

Small Space Gardens

Presentation for HGS

Robert Naglic

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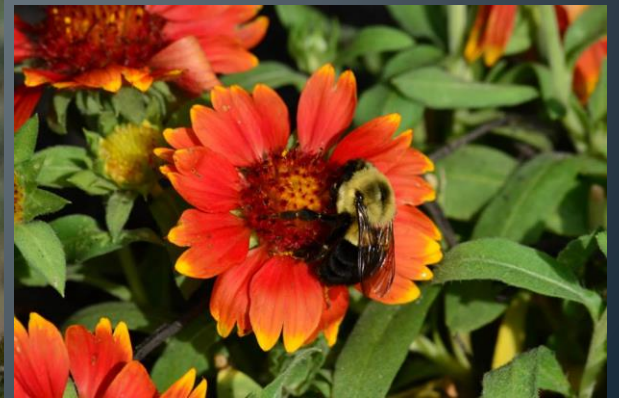
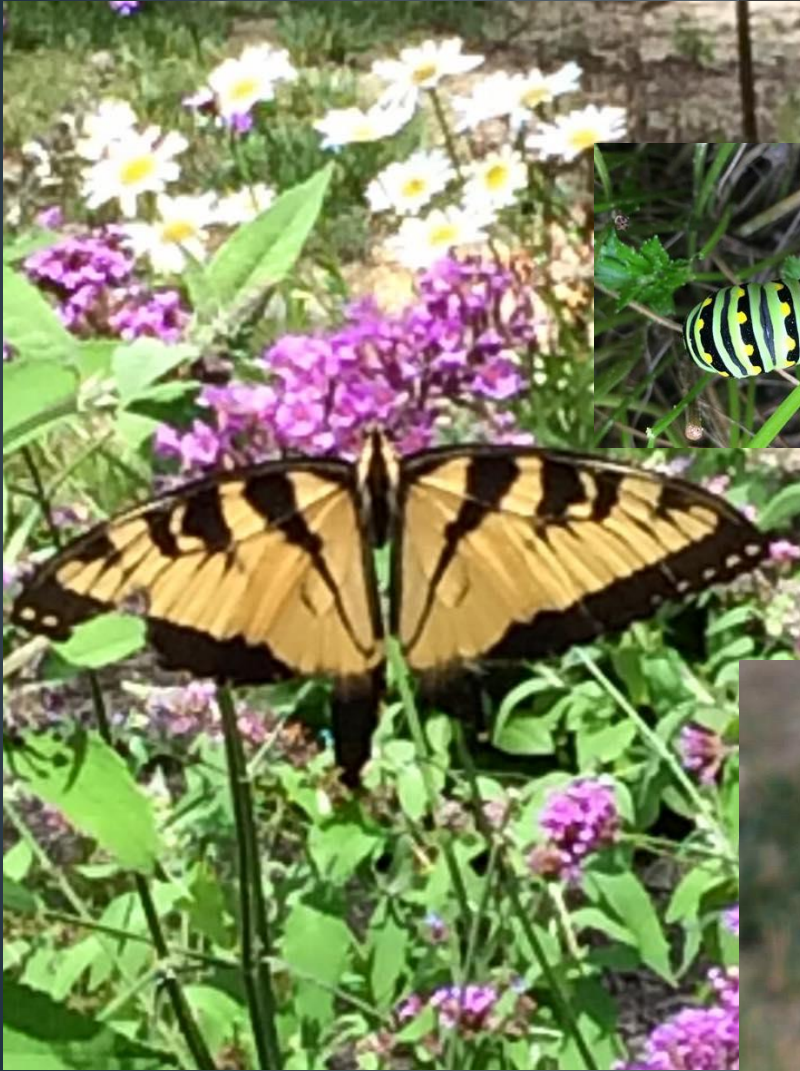
Introduction

- Robert Naglic – (Bobby)
- Master Gardener Class of 2015
- Hanover Resident since 2000
- Two Daughters at CSES
- We Live in Atlee Station corridor
 - Neighborhood sized Yard
 - Raised beds
 - Fruit trees
 - Native Plants
 - Pollinator gardens
- I also work full-time and coach lacrosse
- Happy to answer questions – rnaglic@gmail.com

