

ORCHARD COMPANIONS



This is part of a series on growing fruit!

April 24th @6pm - Fruit Propagating

Previous Classes:

Fruit Tree Selection

Fruit Tree Pruning

Growing Grapes

Small Fruits and Berries

Holistic Spray Program

Slides will be available on the resources tab of our website

The screenshot shows a web browser displaying the theunitygardens.org/classes.html page. The page features a navigation bar with links to Home, About Us, Gardens, Events, Get Involved, Classes (which is highlighted in green), Store, and Unity Projects. A shopping cart icon indicates 0 items. The main content area has a large title "UNITY GARDENS CLASSES". Below it, text explains that classes are free and open to anyone, last 60 to 90 minutes, and are hosted at the Welcome Center or other spaces. It also mentions YouTube recordings and resources tabs. Two call-to-action buttons are present: "CLICK HERE FOR OUR YOUTUBE CHANNEL WITH RECORDINGS OF CLASSES" and "CLICK HERE FOR THE RESOURCES PAGE". Two boxes below contain details about fruit classes and winter library classes.

CLICK HERE FOR OUR YOUTUBE CHANNEL WITH RECORDINGS OF CLASSES

CLICK HERE FOR THE RESOURCES PAGE

Fruit Classes 2024
At the Unity Gardens Welcome Center
3701 Prast Blvd
Wednesdays
Classes are free and open to the public
These will be available on Zoom during the class time!

Wednesday, 4/3 @6pm - Holistic Spray Program

Winter Library Classes 2024
Hosted at libraries throughout St. Joseph County
Classes are free and open to the public

Tuesday, April 9th, 4-5pm
LaSalle Branch Library
Seed Flings (for kids age 6-12)

Wednesday, May 29th, 5-6pm

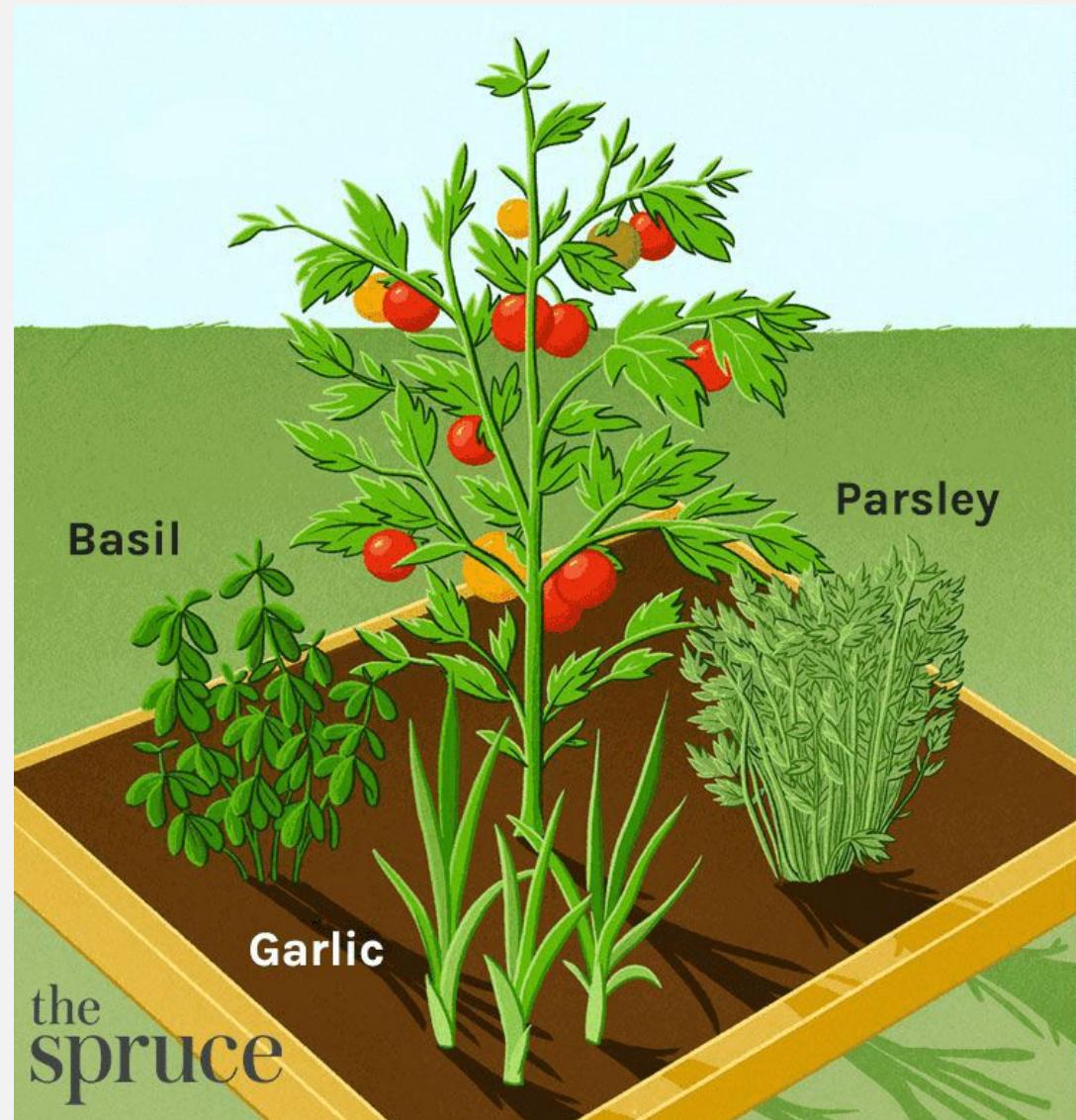
Why should I grow anything besides fruit trees?

Typical Orchard Set up



Companion Planting

- companion planting: planting different varieties in the same space that can assist each other in growth
- orchard companion planting is usually known as a guild, but the terms food forest and permaculture will also come up a lot
- often you're picking plants that assist your fruit tree in some way
- the idea is to plant things that will either grow better with your fruit tree or assist your fruit tree's growth



the
Spruce

Biodiversity

Many insects are specialists, so they'll only visit one type of plant

- the more variety you have, the more species support you offer
- the more species in your garden, the more balance you have between pests/beneficials
- and the more you attract native insects/songbirds who benefit your garden

Provide habitat for native bees/beneficials over the winter (leave a mess in your garden!)

Generally, biodiversity = resiliency



Maximizing Space



Maximize the space in your garden by using all the square footage!



