



UC Master Gardener Program

University of California Cooperative Extension
Napa County

**Welcome to Spring and Summer
Vegetables**

March 9 & 17, 2024



UC Master Gardeners of Napa County

<http://napamg.ucanr.edu/>

Our mission: "To extend research-based knowledge and information on home horticulture, pest management, and sustainable landscape practices to the residents of California and be guided by our core values and strategic initiatives."



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Help Us Grow!

Our follow-up survey provides us the tools we need to grow and improve the quality of our program.



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Today's MG Team

Kathleen McClure

Linda McClimans

Pat Hitchcock

Cathy Purlee

Kathy Tschida



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Plan ahead

- Plant vegetables that your family likes and in quantities that you will use.
- Plant only as large a garden as you can maintain easily.
- Have your garden located where it is as convenient as possible.



Location, location

Level Ground

Close to Home/Kitchen

Adequate Light - 6-8 hours of
sunlight

Good Soil

Water Supply



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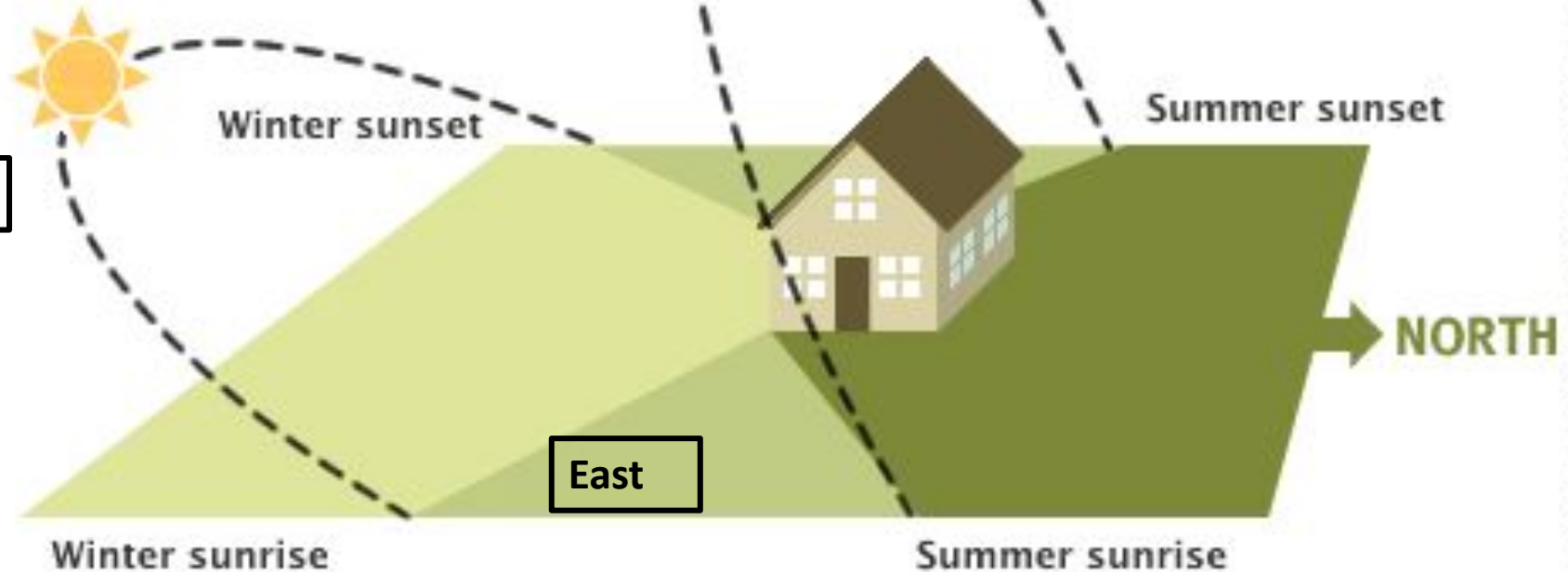
SUNLIGHT 6-8 Hours Daily

West

-  **Excellent location:** Never in shade
-  **Good location:** Some shade either in the morning or the afternoon
-  **Poor location:** Some shade almost all day

A Garden's Optimal Orientation to the Sun

South



Winter sunrise

Summer sunrise

East

NORTH



Plants grow well in soil that ...

