7-10	65-85	8
Pepper	9-14	65-85	6-8
Squash	4-6	65-85	3-4
Tomato	6-12	65-85	5-7

(Source: Salt Lake County/USU Extension Service fact sheet: “Starting Vegetable Seed Indoors”)



Vegetable Transplant Production

Dan Drost, Extension Vegetable Specialist

Table 2. Optimum germination temperature, time for seed germination, plant growing conditions, and times for different vegetable crops.

Crop	Optimum Germination Temperature Range: Soil (°F)	Days to Seedling Emergence	Plant Growing Temperatures (°F)		Time to Grow (weeks)
			Day	Night	
Asparagus	75-85	7-10	65-75	50-60	10-12
Brassica Crops (broccoli, cabbage, kale)	70-80	5-7	60-70	50-60	5-7
Cucurbits (cucumber, melons, squash)	75-95	3-6	70-80	60-70	4-6
Greens (chard, lettuce, spinach)	60-70	2-4	55-75	45-55	5-7
Bulb Crops (leeks, onions)	65-80	6-10	60-70	45-55	8-10
Solanaceous Crops (eggplant, pepper, tomato)	75-85	5-10	65-80	60-70	6-8

Adapted from Knott's Handbook for Vegetable Growers (4th Edition)

Climate + Optimal Growing Conditions = Successful Garden

What crops/ varieties are you planting?

Which will you direct sow and which will you start indoors?

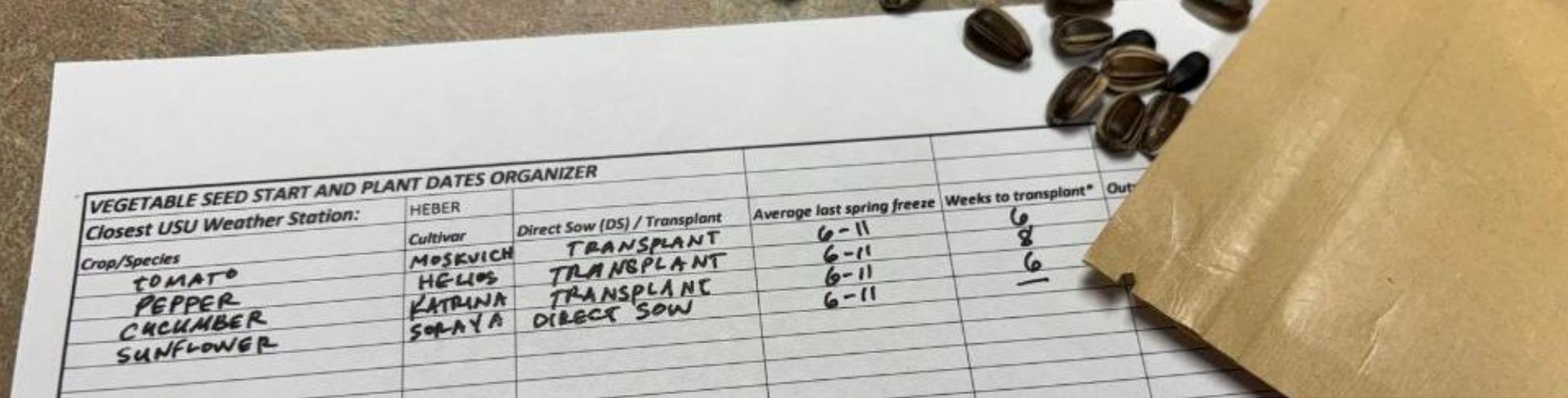
What is the average last frost date?

Count backwards 5-8 weeks (depending on crop) for starting indoors

When is it safe to transplant or direct sow each crop?

Average last frost or soil and air temperature

What is the ave. freeze-free days in your area?



Seed Starting Materials:

- ◆ Seeds
- ◆ Containers
- ◆ Humidity Domes
- ◆ Soilless Mix
- ◆ Supplemental Lighting
- ◆ Heat Source (optional)
- ◆ Labels
- ◆ Spray Bottle & Watering Can
- ◆ Fertilizer



Materials:

- ◆ Seeds
 - ◆ Storage, age, viability, hybrid vs. heirloom
- ◆ Containers
 - ◆ Recycled, plastic, clay, or biodegradable
 - ◆ Must have drainage
- ◆ Humidity Domes
 - ◆ Increase germination success
 - ◆ Keep moisture and humidity at optimal level
 - ◆ Remove shortly after germination



Materials Continued:

- ◆ Soilless Mix
 - ◆ Do not use garden soil
 - ◆ Mixture of peat moss, coconut coir, perlite, vermiculite
 - ◆ “Seed Starting Mix”
- ◆ Supplemental Lighting
 - ◆ “Grow Lights” – pricey
 - ◆ Fluorescent or LED shop lights
- ◆ Heat Source
 - ◆ Heat mat with thermostat
- ◆ Labels
- ◆ Spray bottle & Watering Can
- ◆ Fertilizer