Beauty



Principles of Permaculture Plantings

Quick Introduction to Permaculture

Permaculture is an approach to gardening that emphasizes “earth care, people care, and fair shares”

There are 12 principles

- Observe and interact
- Catch and store energy
- Obtain a yield
- Apply self regulation and accept feedback
- Produce no waste
- Use renewable resources and services
- Design from pattern to detail
- Integrate rather than segregate
- Use small and slow solutions
- Use and value diversity
- Use edges and value the marginal
- Creatively use and respond to change



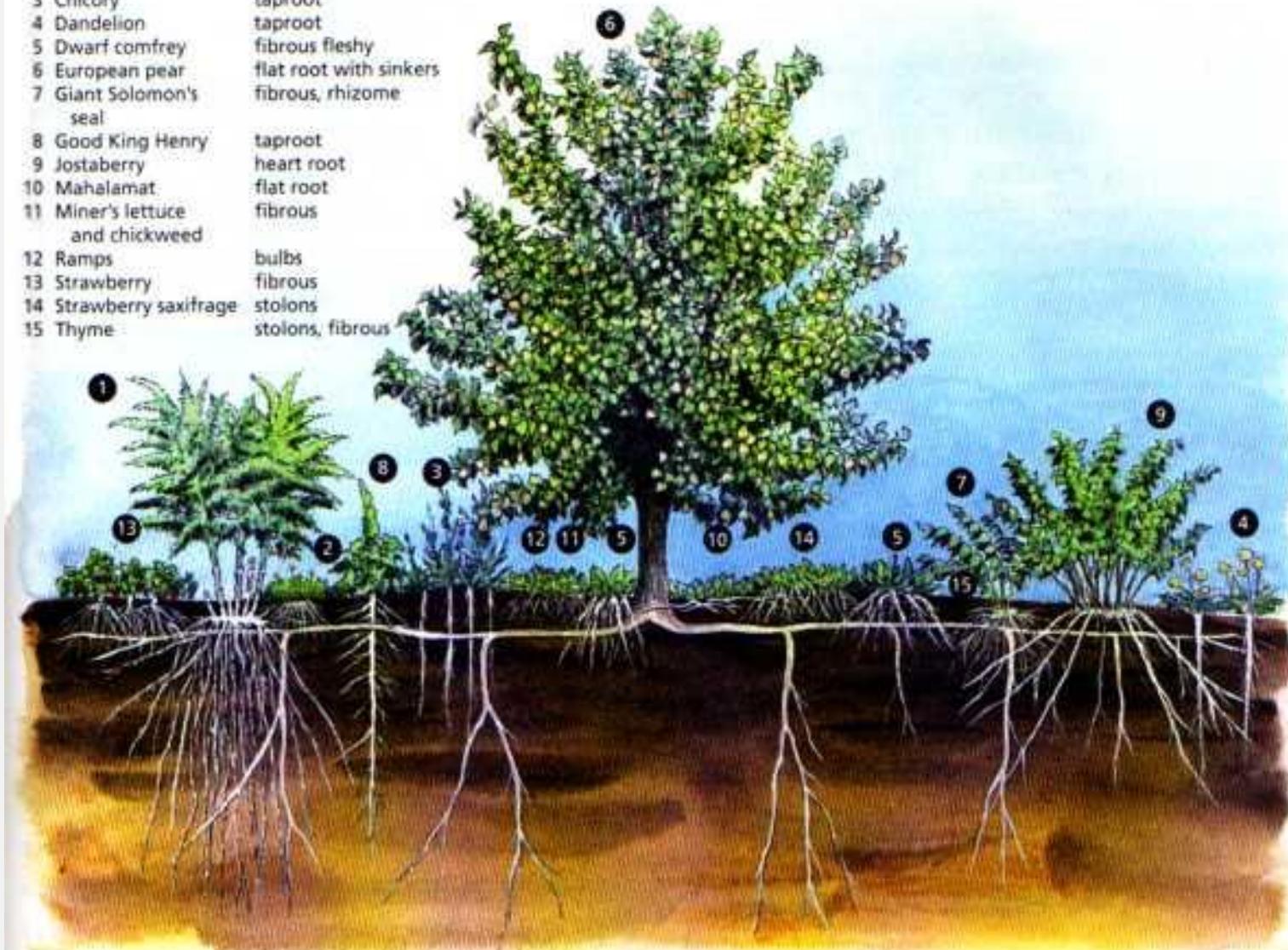
These principles boil down to “permanent gardening” with less inputs (water, fertilizers, etc) and better ecological output, with an emphasis on changing and adapting with your garden

Roles

- 1 Asparagus
 - 2 Chamomile
 - 3 Chicory
 - 4 Dandelion
 - 5 Dwarf comfrey
 - 6 European pear
 - 7 Giant Solomon's seal
 - 8 Good King Henry
 - 9 Jostaberry
 - 10 Mahalamat
 - 11 Miner's lettuce and chickweed
 - 12 Ramps
 - 13 Strawberry
 - 14 Strawberry saxifrage
 - 15 Thyme
- fibrous, rhizome
fibrous, rhizome
taproot
taproot
fibrous fleshy
flat root with sinkers
fibrous, rhizome

taproot
heart root
flat root
fibrous

bulbs
fibrous
stolons
stolons, fibrous



I. Dynamic Accumulators

The idea: deep rooted plant species that bring minerals up from subsoil into its leaves, which upon leaf decomposition are made bioavailable to fruiting plants in orchard ecosystem

Note: this is not super well researched, much of permaculture is not based in research but rather generational knowledge and observation

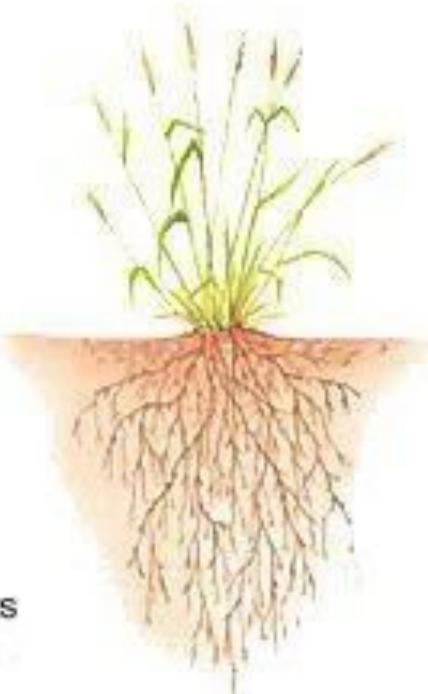
If interested in reading more of the research:

<https://smallfarms.cornell.edu/2022/04/new-findings-further-the-study-of-dynamic-accumulators/>

Dynamic Accumulators cont.