Introduction (part 2)

- Stuff I grow or have grown on my .3 acres of Hanover Soil
 - Fruit
 - Apples, Peaches, Plums, Berries, Limes, Paw Paws (currently failing)
 - Greens
 - Lettuce, Kale, Spinach
 - Vegetables
 - Tomatoes, Cucumbers, Peppers, Beans, Squash, Zucchini, Carrots, Garlic, Sweet Potatoes
 - Herbs
 - Basil, Thyme, Mint, Parsley, Oregano, Borage, Tulsi, Lavender, Lemon Verbeena, Sage, Lovage, Balm, Stevia, Dill, Chives, Lemon Grass, Rosemary, Cilantro.
 - Pollinator Garden – Natives and Non-Natives
 - Rain Garden – Natives and Non-Natives
 - Ornamentals – Natives and Non-Natives
 - House Plants
 - Lawn

Images from our yard



Images from our yard



The Good News

- YOU CAN GARDEN!!!!
 - Farm or Apartment
 - 8 or 80
 - Rich or Not so Rich
 - Busy or Not so Busy
 - Strong or Not so Strong
 - Wherever you are from or whatever your history
 - With few exceptions, whatever your situation, You can garden.
- ...But

The Bad News

- The fine print
 - You probably can't grow whatever you want, however you want, wherever you want, and whenever you want.
 - We all have our constraints
 - Climate, Soil, Space, Time, Skill, Experience, Finances, Strength, Patience, Preferences, etc.
 - Understand your situation and work with it

Goals

- What I hope you get out of today
 - Understand the concept of “Right Plant in Right Place”
 - ...and “for the right person”.
 - Techniques to maximize your odds of success.
 - Techniques to maximize your space.
 - Techniques to maximize your gardening enjoyment.

Extreme Examples

- People can go to great lengths for their gardening
 - This Ikea thing ...
 - http://www.huffingtonpost.com/entry/growroom-ikea-garden_us_58a63e74e4b037d17d2654a4
 - This robo-garden thing ...
 - <http://www.businessinsider.com/farming-robot-farmbot-automatically-grow-vegetables-backyard-garden-2016-7>
 - Aquaponics
 - Fairy Gardens