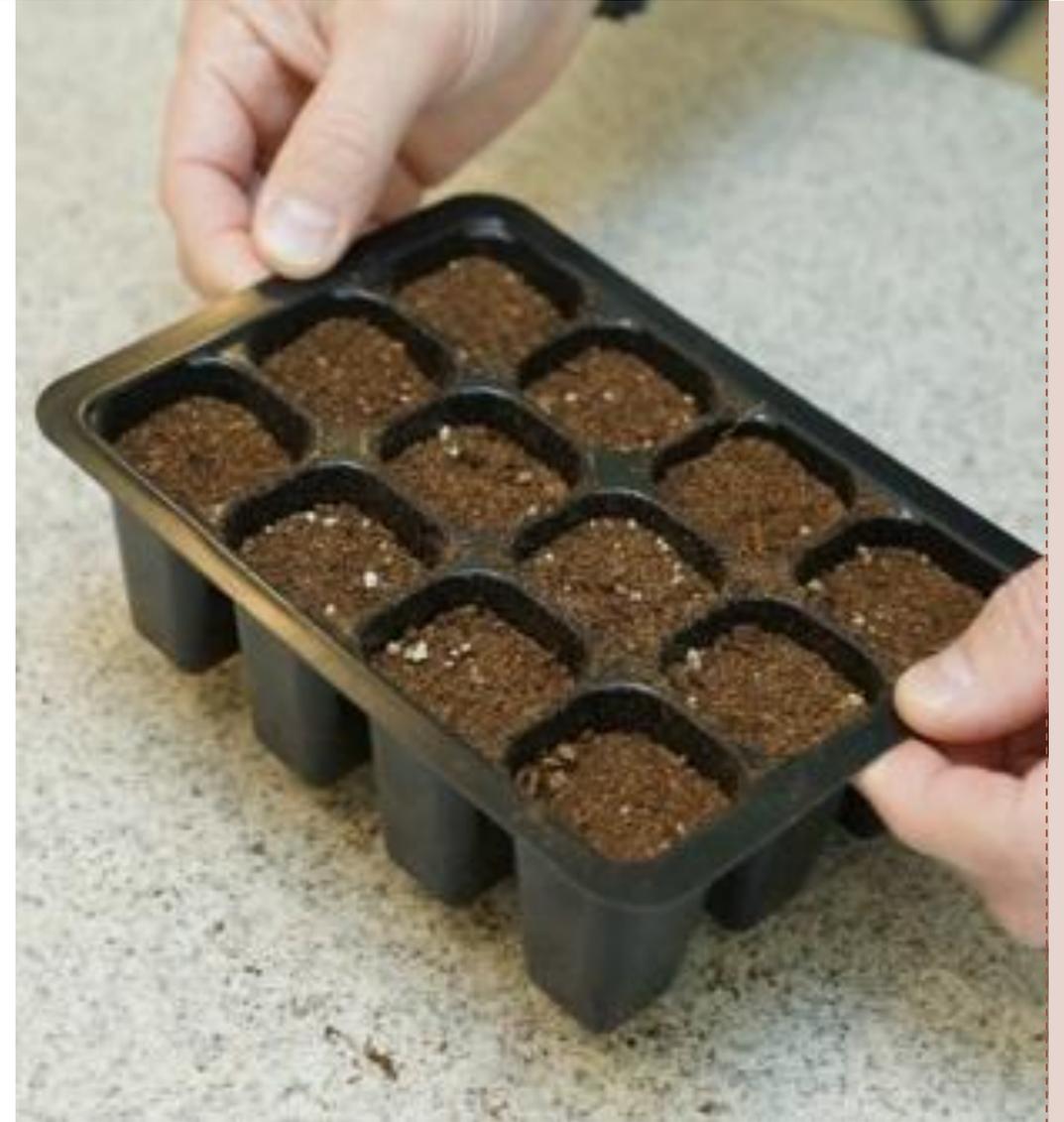
Materials Continued:

- ♦ Supplemental Lighting
 - ♦ “Grow Lights” – pricey
 - ♦ Fluorescent or LED shop lights
- ♦ Not Recommended:
 - ♦ Halogen
 - ♦ Incandescent
- ♦ Suspend lights 2-4 inches above foliage
 - ♦ Adjusting height as seedlings grow
 - ♦ Durable chains
 - ♦ S-hooks, Zip ties, or twine



Time to Plant!

- ♦ Prepare Grow Containers and Soil Mix
 - ♦ Clean and re-used/ recycled containers, trays, and domes
 - ♦ Use 10% bleach and water solution then rinse thoroughly
 - ♦ Always be sure there are drainage holes in containers
 - ♦ Have a solid tray to set containers in
- ♦ *Moisten soil before filling containers*
 - ♦ Potting soil is often dry and can be difficult to hydrate after filling a small or shallow container



Time to Plant!

- ♦ Use pen, pencil, ruler or fingers to lightly pack the soil where you will place seeds
 - ♦ Rule of thumb: 2-3x depth as width of seed
- ♦ Add 2-3 seeds per hole or carefully spread seeds across row
 - ♦ Label as you go!
- ♦ Lightly cover with potting soil, vermiculite, perlite or coconut coir
- ♦ Water in seeds with a spray bottle
 - ♦ Heavy watering can cause seeds to float or move
- ♦ Place on rack or table beneath plant light
- ♦ Leafy greens germinate best with light
- ♦ Optional:
 - ♦ Cover with moist cloth, plant dome, plastic wrap or container lid (be sure to remove wet cloths or plastic wrap after germination)
 - ♦ Place on heat mat



Germination Rates (days)

Fast (3-7)

Beets, Broccoli, Cabbage, Cucumber, Kale, Lettuce, Radish, Spinach, Squash/Pumpkin, Turnip, Sweet Corn

Moderate (7-14)