Has a healthy
physical structure

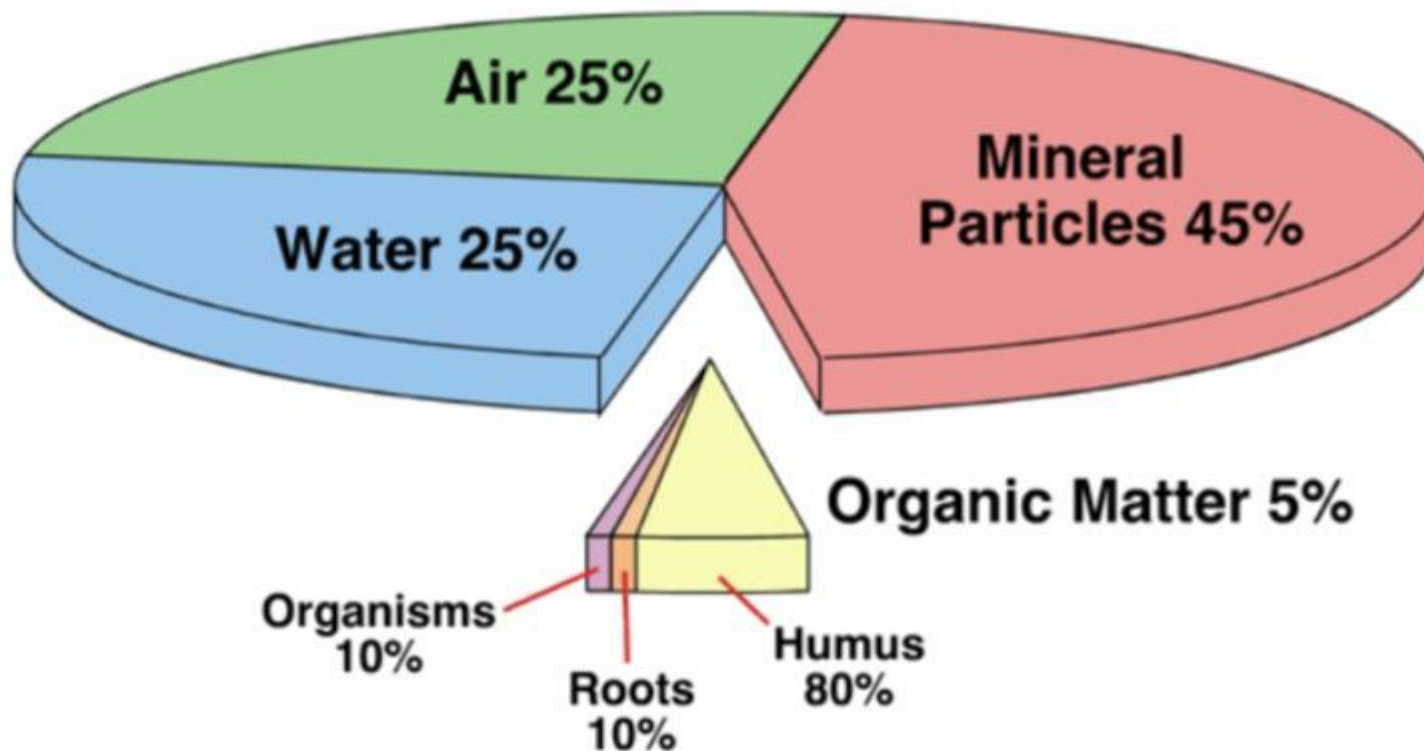
Contains essential
nutrients



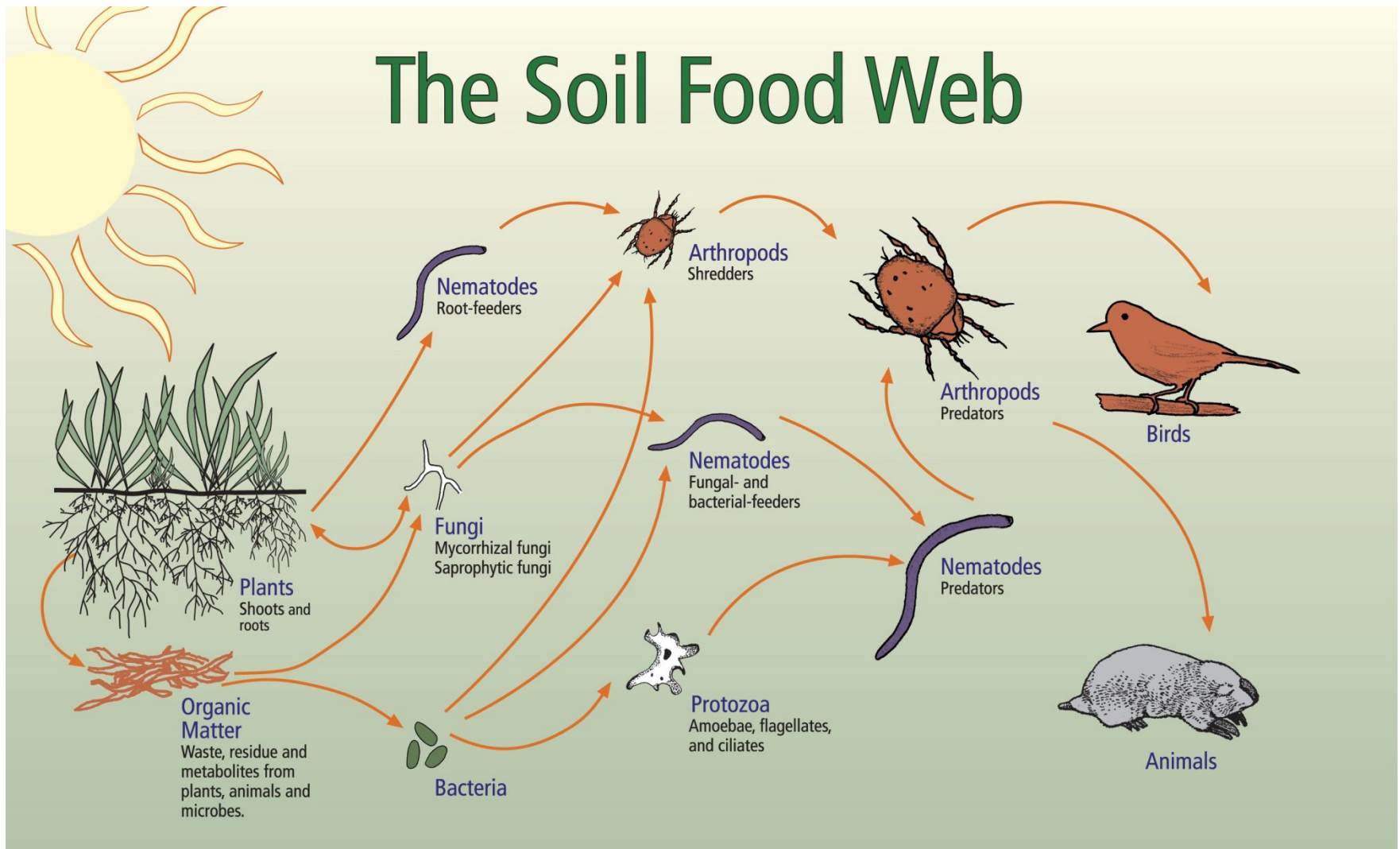
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What is Soil?