Fairy Gardens



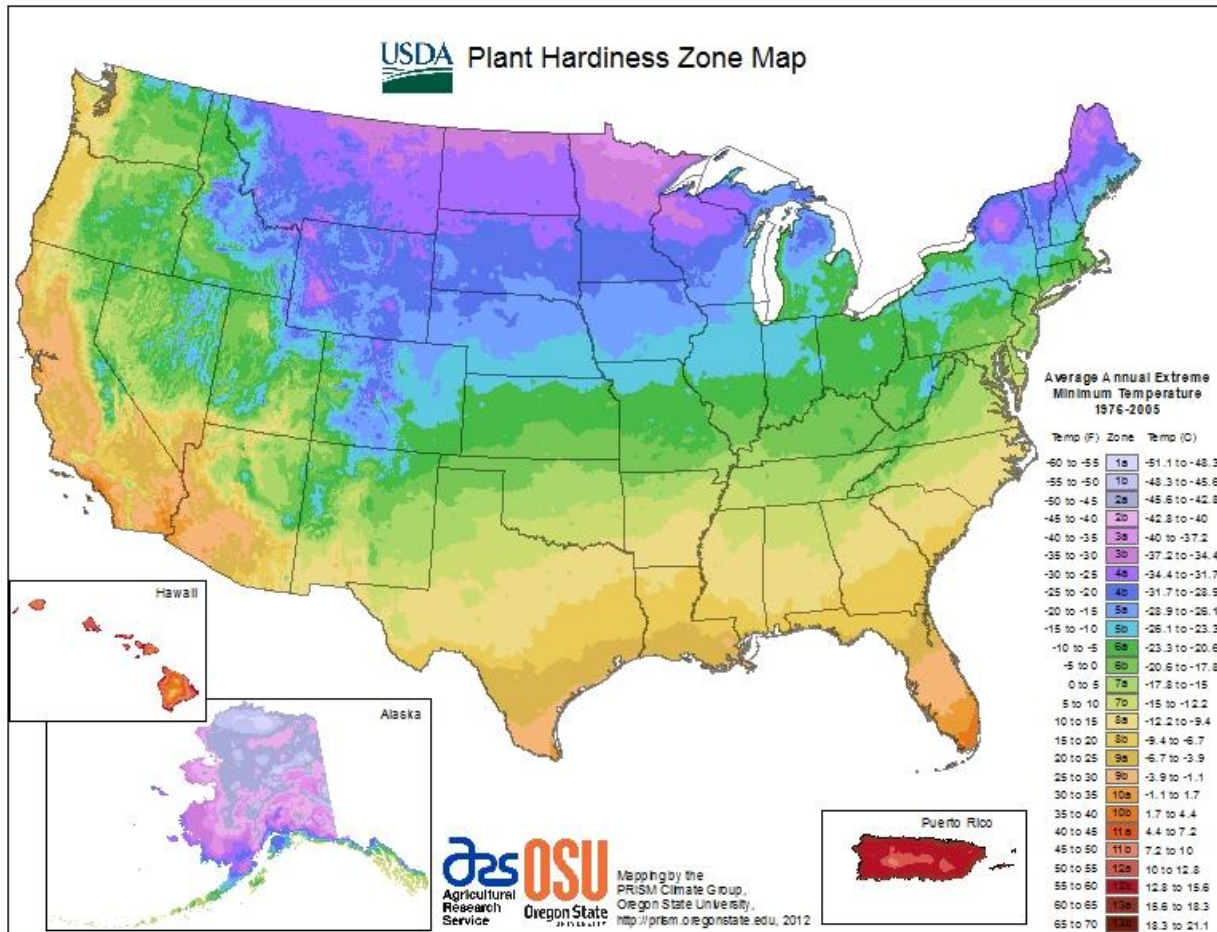
The Basics

- “The right plant in the right place” (and, at the right time, for the right person)
 - Right Sun
 - Most vegetables need “full sun” (at least 6 hours, but 8-10 is better)
 - Right Soil
 - pH Levels, Composition, Texture, Depth
 - Soil Test?
 - Right Moisture
 - Relates to soil, topography, and micro climate
 - Right Time
 - Planting schedule
 - http://pubs.ext.vt.edu/426/426-331/426-331_pdf.pdf
 - From seed or from plants?

The Basics

- Think Backwards
 - “What will grow here?” not “Where will this grow?”
 - Investigate your situation.
 - Do research on your plant options.
 - Choose Plants (and their varieties) that best fit your situation.
 - Choose “dwarf”, “container”, or “compact” varieties to save space.
 - Follow the tags – planting time, spacing, watering, and more.
- This approach will increase your chances for success.

The Basics – USDA Zone Map



Zip Codes
23005 &
23116
Are Zone
7A

The Dirt on Soil

Factor	Details
Compaction	Good soil should have about 50% pore space for the passage of air and water
Depth	At what depth is root growth impacted
pH levels	If garden soil is too acidic or alkaline nutrient absorption is impacted. Most vegetables prefer a neutral or slightly acidic soil.
Texture	Soils textures are determined by the proportions of sand, silt, and clay particles.
Nutrients	Plants need 16 elements for normal growth – Carbon, Hydrogen, Oxygen, Nitrogen, Phosphorus, Potassium, Calcium, Sulphur, Iron, Copper, Manganese , Zinc, Boron, Chlorine, and Molybdenum.

A soil test every three years is recommended

“Organic gardening is about feeding the soil, not the plant”

Three Types of Small Vegetable Gardens

Type	Description
Traditional In-ground Garden	A plot of ground, usually near a house, where flowers, shrubs, vegetables, fruits, or herbs are cultivated.
Raised Bed Garden	A bed that has been raised above the surface of the ground. Raised beds are usually framed by some type of barrier such as timbers or stones. They are often used in areas where poor soil exists; new soil can be imported and placed into the beds
Container Garden	The practice of growing plants, including edible plants, exclusively in containers instead of planting them in the ground. A container is the general term used in gardening for a small, enclosed and usually portable object used for displaying live flowers or plants.