Taproot



Fibrous Root

Often dynamic accumulators are plants with long roots (often taproots) and mulching ability or easy regeneration

Specific Plants: comfrey, dandelions, borage, chicory, daikon radish, sorrel, yarrow

2. Mulching Plants



keep grass away, it competes with your trees for nutrients, is hard to weed, and doesn't fill any beneficial biological niche

Specific plants (comfrey, rhubarb, nasturtium)

IF you're on top of it: red-rooted amaranth (one of the best at moving nutrients into topsoil)

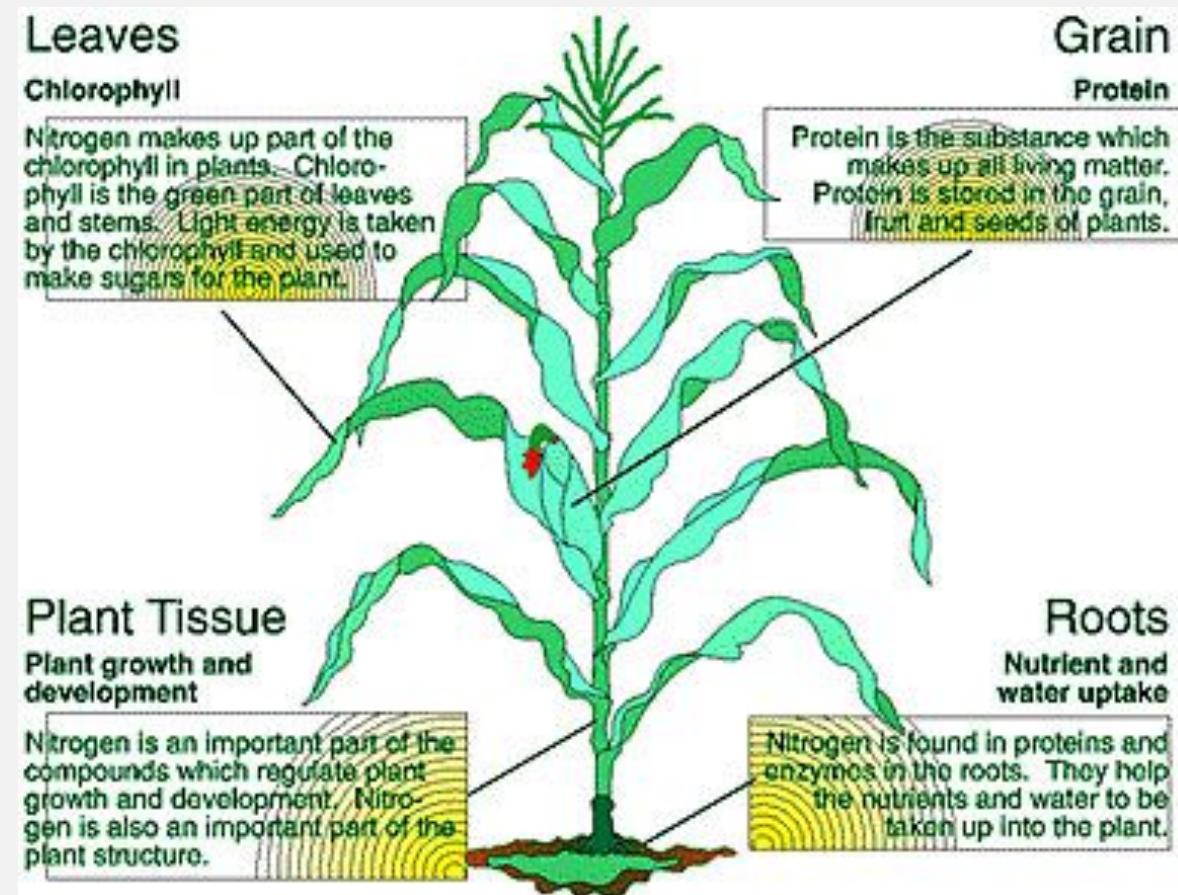


3. Nitrogen fixers

Nitrogen is one of the most important nutrients in plants

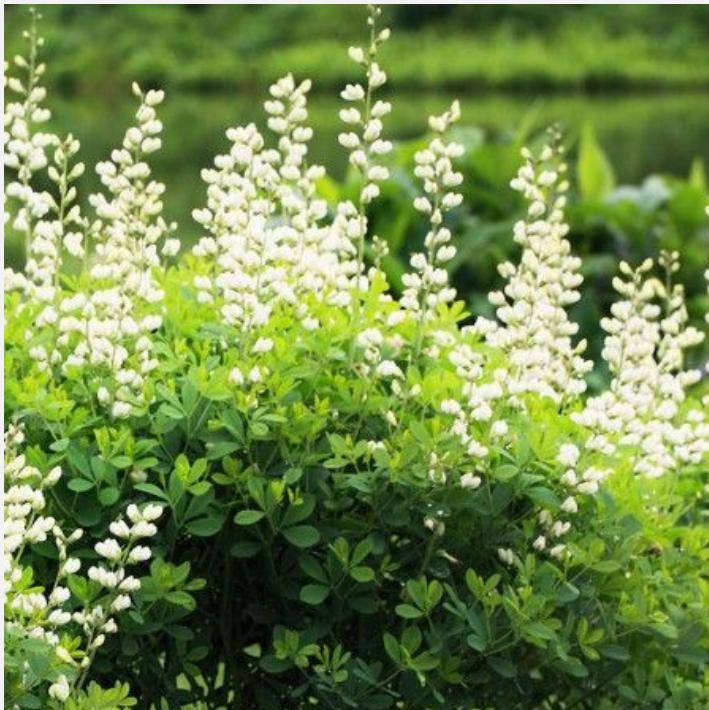
Certain plants are “nitrogen fixers” in that they develop beneficial relationships with the bacteria fixing nitrogen in the soil

Fixing nitrogen in the soil means changing it into a form available to plants



Nitrogen fixers continued

Specific Plants: Wild Blue Indigo, clovers, Partridge pea, Black Locusts, legumes



4. Pollinator Friendly

- often natives will be the best support for our local pollinators
- but blooms of any kind will support pollinators looking for nectar
- to support them overwinter, leave your mess in the garden until temperatures are consistently above 50 degrees