The Soil Food Web



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CONSERVE THE SOIL YOU HAVE

- **Avoid compaction.** *Never try to work wet soil.*
- **Avoid excessive soil disturbance.**
Worms and microbes can be destroyed by a rototiller.
Can bring up weed seeds.
- **Avoid overuse** of chemical and synthetic fertilizers, herbicides and pesticides, over-fertilizing, over-watering, severe under-watering. ***Moderation is key.***



Some essential garden terms that people sometimes mix up

Amendments



Compost



Mulch



Fertilizer



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AMENDMENTS

- **Amendments** are materials you add to soil to improve its structure, tilth, and suitability for root growth.
- Barnyard manure (best if composted first)
- Green Manure and Cover Crops (E.g. Fava Beans, Mustard, Vetches)
- Packaged mixes
- Compost



Distinguish between amendments that can be added right before planting and those that can't.

- Some amendments (animal manure, green manure) should be added early enough that organic materials can break down.



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One of the best amendments is *compost*

- Compost develops into humus to improve soil structure
- Improves drainage and aeration
- Conserves soil moisture
- “Finished” compost can be mixed into the soil right before planting



Compost:

- Make it at home



- Buy it from recycling plants



- Buy it in bags from stores
(expensive option)



Mulch

- Preserves moisture, reduces weeds, prevents erosion, also can slowly add some micronutrients.
- Is usually organic (leaves, grass clippings, compost, straw, etc.) but can be inorganic (e.g. plastic or rocks).
- One of the best mulches is compost.
- Wood chips are for paths, not the vegetable beds.



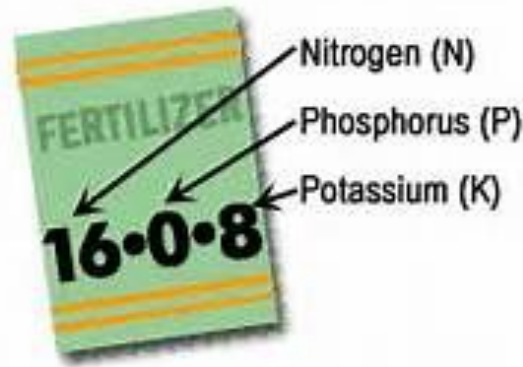
Fertilizer

We add nutrients to our soil by using fertilizer.

Amendments on their own, even compost, are not enough.



Fertilizers



5-X-X Nitrogen (N)
promotes green leafy
growth

X-5-X Phosphorus (P)
assists in flower, seed, and
fruit production

X-X-5 Potassium (K) for
root and tubers



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Organic Fertilizer Examples

	% Nitrogen	%Phosphorus	%Potassium
Blood meal	13.0	1.5	2.5
Fish meal	10.0	6.0	0.0
Soybean meal	7.0	1.2	1.5
Fish emulsion	5.0	2.0	2.0
Chicken manure	4.0	5.5	2.4
Bone meal	3.0	15.0	0.0
Alfalfa meal	2.5	1.0	1.0



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Synthetic Fertilizers

- Fast-acting
- Often less expensive
- Can be hazardous to plants or soil if used incorrectly or too much
- Key: Use according to the directions on the bag/box and in moderation to avoid environmental pollution.



Ways to Fertilize

- Add to soil before planting (slow release forms are an option).
- Foliar feed: spray a mist solution to be absorbed by osmosis.
- Liquid solutions: use watering can or hose end system.
- “Side-dress” by working a granular fertilizer into top inch of soil near plant roots and water in well.



Summer gardens will need watering



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Water Needs Depend on Many Factors

- Soil Type (sandy, clay, loam) and organic content/mulch
- Weather (sun, temperature, humidity, wind)
- Time of year (day length)
- Type of vegetable
- Growth cycle of the plant



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When to Water

Test: Water if dry at 3-4 inches



Best time of day is early morning or in evening.