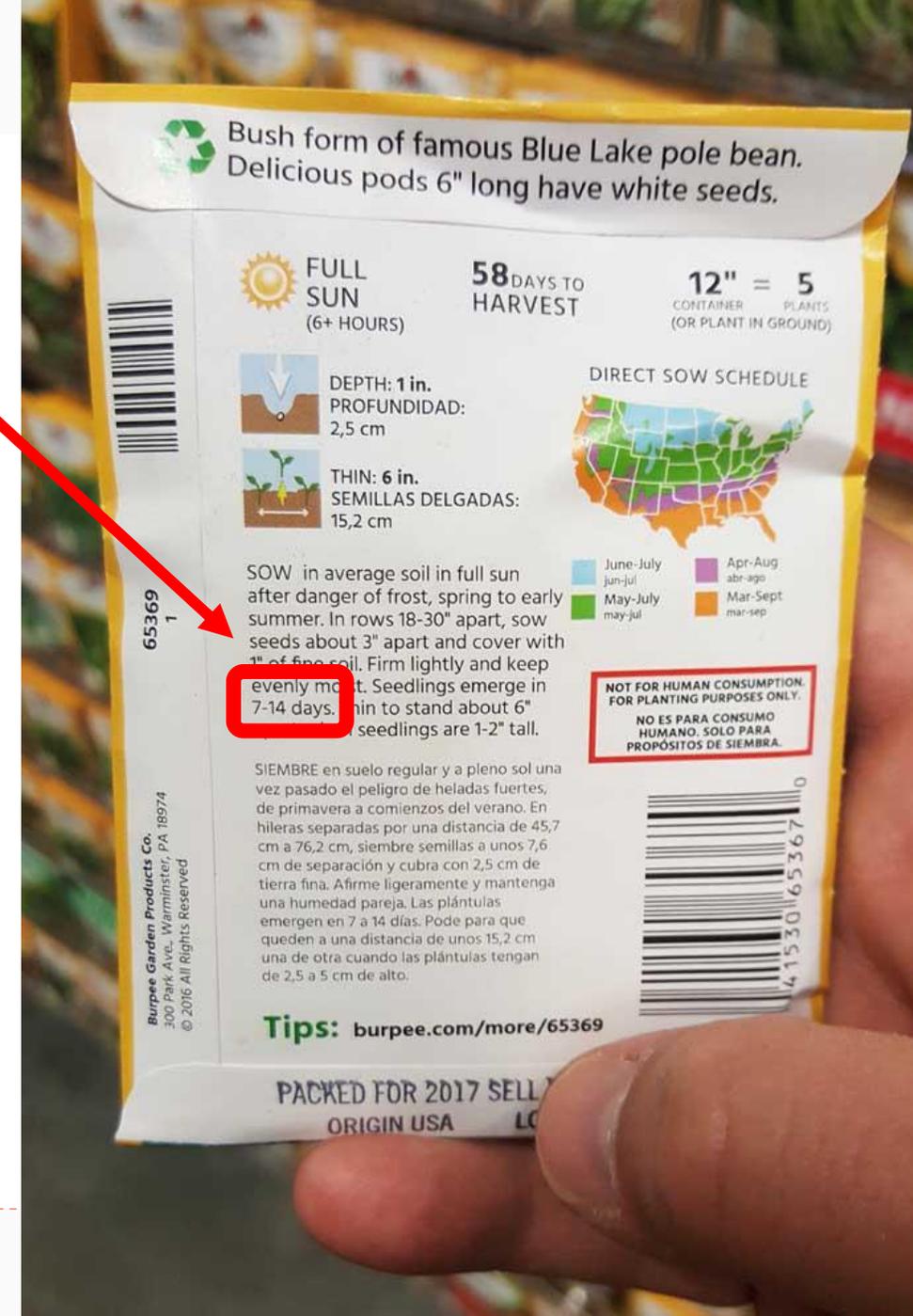
Beans, Carrots, Eggplant, Onions, Peas, Peppers, Tomatoes

Slow (10-28)

Artichoke, Celery, Parsley

Key Factors for Success:

Temperature, Moisture, Storage (viability)



% Germination - Seed Viability Test

Seeds don't last forever (age, quality, and storage)

- ◆ Place 10-20 seeds on moist paper towel
- ◆ Fold paper towel in half to cover seeds
- ◆ Place paper towel in Ziplock, or clear plastic wrap, and set in a warm location (sunny window)
- ◆ Check daily during specified germination period and note # seeds germinated
- ◆ Calculate percentage of germinated seeds (i.e. 7 out of 10 = 70% germination)



Regular Care:

- ♦ Remove Covering or Dome after seedlings germinate.
- ♦ Monitor temperature or heat pad to ensure temperature stays relatively consistent (Warm-Season Crops: soil temp. @ 65-75° F, Cool-Season Crops: soil temp. @ 55-65° F).
- ♦ Keep soilless mix evenly moist (check daily).
 - ♦ As seedlings grow, soil dries out more quickly
 - ♦ Use a watering can or “bottom watering” instead of spray bottle once seedlings are ~1/2 inch
- ♦ Do Not Over-Water!



Regular Care: Fertilizer

- ♦ Liquid, Water-Soluble, or granular Slow-Release
- ♦ Soilless mix may or may not contain seed starting fertilizer.
- ♦ Seedlings benefit from “All Purpose” fertilizer at $\frac{1}{4}$ rate, or as label instruction recommend.
- ♦ Macronutrients
 - ♦ Nitrogen • Phosphorous • Potassium (N•P•K)
- ♦ Micronutrients
 - ♦ Magnesium, boron, copper, iron, manganese, zinc (your seedlings will like these!)



Hardening Off

- ♦ Transplants need to gradually acclimate to outdoor environment.
- ♦ Start by putting them outside for a few hours in the shade during the warmth of the afternoon, protected from wind.
- ♦ Bring them back inside before temperatures start to drop at night.
- ♦ Each day, leave the plants out a little longer, and expose them to a little more direct sunshine.
- ♦ By the end of two weeks, unless freezing temperatures are forecast, the seedlings can stay outside in a sunny area until you are ready to transplant them into the garden.



Winter Sowing

WINTER SEED SOWING IN JUGS



- ◆ Fun and Easy!
- ◆ Inexpensive and Environmentally Friendly.
- ◆ Eliminates the need for Hardening Off.
- ◆ Reduces the need for Watering.
- ◆ Provides Natural Stratification.
- ◆ Produces strong, healthy plants.
- ◆ Grow Unusual Plants you can't find at the nursery.



Step–By–Step Garden Plan



Make a list of crops you want to grow



Draw or Google Earth map of your site



Do a site assessment



Sketch out garden areas and label which crop will be planted where



Make a timeline

Seeding & transplanting

Spring, summer, fall

Planning – Choosing Crops

- ♦ What do you like to eat?
- ♦ Do you like it Fresh, Canned, Dried?
- ♦ Are there crops you like to store (i.e. Onions, Garlic, Potatoes, Winter Squash)?
- ♦ Use known varieties
 - ♦ Reputable companies
 - ♦ Local
 - ♦ Purchase seeds early



Choosing Varieties

- ♦ Resistant varieties – indicated on seed packet
 - ♦ Verticillium wilt, Fusarium wilt, Tobacco mosaic virus, Nematodes
 - ♦ AS : Alternaria Stem Canker
 - ♦ F2 : Fusarium Wilt
 - ♦ N : Nematodes
 - ♦ TMV : Tobacco Mosaic Virus
 - ♦ V : Verticillium Wilt
- ♦ Heirloom, Open Pollinated Vs. Hybrid