Overlapping Bloom Times

spring: lupine, golden alexander, hairy beardtongue

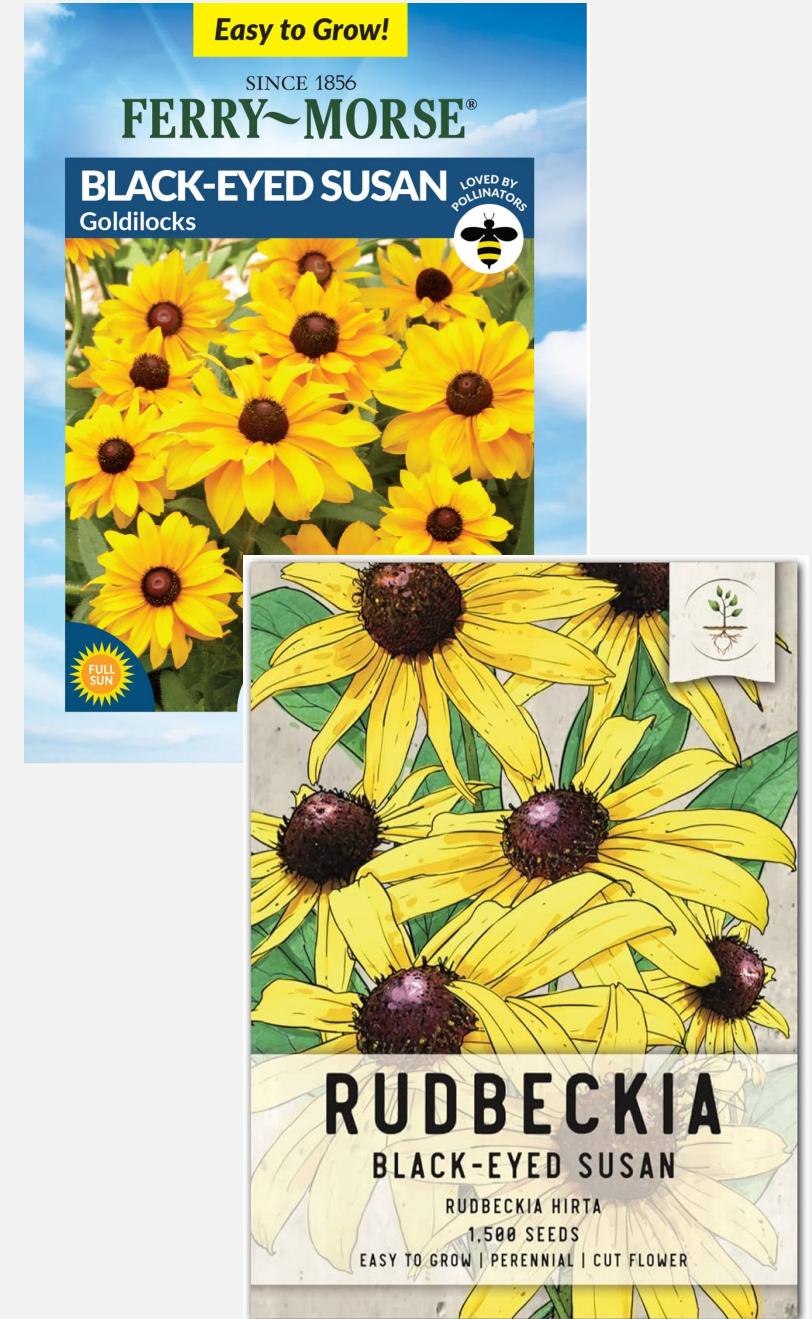
summer: milkweed, coneflower, black eyed susans

fall: boneset, goldenrod, aster

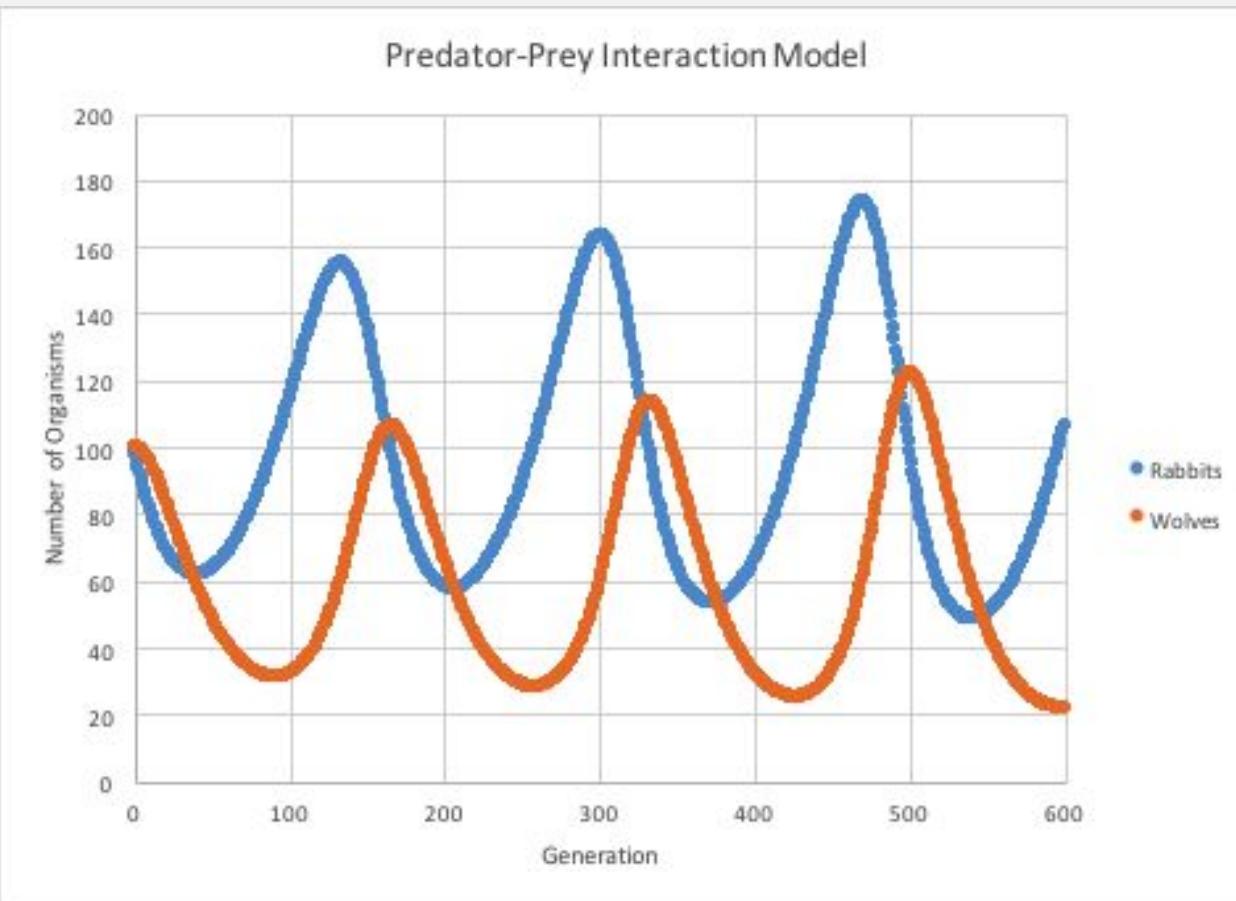


Note on Natives

- Native plants will always have a higher benefit for our ecosystem than non natives because they evolved in tandem with the species here
- Natives are better than **nativars**
 - Nativars are cultivated versions of natives
- This is a list of the plants native to South Bend:
<https://docs.google.com/document/u/1/d/e/2PACX-1vQSFztZFu0Asj6LaHikxwWDtUdHAgtaJlNJWCgovJB0kvYIqfTbeiCSCbKLKk2rmALQ7S3mSoBphPq/pub>
- Super Nine: <https://southbend.wildones.org/super-nine/>
- This is the link to our local Wild Ones chapter:
<https://southbend.wildones.org/>
- Xerces Society Native Plant Directory:
<https://xerces.org/pollinator-conservation/native-plant-nursery-and-seed-directory>