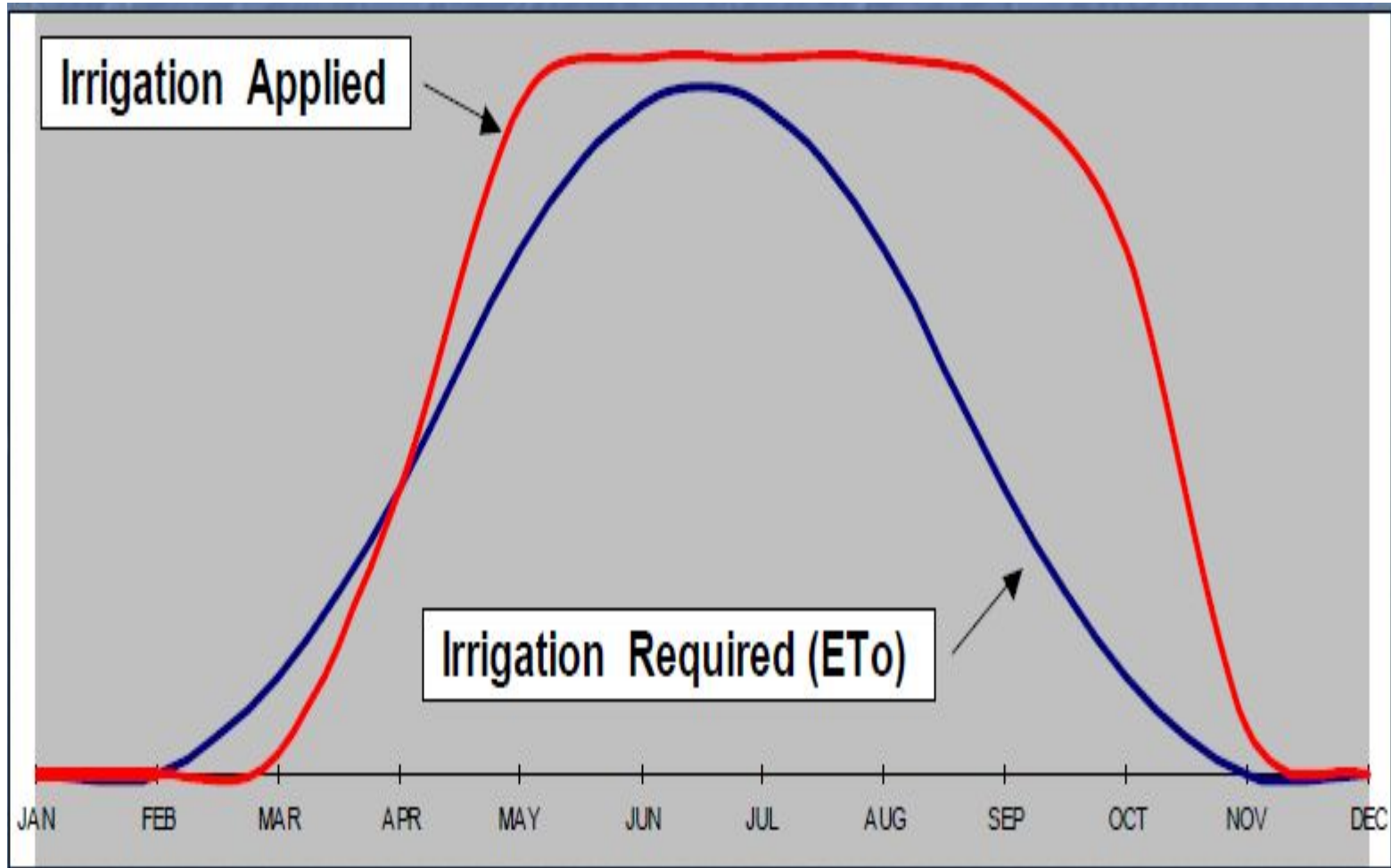
NOTE: Drooping leaves do NOT always mean the need for watering. Check the soil. Avoid overwatering. Roots can drown.



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RELATIVE WATER NEEDS BY TIME OF YEAR



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What are
you
growing?



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Critical Periods for Adequate Watering:

Beans and peas	Flowering/forming pods
Broccoli, cauliflower	Forming heads
Corn	Silking, tasseling, forming ears
Cucumber	Flowering; fruit forming
Eggplant, peppers, tomato	Flowering through harvest
Melon	Fruit set & early development
Pumpkin	Fruit forms
Squash	Bud forming & flowering
Swiss Chard	When true leaves form
Lettuce	When true leaves form



Ways to Water



Soaker hose



In line ¼"



Why is Drip Irrigation best?

- Can deeply water at root level
- Conserves water vs spray
- Delivers water slowly
- In-line emitters pre installed
- Long lasting if good quality
- Prefer ½" tube, not ¼" spaghetti



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Vegetable Families



Common Pests

Integrated Pest Management



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Warm Season Crops

- Require long hot days and warm soil temperatures to mature
- Average temps 65-95 degrees
- Immature fruit examples are sweet corn, summer squash, snap and lima beans
- Mature fruit examples are cantaloupe, winter squash, tomato and watermelon



Cool Season Crops

- Best grown in temperatures 55 to 75 degrees and tolerate some frost
- Subject to bolting if temps are too warm when maturing
- Edible parts of the plant: roots, stems, leaves or immature flower parts
- Food value is higher than summer crops
- Generally have shallower root systems



EDIBLE PARTS

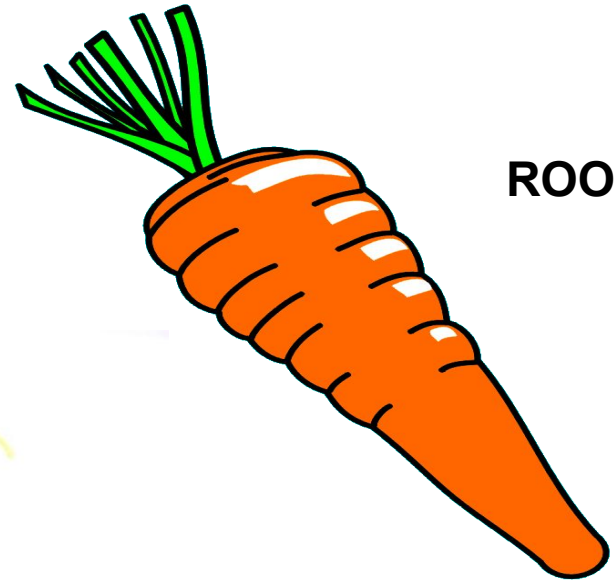


LEAVES

LEGUME



Also considered a fruit



ROOT



FAMILIAR FAVORITES



BROCCOLI



LETTUCE

CAULIFLOWER



CARROTS

KALE



'COME ON GIVE ME A TRY'



ARUGULA

RUTABAGA



KOHLRABI



**PAK
CHOI**



BEETS

Composite and Cucurbit Families

- Endive
- Lettuce

- Cucumber, Muskmelon
- Pumpkin, Squash
- Watermelon



Goosefoot Family

- Beet
- Chard
- Spinach



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Legume Family

- Dry Bean
- Fava Bean
- Lima Bean
- Snap Bean
- Peas



Onion Family

- Chives
- Garlic
- Leek
- Onion
- Shallots



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Mustard Family (Brassicas)

- Broccoli, Brussels Sprouts
- Cabbage, Cauliflower, Chinese Cabbage
- Kale, Kohlrabi
- Mustard Greens, Radish
- Rutabaga, Turnip



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Brassicas: Broccoli, Cauliflower, Cabbage, Kohlrabi, Kale



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Nightshade Family

- Eggplant
- Tomato
- Pepper
- Potato



Parsley Family

- Carrot
- Celery
- Fennel
- Parsley
- Parsnip



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Reading Your Seed Packet



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What can I plant today short term?