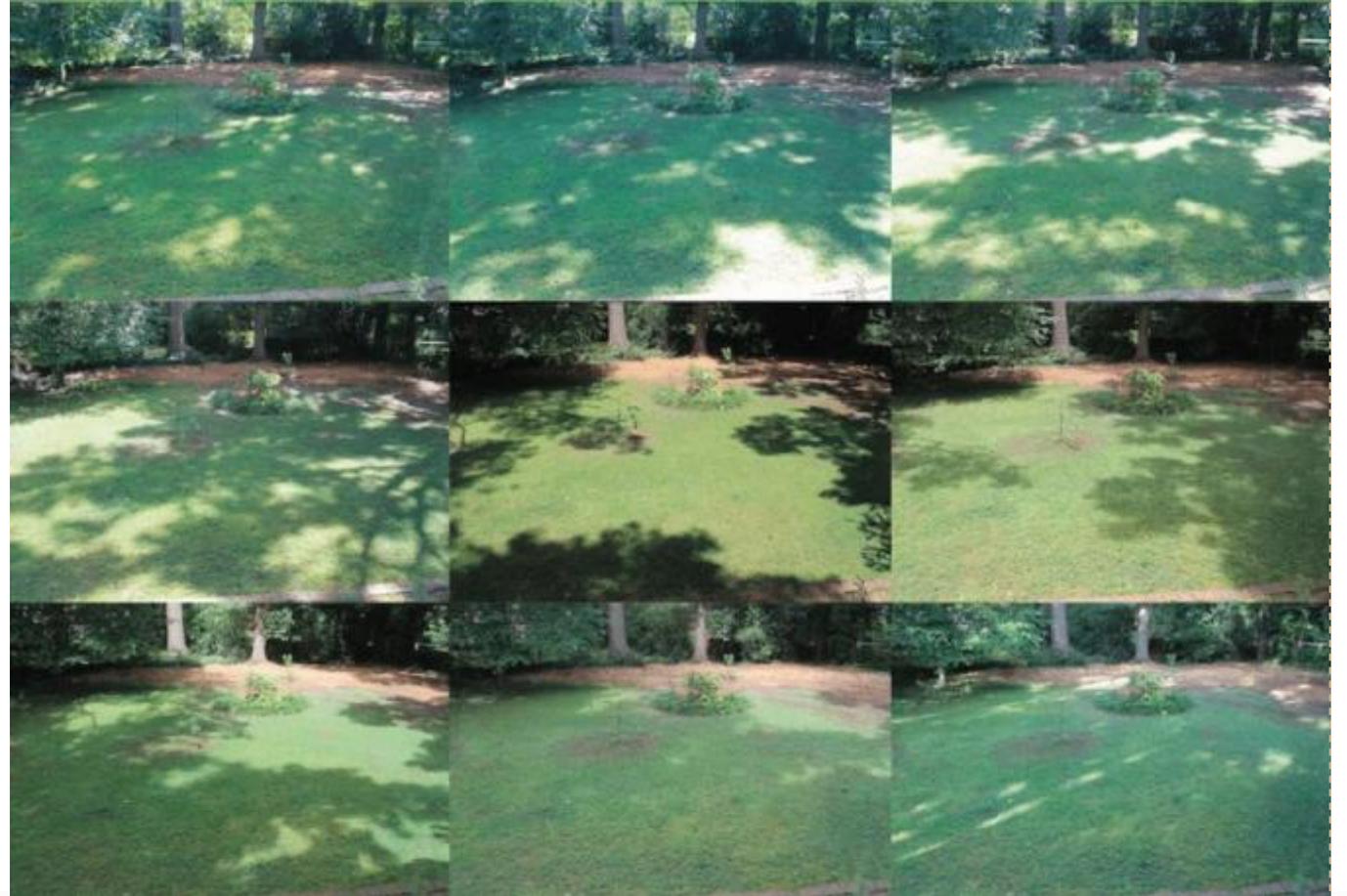


Planning – Site Assessment

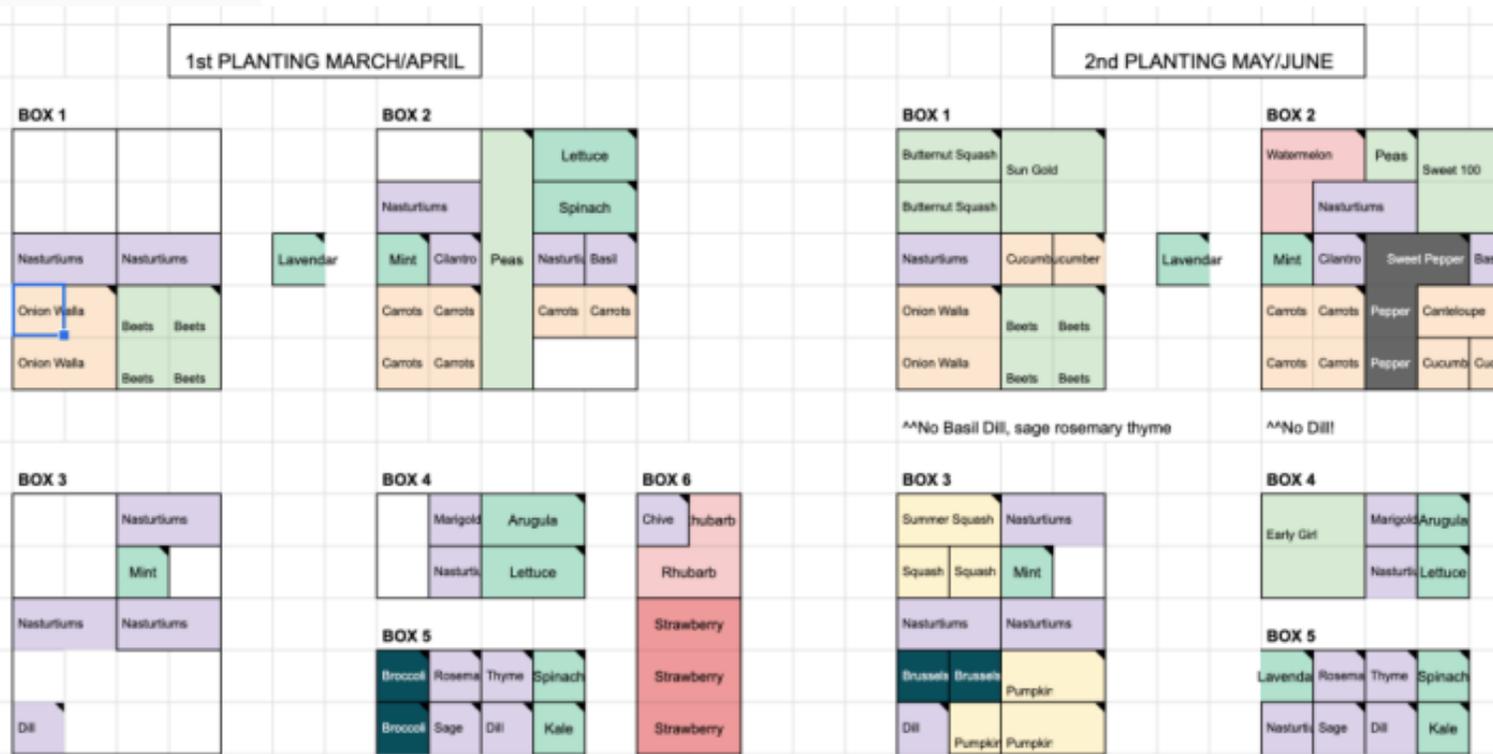
Sun Exposure	Measurement	Water	Soil
Full Sun: 6-8 hours	Length, Width, Shape	Drip, Flood, Sprinklers	Soil Test
Sun Mapping	Total Area	Culinary	Drainage
Low Light Areas – Leafy Greens	Plant Spacing	Secondary	Compost & Amendments

