Victory Garden 101: Preparing the Garden Site & Soil

Notes Page

- Choosing a Garden Site
  - Full Sun – at least 6 hours
  - Wind protection?
  - Good drainage!
  - Water
- Starting a New Garden Site
  - Assess existing plant growth:
    - Grass: fescue, Bermuda?
    - Weeds: henbit, nutsedge?
    - Trees & shrubs (roots)
  - What do you have available to you?
  - Tiller? Tarps? Herbicides? Shovels? Elbow grease?
- Some Possible Steps:
  - Option 1
    1. Mow or scalp
    2. Cover with a tarp for 2-3 weeks
    3. Till or incorporate amendments
  - Option 2
    1. Mow or scalp
    2. Till or incorporate amendments
  - Option 3
    1. Spray with glyphosate
    2. (Mow)
    3. Till or incorporate amendments
  - Raised Bed Prep:
    1. Start with Option 1, 2, or 3 above.
    2. Till lightly?
    3. Cardboard layer?
    4. Build raised bed and fill with soil / compost mix.

- Raised Bed Gardening
  - Advantages:
    - Improved drainage
    - Soil improvement
    - Accessibility
    - Soil warming
    - Space saving
    - Season extension
  - Disadvantages
    - Soil drying
    - Soil cooling (fall)
    - More watering
    - Less flexibility / Limited space
  - Dimensions & Height
    - 4-5′ wide
    - Variable length
    - Height of 6″ to 3′
  - Edging Materials
    - Wood – treated and non-treated
    - Recycled plastic lumber/decking products

- Railroad ties (untreated or plastic)
- Stone
- Concrete Block/pavers
- Landscape timbers
- Corrugated metal sheeting/roofing
- Bamboo

- What Does the Soil Provide?
    - Anchoring (place to grow); Nutrients; Water; Oxygen
- 4 Major Soil Characteristics – texture, structure, chemistry, biology

    - Soil Texture: Sand, silt, and clay
        - Testing Our Soil Texture
        - Why Soil Texture Matters
            - Water Movement
            - Water Holding Capacity
            - Soil Temperature
            - Soil Aeration
            - Soil Erosion
            - Nutrient Holding Capacity
    - Soil Structure = Aggregates
    - Soil Chemistry

        pH – Most edible plants prefer a pH of 6.0-7.0
        - Amending the Soil pH
        - Lower the pH – add sulfur
        - Raise the pH – add lime

        Plant Nutrients
        - Macronutrients
            - Nitrogen (N)
            - Phosphorus (P)
            - Potassium (K)
            - Calcium (Ca)
            - Magnesium (Mg)
            - Sulfur (S)
        - Micronutrients
            - Boron (B)
            - Chlorine (Cl)
            - Copper (Cu)
            - Iron (Fe)
            - Manganese (Mn)
            - Molybdenum (Mo)
            - Nickel (Ni)
            - Zinc (Zn)
        - Nitrogen – important for foliage growth
            - Nitrogen Deficiency: stunted, yellowing, pale green
        - Phosphorus – important for root growth, flowering, photosynthesis
            - Phosphorus Deficiency: purple coloration on leaves
        - Potassium – important for stress management
            - Potassium Deficiency: scorched leaf edges

Soil Biology

- Food Web
- Healthy Soil Biology
    - Rhizosphere – an area of concentrated microbial activity close to the root
    - Location of peak nutrient and water cycling
    - Plant roots exude food (sugars) for microbes
    - Living roots are easiest food source for soil microbes
    - Microbes provide nutrients and other compounds to the plant.
    - Maintaining living roots in the soil maintains the soil food web.

How Do We Improve Our Soil?

- Adding Organic Matter
- Soil Testing
    - Collect 8-10 small scoops of soil, 6" deep
    - Random scoops from the entire sample area
    - Mix the samples together, then bag and label about 2 cups of soil.
    - Bring to the Extension office.* $20 for normal test.
    - N, P, K, pH, Organic Matter
    - *Visit https://www.sedgwick.k-state.edu/products-test/soiltests.html for current protocols

Sources of Plant Nutrients

- Fertilizer Analysis

N – P – K

- Fertilizer Labels
- Organic Fertilizers
- When should you fertilize?
    - Applying Fertilizers
- Tips for Success with Clay Soils
    - Avoid working the soil when wet
    - Incorporate organic matter regularly
    - NEVER add sand
    - Use mulch
- Tips for Success with Clay Soils
    - Double dig??
    - Water slowly, deeply, and infrequently
    - Loosen soil to prevent crust

Questions?

- For More Information:
    - Master Gardener Hotline
        - sgemghotline@gmail.com - preferred
        - 316-660-0190
        - M-F, 9-12 and 1-4
        - Walk-In Clinic (not right now, but eventually)
    - Extension E-Newsletter
        - Text: EXTENSION to 42828
    - Horticulture Information Center:
        - http://hnr.k-state.edu/extension/info-center/
- Social Media
    - Facebook Page: http://facebook.com/sedgwickextension
    - Instagram: @ksresedgwickco
    - The Demo Garden blog: http://thedemogarden.org

References & Resources for Additional Learning

Find Your Local Extension Office & Resources:

Kansas: https://www.ksre.k-state.edu/about/stateandareamaps.html

Other States: Do an internet search for "*your state* extension" or "*your county* extension." It is usually affiliated with the land grant university in your state.

Kansas Garden Guide: https://bookstore.ksre.ksu.edu/pubs/s51.pdf (pages 6-20)

Video: Investing in Tools: https://kansashealthyyards.org/all-videos/video/investing-in-tools-small-to-large-gardens

Fertilizing Gardens:

Fertilizing Gardens in Kansas: https://bookstore.ksre.ksu.edu/pubs/mf2320.pdf

Direct Application of Organic Materials: https://bookstore.ksre.ksu.edu/pubs/MF3373.pdf

Fertilizer Types: https://hnr.k-state.edu/doc/hort-tips/Fertilizer%20Types.pdf

Video: Improving Soil for Gardens: https://kansashealthyyards.org/all-videos/video/improving-soil-for-gardens

Video: Organic Matter: https://kansashealthyyards.org/all-videos/video/organic-matter-improves-soil

Soil Texture Video: https://youtu.be/lOyaBxj767s

Water Movement in Soil: https://youtu.be/vmo0FRAVgkM

The Science of Soil Health Playlist: https://www.youtube.com/playlist?list=PL4J8PxoprpGa3wFYSXFu-BW_mMatleIt0

Soil Testing: https://www.sedgwick.k-state.edu/products-test/soiltests.html

https://www.agronomy.k-state.edu/services/soiltesting/

Composting:

Making Compost, A Beginner's Guide: https://bookstore.ksre.ksu.edu/pubs/MF1053.pdf

Quick Composting: https://bookstore.ksre.ksu.edu/pubs/MF3372.pdf

Using Compost: https://bookstore.ksre.ksu.edu/pubs/MF3370.pdf

The Composting Process: https://bookstore.ksre.ksu.edu/pubs/MF3369.pdf

Raised Bed Gardening:

Publication: https://bookstore.ksre.ksu.edu/pubs/mf2134.pdf

Video: https://kansashealthyyards.org/all-videos/video/building-a-raised-bed-for-gardens