- Radish 22-60 day
- Chinese cabbages (Tat soi 45 days, Baby bok choy 35 days, Pak choi 35 days)
- Lettuce 38-60 day
- Beets 45-50 day
- Turnips 46-60 day
- Small carrots 57-60 day



Integrated Pest Management



- Detect
- Identify
- Monitor



Components of an IPM Program

- Prevention
- Pest & symptom identification
- Regular surveying for pests
- Action thresholds and guidelines
- Sound management methods
- Cultural, mechanical, biological and chemical

IPM: Cultural methods

NO:

Overfertilization

Overcrowding

Overwintering pests

YES:

Correct watering

Strong plants

Correct planting time

Crop rotation



Pests of Broccoli, Cauliflower, Cabbage



Imported Cabbage butterfly
4-5 week life cycle



Cabbage moth & looper

- Handpick eggs, loopers
- Exclude with row cover
- Spray Bt



Biological control of caterpillars

Bt: *Bacillus thuringiensis ssp kurstaki*





Pests of lettuce, spinach, chard

- Wash off aphids
- Encourage beneficial insects
- Hand squish eggs of leaf miner



Leafminer



Snails and slugs



Aphids on chard



Parasitized aphids

Mite damage to bean leaves



Cucumber beetle (spotted)



Verticillium and fusarium wilts



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Powdery mildew



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Help Desk

- Available Monday and Friday 10am until 1pm.
Phone # 707-253-4143.
- Email a brief description to:
mastergardeners@countyofnapa.org



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Hands-on Centers

- Start lettuce seeds to transplant later.
- Transplant or “up-pot” seedlings.