Sun-Mapping

- ◆ Full Sun: 6-8 hours
- ◆ Sun exposure throughout the day
- ◆ Sun exposure throughout the season



Measure Your Plot



- ◆ Measure
- ◆ See what fits
- ◆ Grid paper or Excel
- ◆ Google Earth

Water / Irrigation

Flood / Furrow Irrigation

- ♦ Low watering efficiency ~30%
- ♦ Requires flat fields (slow the flow)
- ♦ Crusting occurs at surface
- ♦ Uses large amounts of water



Sprinklers

- ♦ Efficiency ~50-70%
- ♦ Wets plant foliage
 - ♦ Can cause plant disease
- ♦ Affected by wind
- ♦ Waters the weeds





Drip Irrigation

- ◆ High efficiency 90%+
- ◆ Puts water near root zone
- ◆ Low flow – no runoff
- ◆ Reduces weed growth
 - ◆ Reduced labor

Soil Testing:

Home Tests ▾ Individual Price Lists Understanding Your Results About Us Contact

Analytical Laboratories

USUAL

<https://www.usu.edu/analytical-laboratories/>

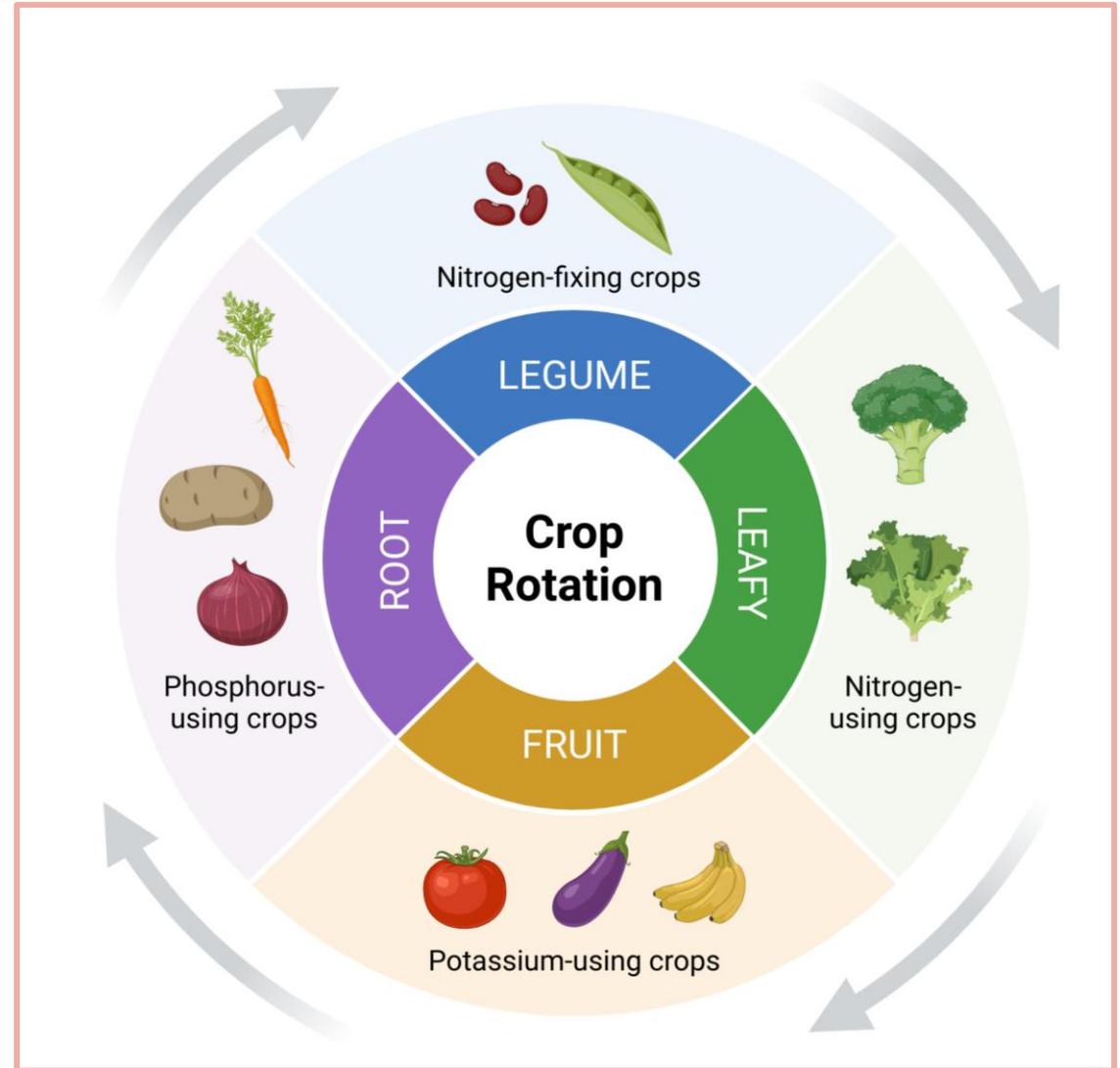
- Why?
 - Texture
 - Nutrient requirements
 - Organic Matter (OM)
 - pH
 - Salinity
- How Often?
 - Biannually
 - Alternately (separate sites)
 - When plant problems are occurring

Why Crop Rotation?