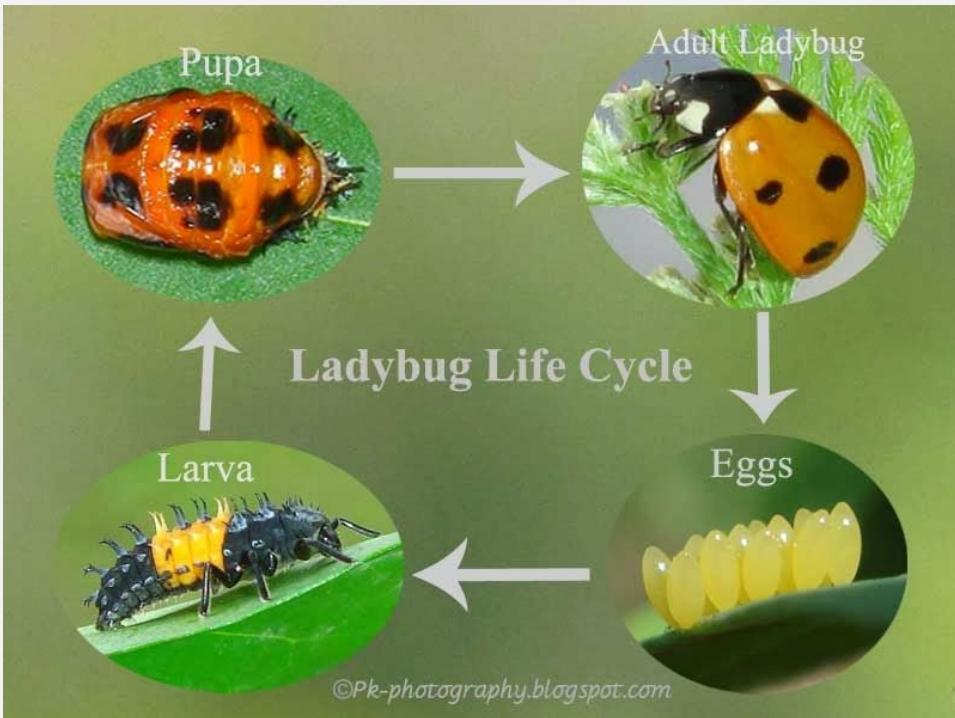


5. Beneficial Attractant



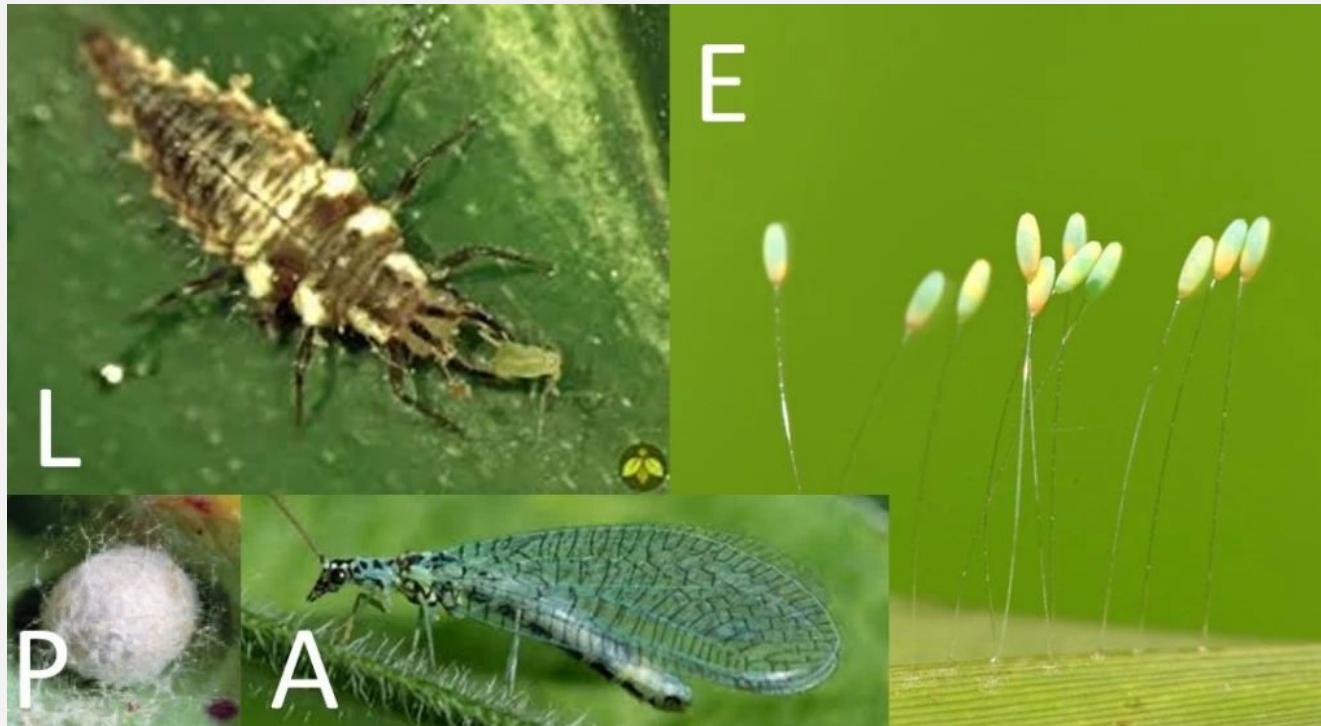
- Integrated Pest Management: keeping the natural cycle of predator and pest alive to manage your pests
- Beneficial insect: any insect that is beneficial to a gardener in that they pollinate, do pest control, or otherwise aid your garden
- Certain plants will attract beneficials to your garden and support their habitat
- Beneficials can be purchased, but if you don't have a suitable habitat ready for them, they'll leave the area