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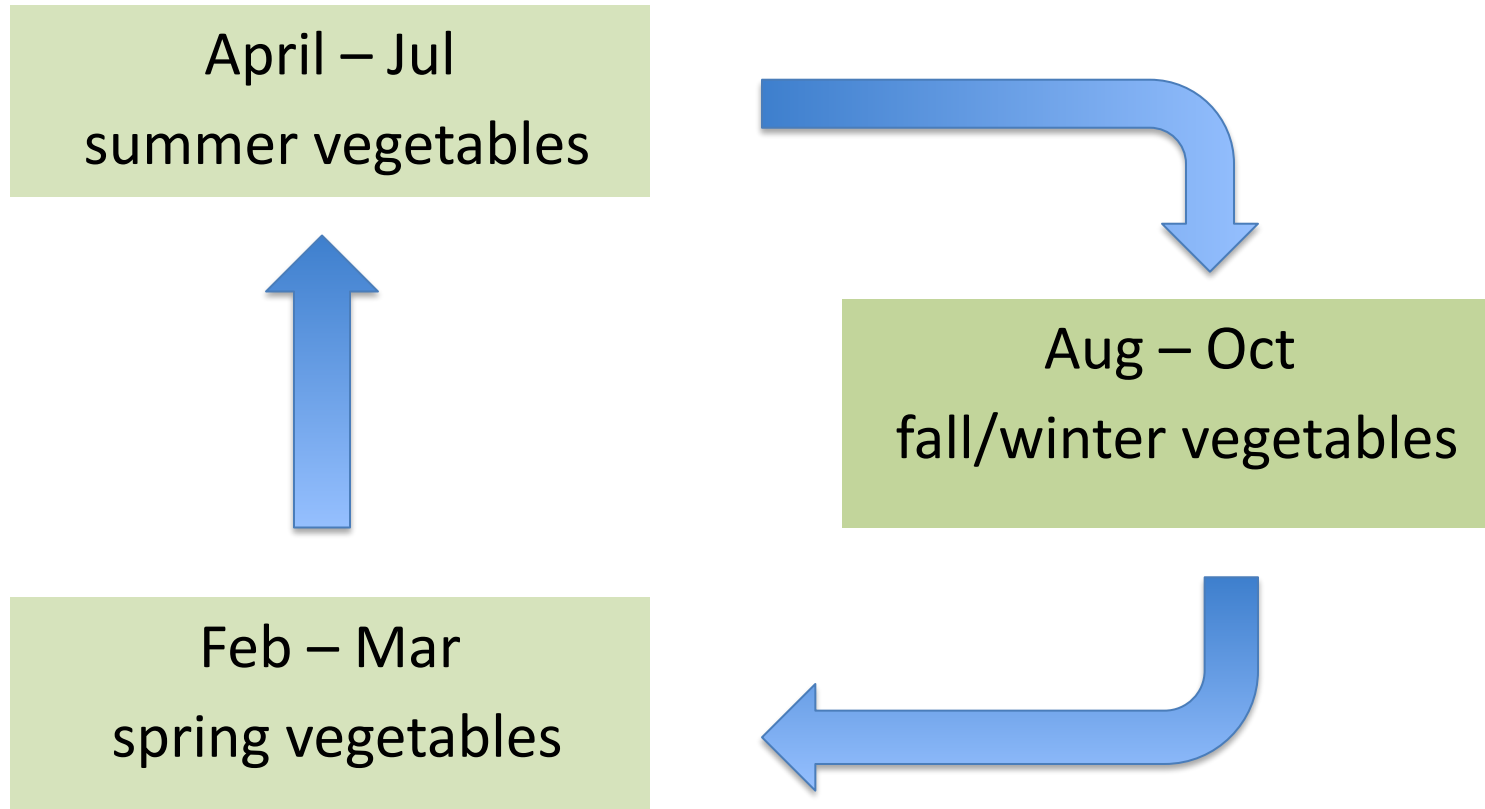
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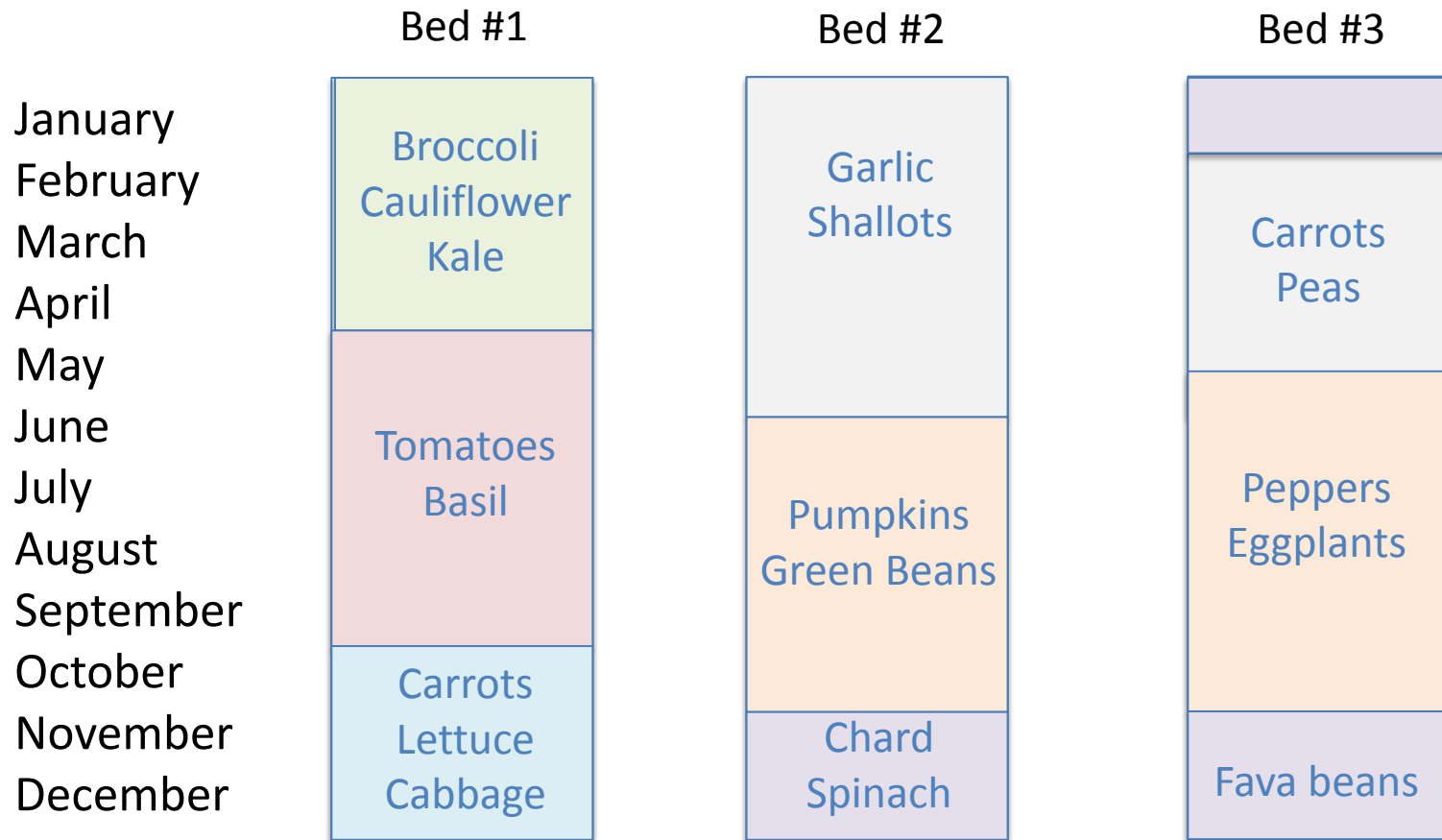
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Cycle of Planting



Planning the seasons



Timing, direct seed & transplanting



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WINTER/SPRING VEGETABLE PLANTING GUIDE FOR NAPA COUNTY

VEGETABLE	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	NOTES/COMMENTS
Broccoli														Harvest time depends on planting date and weather
Beets														
Cabbage														Harvest time depends on variety and weather
Cantaloupe														
Carrots														
Cauliflower (early) (late)														
Chard														
Corn														
Cucumber														
Eggplant														
Lettuce														Harvest time depends on variety and weather
Onions, Shallots														Harvest and store
Peas														
Peppers														
Potatoes														Harvest and store
Pumpkin														
Radish														
Snap Beans														Plant Lima beans 1 week after earliest snap beans, and until late May
Tomatoes														
Watermelon														
Zucchini														

Code:

 Plant seeds
  Plant seedlings
  Harvest
  Range of season
  Plant seeds indoors/in greenhouse



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Month-by-Month Planting Guide for Annual Vegetables in Napa County