- ◆ Improve soil health
- ◆ Disease management
- ◆ Pest management
- ◆ More veggies!

Group by:

- ◆ Plant Family
- ◆ Cool and Warm Season
- ◆ Plant Root Depth – similar Water Needs
- ◆ Nutrient requirements



Crop Rotation

Rotate Crops

- Many pathogens infect all crops in the same family
- Some pathogens infect crops from several families
- Rotate between families at least every 2-3 years

- ♦ Crops of the same family are susceptible to similar pests and disease
 - ♦ Nutrient requirements (soil)
 - ♦ Long-term garden Health
- ♦ Rotate annually with 2-3 year separation between crop families
 - ♦ Adjustments to this “rule” are often necessary, particularly in small scale gardens or raised beds
 - ♦ Consider cover crops and amending soil with organic matter



Poor Soil? - Raised Beds

- ◆ Benefits of Raised Beds:
 - ◆ Better soil
 - ◆ Easier access for harvesting and maintenance
 - ◆ Less weeds (hopefully)
 - ◆ Tidy look in the Garden
- ◆ Raised Bed Soil Mix:
 - ◆ Must have drainage
 - ◆ 50/50 compost and topsoil
 - ◆ Raised bed mixes





Consider Pathways

- ♦ Access to harvesting and maintenance
- ♦ Mulch Material
- ♦ Weed suppression
- ♦ Reduce compaction
- ♦ Space for large equipment (i.e. tiller, wheelbarrow, wagon, mower)?

Vertical Support

- Supports heavy plants with fruit
- Works with determinate & indeterminate
- Increases light to plants
- Cages, strings, fences, nets etc.
- Advantages
 - Plant more in small areas
 - Easier harvest
 - Shade for other plants



Plants that grow well vertical:

- Pole beans, indeterminate tomatoes,
- cucumbers, melons, pumpkins, gourds

Trick: angle supports for easier harvesting

Space Utilization

- ♦ Wide row planting
 - ♦ More intensive than single plant rows
 - ♦ Great for single crop type
- ♦ Offset planting or zig-zag
 - ♦ Good for larger plants
 - ♦ Plants closer together
 - ♦ Still enough light
- ♦ Raised bed or in soil



Succession Planting

- Planting multiple times in the same area during the season
- Make a plan for 1st , 2nd , 3rd.....
- Plant into soil without tilling or...
- Work soil between plantings
 - Remove old plant material
 - Add nutrients & amendments
- Can be a mix of cool & warm season plants



Plants for Pollinators and Beneficials

Flowers	Flowering Hebs
Cosmos	Thyme
Sunflowers	Chives
Merigolds	Lavender
Zinnias	Cilantro
Sweet alyssum	Parsley

Base Map + Crop List + Material List

Map out garden according to crop needs

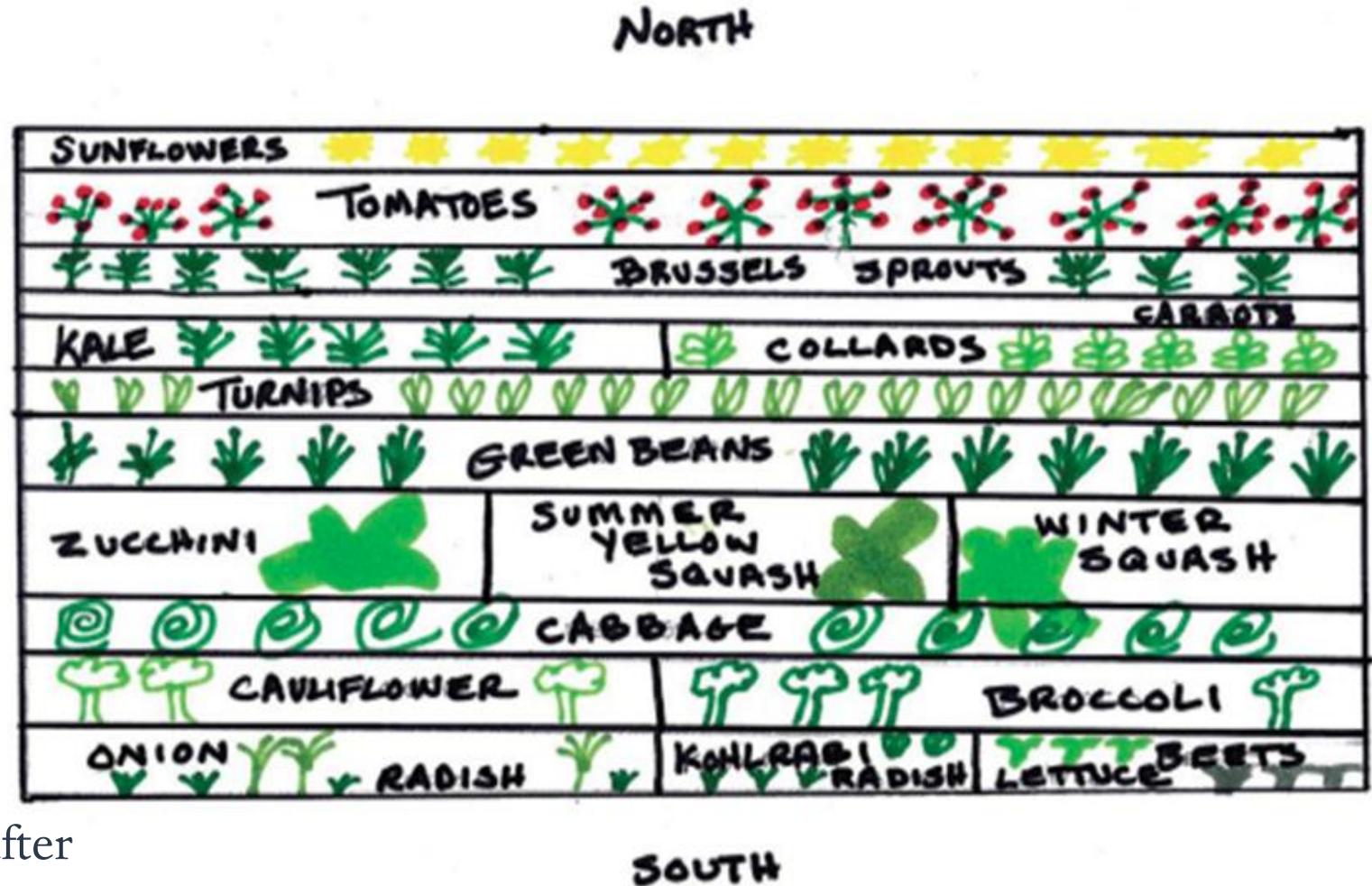
- Cool Vs. Warm Season
- Space Requirements
- Sunlight and Water Needs
- Nutrient needs