Ladybugs



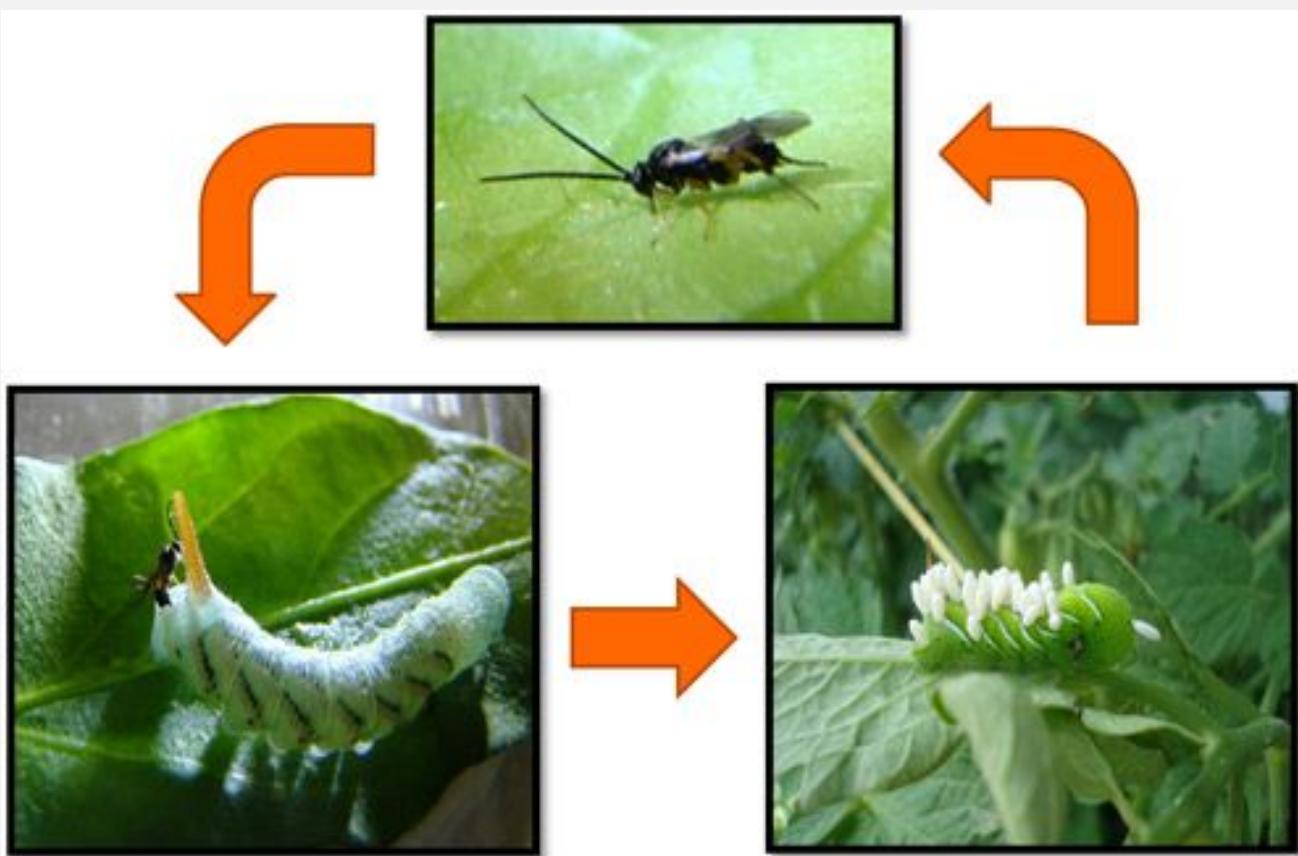
- many species of ladybug
- eat aphids, potato bug larvae, lace bugs, spider mites, eggs of many other insects
- Plant: bugleweed, butterfly weed, cilantro, coreopsis, dandelion, dill, fennel, oregano, queen anne's lace, thyme and yarrow
 - they like plants with clusters of small flowers

Green Lacewings



- can eat up to 100 aphids a day
- eat aphids, caterpillars, spider mites, & more
- Plants: goldenrod, coreopsis, cosmos, marguerite daisies, queen anne's lace, tansy, yarrow, dandelions

Parasitic Wasps



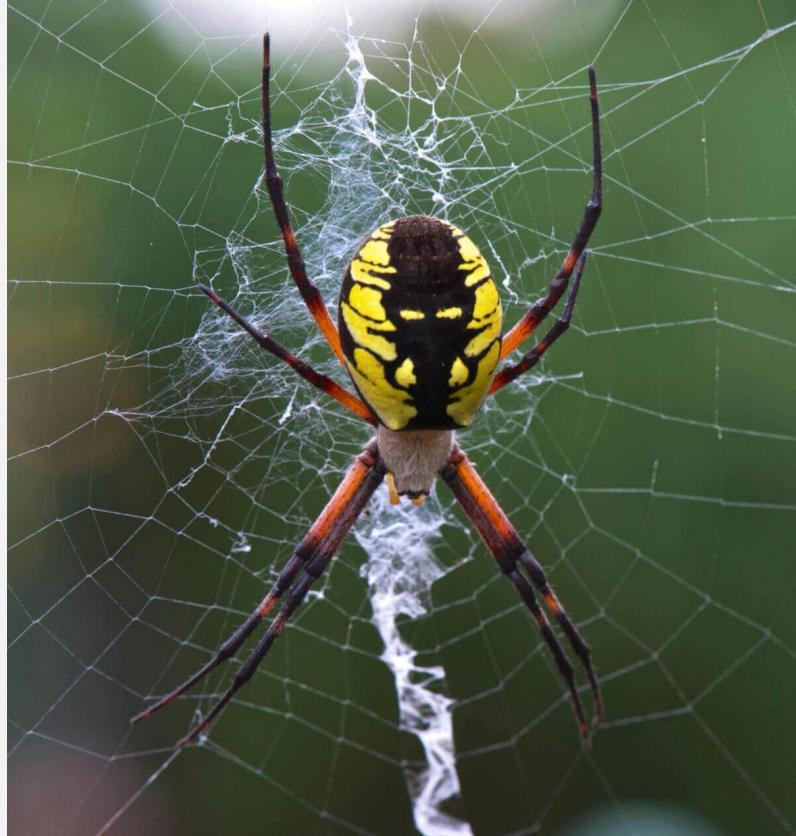
- parasitize over 200 species of pests
- including aphids, bagworms, cucumber beetles, Japanese beetles, caterpillars, tomato hornworm
- Plant: allium, alyssum, cosmos, dill, fennel, lemon balm, thyme, statice, yarrow and zinnia

Hoverfly



- look like small wasps
- adults pollinate the fruit trees!
- Larvae eat the pests
- overwinter in soil or garden debris
- eat aphids & caterpillars
- Plant: alyssum, aster, coreopsis, cosmos, daisies, dill, fennel, feverfew, lavender, marigolds, mint, statice, sunflowers, wild mustard and zinnia
 - (make sure to provide blooms all season long)

Spiders



- spiders don't discriminate in their prey unfortunately but all are predators
- will help with aphids, potato bugs, fire ants, sawfly larvae, spider mites, etc
- plant varying heights and bloom times & don't squish them
 - (there are many species of spider and many have different habitat needs)

Native Bees



- plant in clumps
- leave some dirt undisturbed and bare for bees that burrow (70% of native bees!)
- plant native plants
- provide a water source
- limit use of insecticide, especially during bloomtimes

Recap on beneficials

Carrot family - yarrow, dill, fennel & parsley

Flowering herbs - thyme, oregano, lemon balm, mint

Natives with overlapping bloom times - (golden alexander, milkweed, and boneset)

Flowers of different heights

Flowers of different types

Plant in clumps!