The In Ground Garden

- A cleared plot for cultivation
- Can scale to large spaces
- Location is critical
- Soil composition is equally critical
- Tilling
- Can be very inexpensive
- The traditional vegetable garden
- Very flexible

Some images



Raised Bed Vegetable Gardens

- A bed that has been raised above the surface of the ground. Raised beds are usually framed by some type of barrier such as timbers or stones. They are often used in areas where poor soil exists; new soil can be imported and placed into the beds
- Soil Advantages
- Works in Small Spaces
- Greater Productivity
- Extend the Season
- Many Design Options
- Less Physically Taxing
- Start-up can be more expensive
- Watering frequency

Raised bed Images...



More Raised bed Images...



A Tale of Two Gardens

- Garden #1
 - Year 1 – Drainage Problems
 - Year 2 – Soil Problems
 - Year 3 – Soil Problems (getting better)
 - Year 4 – Weed Infestation (still getting better)
 - ...

A Tale of Two Gardens

- Garden #2
 - Year 1...



Soil “Recipes”

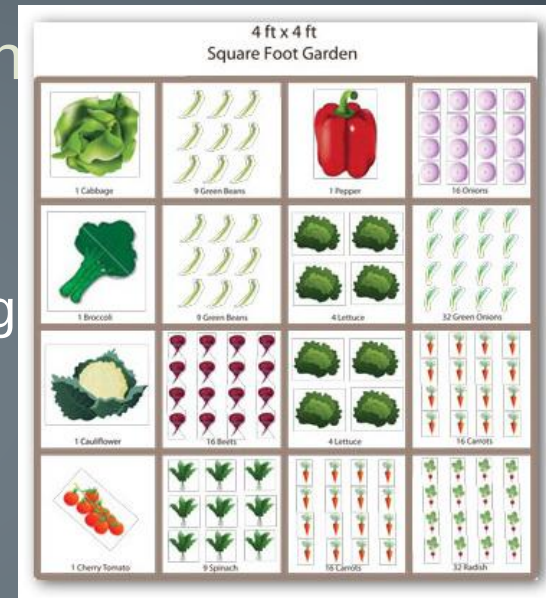
- **Purdue University**
 - To make 1 bushel of soil mix, combine: 1/3 bushel of soil 1/3 bushel of organic matter (compost, peat moss, well-rotted manure) 1/3 bushel of vermiculite or perlite 1/2 cup of fertilizer (5-10-5, 6-10-4, or a similar fertilizer formulation)
 - To make 1 bushel of soilless mix, combine: 1/2 bushel of peat moss 1/2 bushel of vermiculite 1/2 cup of ground limestone 1/2 cup of superphosphate 1 cup of fertilizer (5-10-5, 6-10-4, or a similar formulation)
- **Virginia Tech Container Mix**
 - one part peat moss; one part garden loam; one part clean, coarse (builder's) sand or perlite; and a slow-release fertilizer (14-14-14) according to container size. Lime may also be needed to bring the pH to around 6.5.
- **Cornell Mix**
 - mix 1 part organic matter (peat moss, compost, etc.) to 1 part sand or perlite to 2 parts soil
- **Square Foot Gardening Mix (Sourced from U of Kentucky, U of Maine, U of Illinois)**
 - mix of equal volumes of coarse vermiculite, peat moss and compost (5 types of compost recommended)
- **University of Maine**
 - equal volumes of garden soil, organic matter (compost, peat moss, composted manure), and porous material (vermiculite or perlite). If good quality garden soil is not available, substitute additional organic matter. Add lime and fertilizer, as recommended by a soil test of the finished soil mix. In the absence of a soil test, 1 to 2 pounds of a complete fertilizer such as 10-10-10 per 100 square feet is usually

Is it Organic?

- Maybe
 - Many soil mixes have or recommend chemical fertilizers
 - Not all (bagged) composts are organic
 - Soil mixes should reduce diseases, soil pests, and weeds which would reduce the need for pesticides and herbicides
 - Soil mixes contain a great deal of organic materials which should reduce the need for additional chemical fertilizers.