Crop Rotation

- Group crops by family

Consider succession planting

- i.e. planting Cool season crops after harvesting short-lived crops





Box 1: Raspberries, Strawberries + White Clover

Box 2: Garlic + Sweet Pepper, alyssum, celery

Box 3: Perennial herbs: Chives, Rosemary, **Tarragon**, Sage & Re-seeding annual herbs: cilantro, **dill**, **chamomile**, **fennel**

Box 4: Succession Garden: **carrots**, peas, lettuce, **onions**, **leeks**, **mustard (Gia Choy)**, tansy, alyssum

Box 5: Oddities: **celery**, **brussels sprouts**, **kale**, **leeks**, Malabar spinach, **zinnias**

In ground:

- Broom Corn + **Pole Beans**
- **Sunflower** + Mini Pumpkins + Nasturtium
- **Tithonia** + Malabar Spinach
- Cucamelons w/ Helianthus
- **Kale** + Calendula
- **Artichoke** + Cowpeas

Living Mulch: **crimson clover**, wholly thyme, alyssum

Pollinator Fillers: cosmos, sunflower, amaranth, winter savory, tithonia

Nasturtium with Susan's squash beds

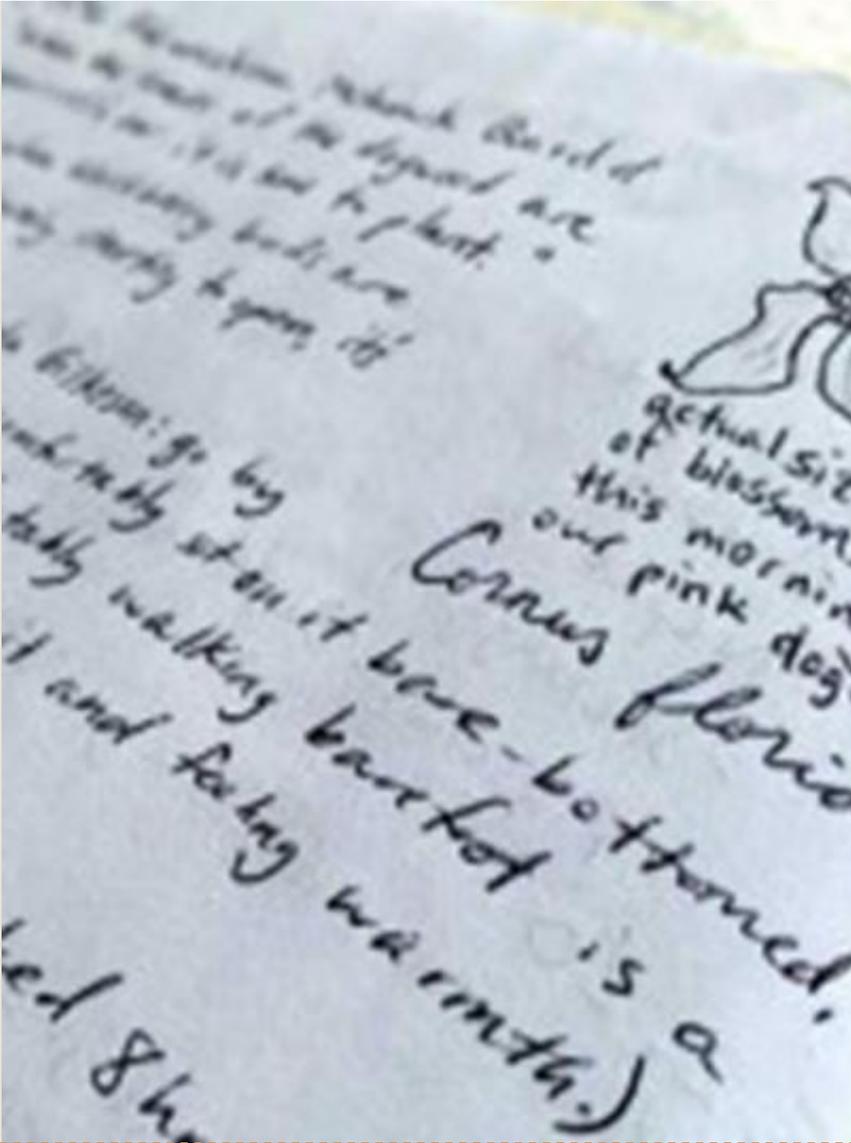
New **tomato varieties** for Susan's beds

Crop	Indoor Staring Date	Instuctions
Brrrom Corn	Mid-April	plant with pole bean seeds mid to late May
Sunflower	Mid-April	plant with mini pumpkins
Tithonia	Early April	Plant with Malabar spinach
Mini Pumpkins	Late April	Plant after last frost
Nasturtium	Mid-April	Plant after last frost
Malabar Spinach	Mid-April	Plant after last frost
Kale	Early April	transplant in late-April
Artichoke	Early March	expose to cold, not freezing temperatures in early May
Calendula	Early April	Plant next to kale after last frost
Celery	February	indoors or winter sow
Brussles sprouts	late march/early april	plant in early May
Tomatoes & pepers	Late february - mid-March	
Cilantro	Early / mid March	
Dill	Early / mid Ma	
Chamomile	Early / mid Ma	
Fennel	Early / mid Ma	
Alyssum	Early April	