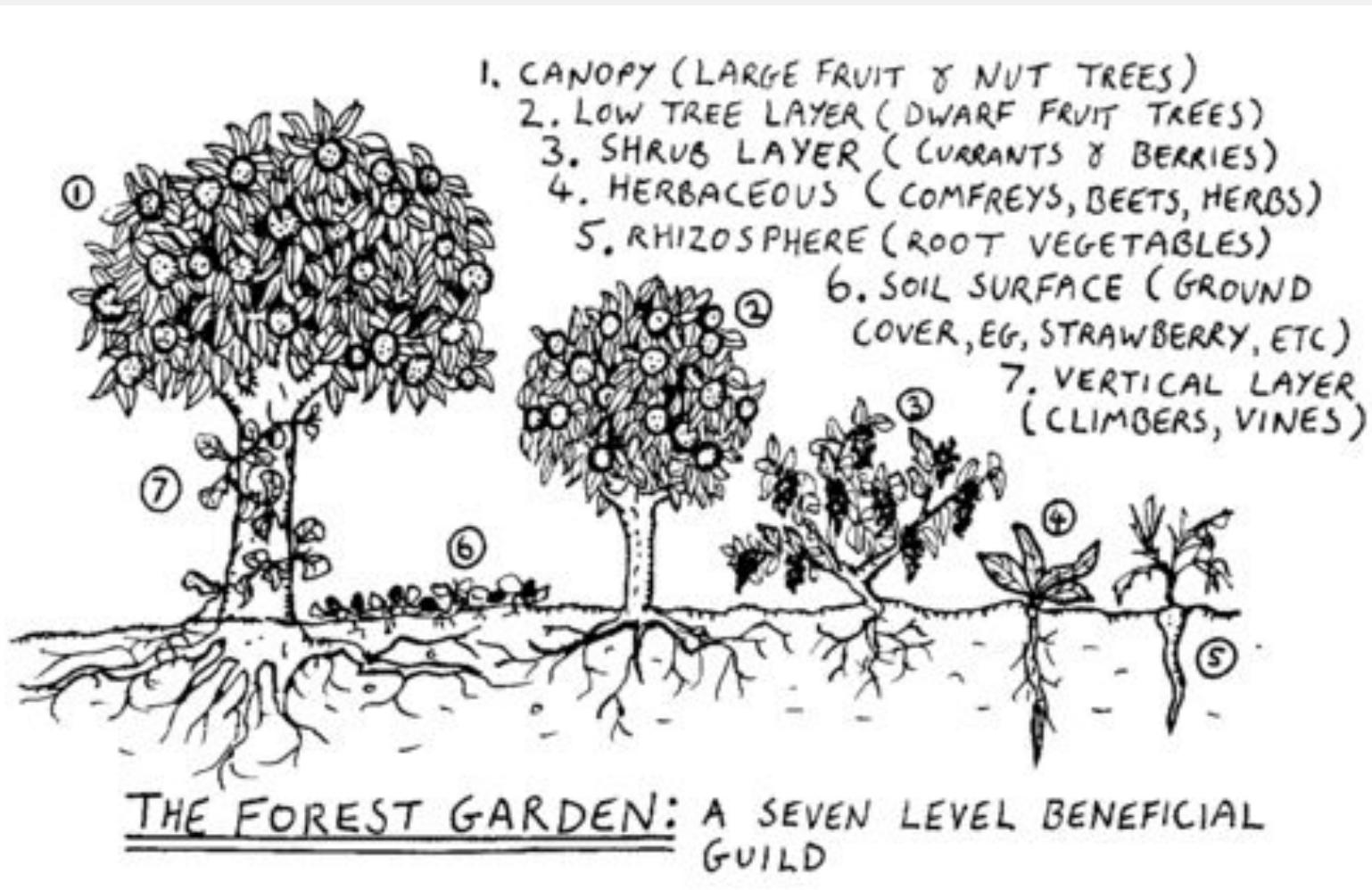
6. Pest Repellants

Plants that have a strong aroma to keep bugs away (like codling moth, japanese beetles, bagworms, stink bugs, peach borers)

Plant: allium family (garlic, chives, onions), herbs (mint, oregano) spicy things (marigolds, nasturtium)



7. Layers



Different layers maximizes space and ecological niches/habitats available.

This improves biodiversity and resiliency.

(7th layer is sometimes left out)

How to Choose?

- does it fulfill one of the above roles? or multiple roles?
- is it edible? do you want to focus on edibles?
- how much sunlight does it need?
- does it tolerate drought? will you water it often?
- is it aggressive? if it is aggressive will you keep up with it?
- do you like how it looks?

Continue Building!

- One of the main principles of permaculture is to observe and adjust
- So pay attention to what roles are being filled or not being filled every season and adjust in the future
 - do you have times without blooms?
 - do you have gaps in your vegetable or fruit production you'd like to fill?
 - do you need more mulching plants?
 - could you keep up with aggressive species?
 - did you water less than you thought you would?
- Many of these species are perennial or will self-seed so this garden will perpetuate itself

Specific Recommended Plants

Black Eyed Susans (Rudbeckia)

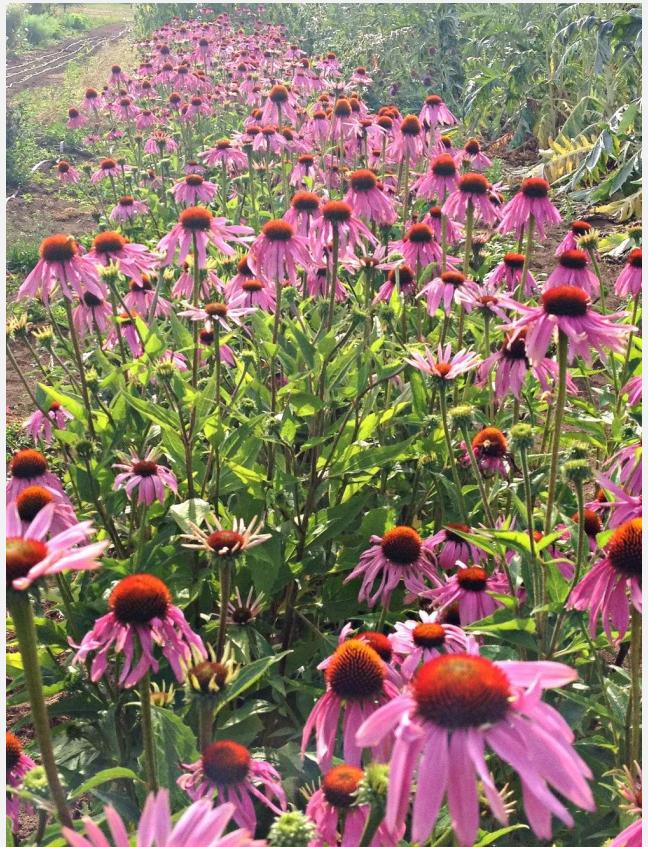


Role - pollinator support, middle layer

Summer blooming, divides easily

Four native varieties (R. hirta, R. Fulgida, R. Laciniata, R. Triloba)