Production from Small Spaces

- Small Yards and Urban Gardens
 - Beds typically 3'x3' or 4'x4'
- Think Grids, Not Rows
 - Read your seed packet for spacing
- Intensive
 - Think Companions, Not Weeds
- Extend the Season
 - Warms Faster
 - Dries Faster
 - Lends Well to Hoops, Cold Frames, Green Houses



Container Gardens

The practice of growing plants, including edible plants, exclusively in containers instead of planting them in the ground. A container is the general term used in gardening for a small, enclosed and usually portable object used for displaying live flowers or plants.

- Containers can be of various shapes, sizes, and styles
- Typically filled with potting mixes
- Great flexibility, “Portable”
- Potentially greatest cost
- Great starter garden
- Many variety options but some limitations

Container Garden Images...



Compare and Contrast

Type	Pros	Cons
Traditional In-ground Garden	Traditional Easy to go big Potentially the lowest initial cost No variety limitations	Potential soil challenges Potentially labor intensive May require patience
Raised Bed Garden	Good Soil Intensive Relatively low effort Longer season	Initial cost Frequent watering Some variety limitations
Container Garden	Flexible Good soil Good Start Relatively low effort Longest season	Potential cost concerns Frequent watering Variety limitations

Appendix

One More Option – Straw Bale Gardens

- Pick a Spot
- Set Your Bales
 - Narrow side up
- Condition Your Bales
 - Straw not Hay
 - 2-3 weeks of Watering
 - and Fertilizing
 - Get it “Decomposting”
 - Check your temperature
- Plant
 - Add some potting soil
- Water Frequently



One More Option – Straw Bale Gardens

- Pros
 - Cheap
 - Flexible
 - Sterile and Weed Free
 - Compost / Sustainable
- Cons
 - Limited Science
 - Frequent Watering
 - Limits Varieties
 - Temporary
 - Polarizing Looks



Raised Beds - A Basic Plan to Get Started

- Build Your Bed
 - Choose a Material – Wood, Straw, Masonry...
 - Make the Bed 6" – 12" Deep
- “Build” Your Soil
 - Figure Out Your Needs (See Next Slide)
 - Dig if You Need
 - Mix and Fill
- Plan and Plant
 - Grids?

Material Planning

An Example

- Four Beds
- Each Bed is 4' x 4' x 9"
- Each bed holds 12 cu ft of soil
- Which equals 48 cu ft of soil total

Example



Resources and References

- <http://umaine.edu/publications/2761e/>
- https://pubs.ext.vt.edu/426/426-020/426-020_pdf.pdf
- https://pubs.ext.vt.edu/426/426-336/426-336_pdf.pdf
- <http://www.hort.purdue.edu/ext/ho-200.pdf>
- <http://www.aces.edu/pubs/docs/A/ANR-1345/ANR-1345.pdf>
- <http://www.gardening.cornell.edu/factsheets/vegetables/raisedbeds.pdf>
- <http://www.ag.ndsu.edu/pubs/plantsci/hortcrop/h1597.pdf>
- <http://www2.ca.uky.edu/gogreen/displays/SquareFootGardeningDBH.pdf>
- http://urbanext.illinois.edu/gardenerscorner/issue_06/special_04_10.cfm

Resources and References

- <http://extension.umd.edu/growit/food-gardening-101/step-1-build-salad-table%E2%84%A2>
- <http://ohioline.osu.edu/hyg-fact/1000/1641.html>
- <http://www.ext.colostate.edu/mg/gardennotes/713.html>
- http://gardeningsolutions.ifas.ufl.edu/giam/plants_and_grasses/fruits_vegetables/raised_veggies.html
- <http://www.garden.org/howtovideos/index.php?page=video2>
- MG Class Materials – Chapter 2
- <https://bonnieplants.com/library/how-to-condition-and-plant-a-straw-bale/>
- <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-7191/PSS-2264web.pdf>
- http://ahsgardening.org/uploads/pdfs/Straw_Bale_TAG_ND14.pdf
- <http://www.nytimes.com/2013/03/21/garden/grasping-at-straw-a-foolproof-vegetable-plot.html>