Month	February	March	April	May
Week 1		Artichoke	Tithonia, Kale, Calendula, Alyssum	Carrot, Peas, Lettuce, cosmos
Week 2	Celery	Tomatoes and Peppers, Cilantro, Dill, Chamomile, Fennel	Broom Corn, Sunflower, Nasturtium, Malabar Spinach, Cukeamellon	Transplants
Week 3		Brussels Sprouts	Mini Pumpkins, Cucumbers, Gia Choy	
Week 4		Carrots, Onions, Leaks	Carrot, Peas, Lettuce	

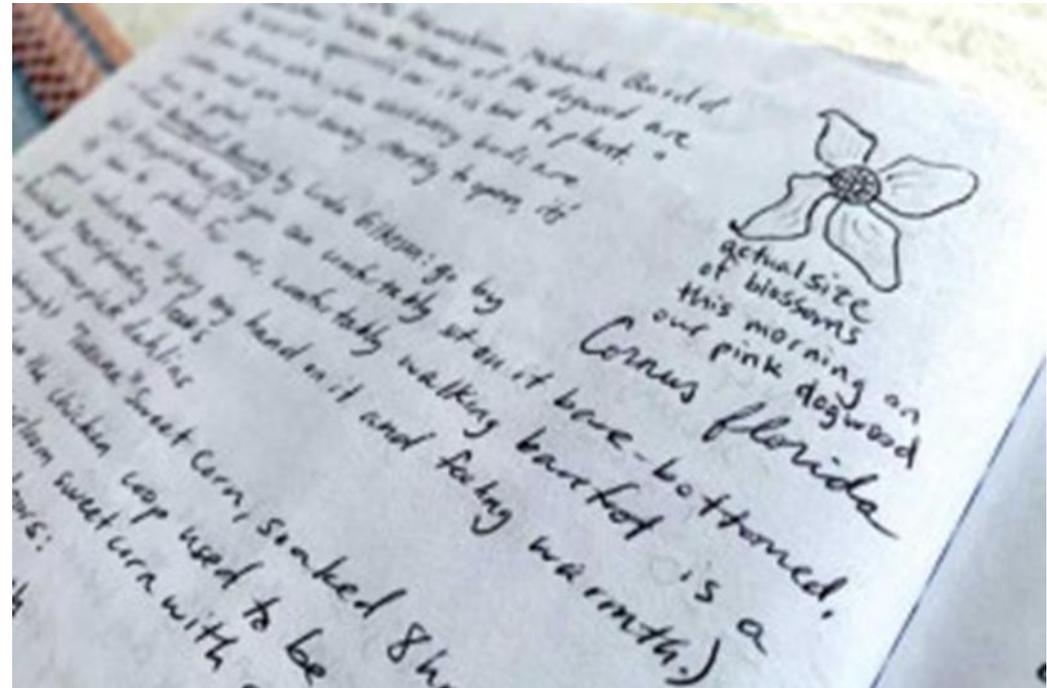
Record Keeping

- ♦ Keep your designs
- ♦ Include year
 - ♦ Specific planting dates can be helpful
- ♦ Note varieties that did and did not do well
- ♦ Note varieties you liked or didn't like
- ♦ Note what you had too much of or too little of



Record Keeping

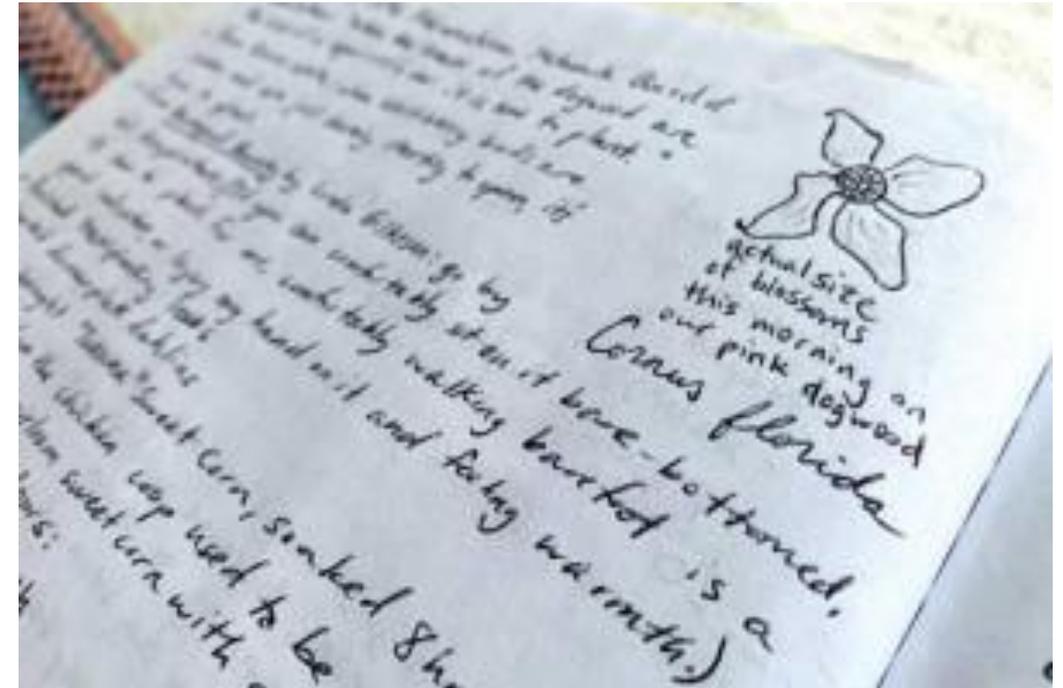
- ◆ Keep any soil test results on record
- ◆ Note types of fertilizer used
- ◆ Note any plant problems
 - ◆ Did you address the problem (i.e. pest control)?
 - ◆ How did you address it? (i.e. mechanical, pesticide application, fertilizer, etc.)?
 - ◆ How effective was your approach?



Record Keeping

Additional items that might be helpful

- ♦ Irrigation Schedule
- ♦ Harvest dates
- ♦ Fertilizing dates
- ♦ Insect and pollinator activity
 - ♦ What to keep an eye out for and when



Be Creative!



Thank You!

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