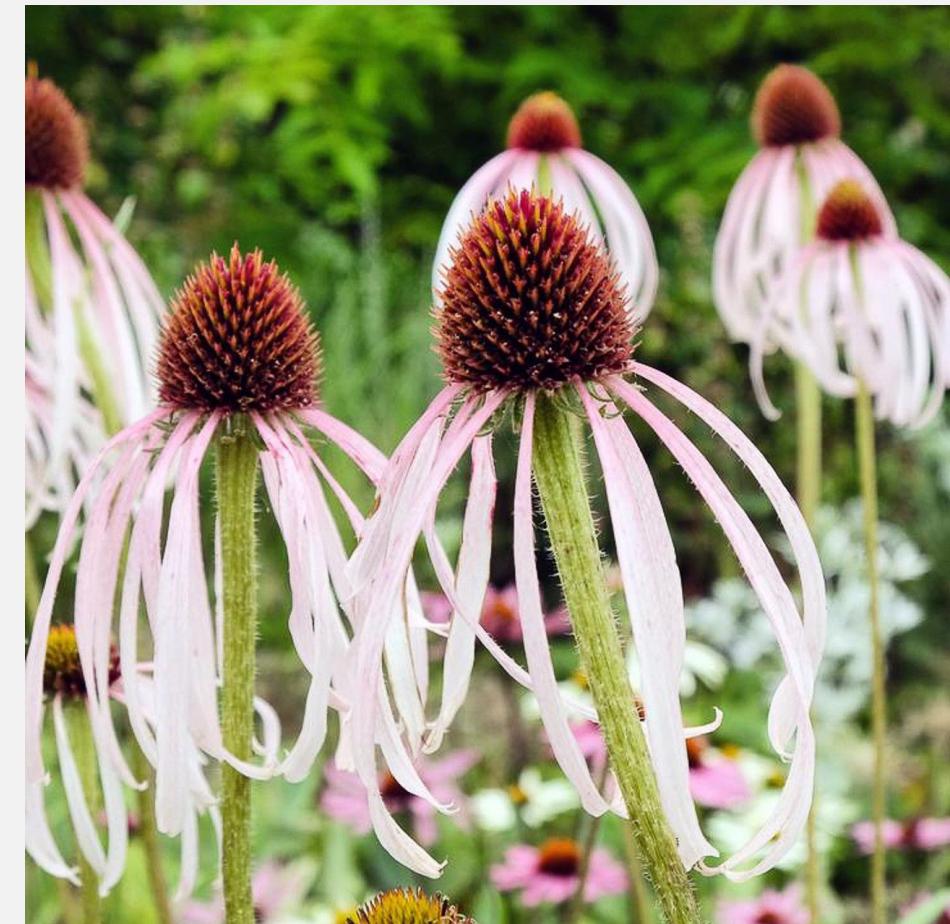
Purple Coneflower (*Echinacea Purpurea* or *E. Pallida*)



Role - pollinator support, middle layer

Summer blooming, self- seeding,
can be divided and shared easily

Only two native varieties



Partridge Pea



role - nitrogen fixer, pollinator support

I always see this covered in bees!

Goldenrod (*solidago*)



role - pollinator support, middling layer
Late blooming native (very pretty!)
multiple native species

Dandelions



role - early pollinator support

Asters (*Symphyotrichum*)



role - pollinator support, lower level

Late blooming native plant

Easy maintenance

multiple native species



Milkweed (*asclepias*)



role - pollinator support

Great support for monarch butterflies

Many native species!

Lemon Balm



role - ground cover, edible, pest repellent

I love the way this smells

Is not as aggressive as mint and likes a little bit more shade, drought tolerant



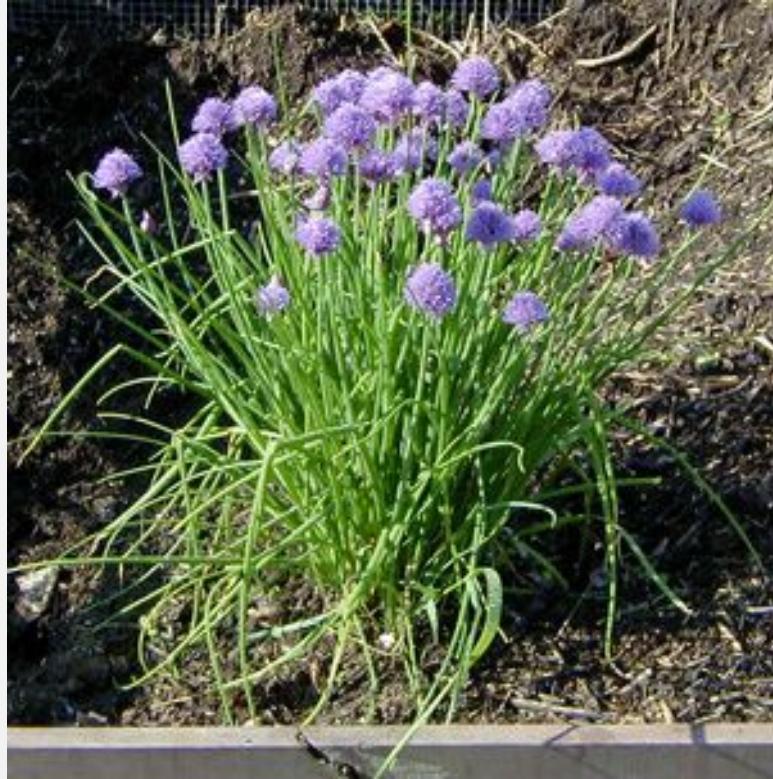
Oregano

role - edible, groundcover, smelly, pollinator attractant

(Will only attract pollinators if you let it bloom)

Tends to be pretty hardy, will come back year after year but won't take over

Chives



role - pollinator attractant, edible, pest repellent

Clumps and comes back every year

Only attracts pollinators if you let it flower

Good to plant near peaches especially



Yarrow

role - pollinator support, medicinal, beneficial support



Dill/Fennel

role - smelly, pollinator support, beneficial attractant, middle layer, edible

Great support for swallowtail butterflies

I know fennel returns easily, I'm not sure about dill (it may just get over harvested at our location)



Sorrel



role - dynamic accumulator, edible, weed barrier (clumping), lower layer

Tastes amazing

Very hardy

Pretty drought tolerant

Bunches, out competes weeds



Rhubarb

role - edible, mulch, middling layer

Edible in early spring

Comes back every year

Great plant to outcompete weeds



Comfrey

role - dynamic accumulator, mulch, pollinator attractant, medicinal, middling layer

Gets top heavy and mulches itself, keeping grass away

- repeats this multiple times in a season

Great for compost tea

Will not die on you, but make sure you want this in your orchard before planting



Nasturtium

role - mulching plant, edible, pest repellent

Tastes great, whole plant is edible

Self-seeds and comes back pretty healthy

Does like some watering

Gooseberry



role - middle layer, edible, deer repellent
Gooseberries are pretty hardy, drought tolerant, and do not need or want full sun so they work as an understory bush
Taste great
Native plant



Serviceberry

role - higher layer, pollinator support, edible
Native plant, has edible berries similar to blueberries

Learning More?

- There are tons of tours of people's fruit tree guilds on YouTube
- You can also look into food forests for ways to integrate plants, especially with different layers
- unfortunately extension does not have great resources about permaculture/food forests/guilds because it's not a typical commercial approach to agriculture
- although you can find great information on specific plants and interactions on extension sites