Month	Plant seed outdoors	Start seed indoors	Plant seedlings outdoors
January	Garlic (sets), kale, onions, radishes, spinach	Asian greens (bok choys, mustards), brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), lettuce, leeks, onions, (late in month: eggplant & peppers)	
February	chard, lettuce, onions, parsnips, peas, potatoes, radishes, rutabagas, spinach, turnips	Asian greens, brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), chard, eggplant, leeks, lettuce, onions, parsley, peas, peppers, tomatoes	Asian greens (bok choys, mustards), brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), celery, leeks, lettuce, onions
March	Asian greens (bok choys, mustards), beets, carrots, chard, kale, cilantro, fava beans, lettuce, parsnip, peas, potatoes, radishes, rutabagas, spinach, sunchoke (tubers), turnips	Brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), chard, eggplant, leeks, lettuce, onions, parsley, peppers, tomatoes	Asian greens (bok choys, mustards), brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), chard, leeks, lettuce, onions
April	Beans, beets, carrots, chard, endive, lettuce, parsnip, potatoes, radishes, spinach, sunflower, turnip, (late in month: squash, cucumbers, pumpkins)	Basil, chard, cucumbers, leeks, lettuce, melons, onions, parsley	Brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), chard, leeks, lettuce, onions, (late in month: eggplant, peppers, tomatoes)
May	Beans, beets, carrots, chard, cilantro, corn, cucumbers, dill, endive, leeks, lettuce, melons, okra, onions, parsnip, potatoes, pumpkins, radishes, squash, sunflower	Basil, chard, lettuce (heat tolerant), parsley	Basil, chard, cucumbers, eggplant, leeks, lettuce, melons, onions, parsley, peppers, pumpkins, squash, tomatoes
June	Beans, beets, chard, cilantro, corn, cucumbers, dill, endive, leeks, lettuce, melons, okra, parsnip, pumpkins, radishes, squash, sunflower	Basil, chard, lettuce (heat tolerant), parsley	Basil, chard, cucumbers, eggplant, lettuce, melons, parsley, peppers, pumpkins, squash, tomatoes
July	Beans, beets, chard, cilantro, corn, cucumbers, dill, endive, leeks, lettuce, melons, parsnip, peas, pumpkins, radishes, squash	Chard, leeks, lettuce, (late in month: brassicas including Brussels sprouts, celery)	Basil, chard, lettuce
August	Beets, carrots, chard, cilantro, lettuce, parsnips, peas, radishes, rutabagas, spinach, turnips	Brassicas (cabbage, kohlrabi, kale, broccoli, cauliflower, Brussels sprouts), fennel, radicchio	Brassicas (broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, kohlrabi), chard, leeks, lettuce
September	Asian greens, beets, carrots, chard, cilantro, dill, endive, lettuce, parsnips, peas, radishes, rutabagas, spinach, turnips	Bok choy, brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), endive, escarole, lettuce, onions	Brassicas (broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, kohlrabi), endive, fennel, celery, leeks, lettuce, radicchio
October	Asian greens, carrot, chard, cover crops, fava beans, garlic, mache, onions, parsnip, radishes, rutabaga, spinach, turnips		Brassicas (broccoli, cabbage, cauliflower, collards, kale, kohlrabi), endive, escarole, lettuce, onions
November	Chard, carrots, cover crops, fava beans, garlic & shallots (from cloves, not seeds), onions, radishes, spinach		
December	Fava beans, garlic & shallot cloves, radishes, parsley, spinach		

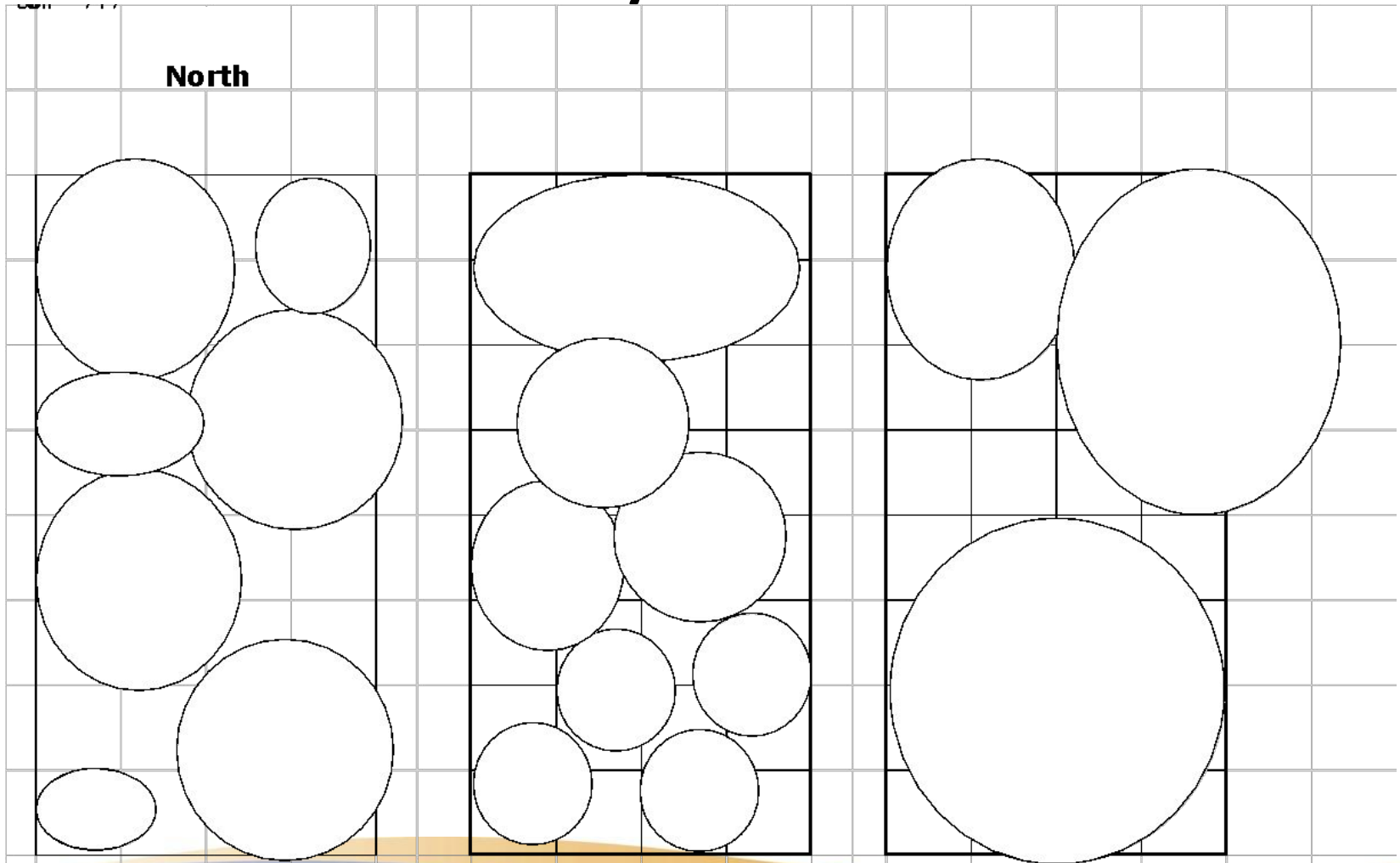
P. Hitchcock 8-5-12



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Bed layout ideas



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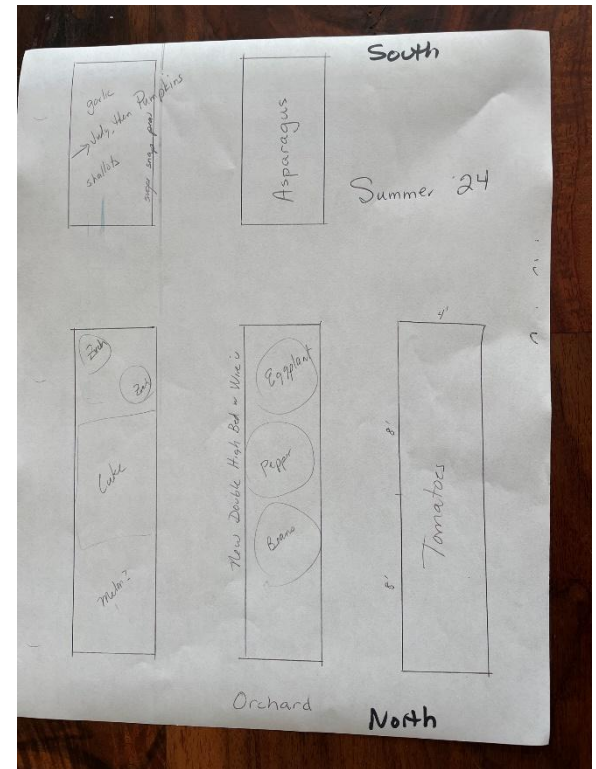
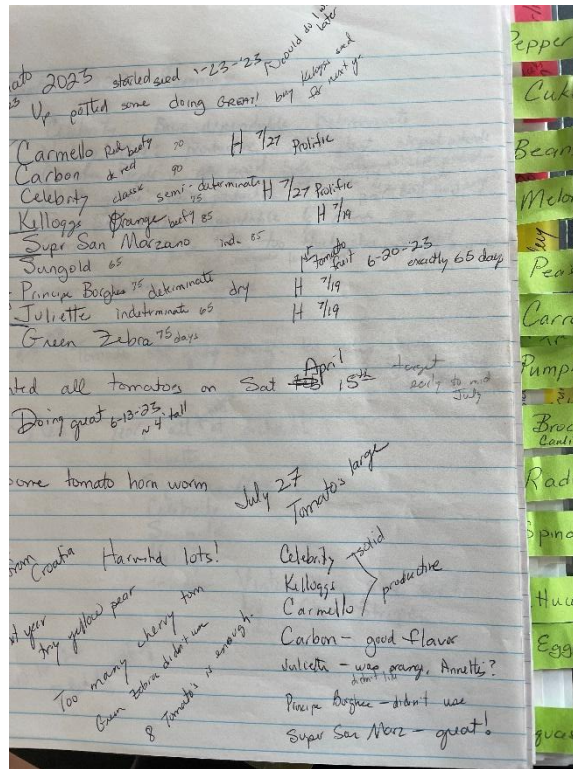
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Determinate vs indeterminate



Garden records

- Spreadsheet
- Database
- Pictures
- Garden software
- Journal notes



Deciding what to grow



?



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TOMATO PLANT SALE

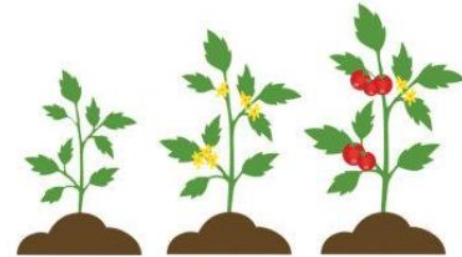


Locally Grown 25 Varieties

Saturday, April 13

9:00 am – until sold out

Speaker Series



- 9:30 Planting in Containers
- 10:00 Companion Planting
- 10:30 Tomato Problems
- 11:00 How to Keep Gophers Away

Strong Healthy Plants \$5 Each

Grown locally by the UC Master Gardeners of Napa County

IN PERSON SALE SATURDAY (Cash or Checks Only), Sale Starts April 13th, 9AM Until Sold Out

1710 SOSCOL AVE. NAPA - NEXT TO CENTRAL VALLEY HARDWARE

Make Sure to Check out our Education tables and talk to our Tomato Pros!



Questions?



Thanks!
Be sure to complete
the evaluations
before leaving



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REFERENCES

- UC Integrated Pest Management (IPM)
 - <https://ipm.ucanr.edu/>
- California Garden Web
 - <https://cagardenweb.ucanr.edu/>
- UCCE Vegetable Research Information Center (VRIC)
 - <https://vric.ucdavis.edu>
- CA Master Gardener Handbook
- Golden Gate Gardening by Pam Peirce

