Getting Started with Your Vegetable Garden

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The Basics
- A little About Vegetables
- Choosing the Right Location
- Planning your Garden
- Preparing the Soil
- Soil Tests
- Fertilizing
- Watering Techniques
- Choosing the right Vegetables
- Tips and Tricks
- Resources

Hardiness Classification
- Vegetables vary in climatic requirements needed for best growth
- Vegetables are classified according to temperature requirements
- Cool Season
  - Hardy OR Semi-hardy
- Warm Season
  - Tender OR Very tender

A Successful Garden
- Successful vegetable gardens require:
  - Proper site selection
  - A good production plan
  - Proper plant care

Selecting Proper Site
- Selecting the proper site for a garden is the first step to successful production
- Most vegetables require at least 6 hours of full sunlight to be productive
- Several smaller areas in the landscape can be utilized for vegetables
- Could include small areas near the kitchen for herbs and rapidly growing salad vegetables

Space-Saving and Yield Boosting Techniques
- Companion Planting
- Succession Planting
- Inter-cropping / Second Cropping
**Record Keeping**
- How much fertilizer was used?
- What areas were planted with what varieties?
- When did planting and harvest occur?
- How much produce was harvested?
- How did that new variety do?
- What problems occurred?
- How were they corrected?

**The Soil**
- Many vegetables have shallow root systems, making them susceptible to water and nutrient shortages.

**The Soil Types**
- Soil type can significantly influence vegetable growth.
- Sandy and Sand Loam
  - Early season production is desired, sandy and sandy loam soils are best
  - Sandy soils warm up quickly and are well aerated
  - Lighter soils are best for spring production and fast-maturing vegetables

**The Soil Types**
- Silt Loams and Clay
  - High yields are required rather than early harvest, silt loams and clay soils are most productive because of the soils high water holding capacity and nutrient availability
  - Heavier soils are difficult to till, slow to warm up in the spring, and poorly aerated when wet
  - Better for later season production and vegetables that require a long time to mature

**The Soil**
- Regardless of the soil type, garden areas should be free draining with few obstructions (hard pans, shallow soils, high water table, excessive rocks) that limit root development and tillage operations.
- Soil Tests
  - Formal Testing
  - Jar Method

**Jar Method**
- First,
  - Take soil sample
  - Remove rocks
  - Remove organic matter
  - Sift

*Pictures and instructions from finegardening.com*
Jar Method
Second,
- 1 ½ cups in 2 quart jar
- 1 TBLS detergent
- 1 ½ cups water
- Tighten lid

Jar Method
Third,
- Shake until dissolved
- Immediately set down
- Leave undisturbed for 24 hours

Jar Method
Fourth,
- Measure the layers
  - Sand will settle out first (bottom)
  - Silt will settle next
  - Clay will settle last (very light)

Soil Type Chart
http://www.finegardening.com/how-to/articles/hows-your-soil-texture.aspx

The “Right” Loam
- What and when are you growing?
  - Early vegetables – more sandy loam (dries out and warms earlier in the spring)
  - Mid season vegetables – more clay loam (dries out slower, less water needed during the summer)
  - Over wintering vegetables – more sandy loam (need more drainage)

Soil Moisture Control
- Critical for most vegetables
- Too Dry
  - Small, tough, tasteless vegetables
- Too Wet
  - Weakened roots
  - Insects (slugs, snails)
  - Diseases, fungi
- Too Sporadic
  - Split tomatoes
  - Inconsistent production
  - Blossom drop
Soil’s Best Friend – Organic Matter

- One of the major limitations to vegetable production in Utah is the low organic matter content of our soils
- Increases water and nutrient holding capacity and improves soil aeration and soil structure
- Roots grow better, water is absorbed faster and aeration is improved
- Helps hold soil particles together reducing soil erosion, nutrient leaching and water runoff

Fertilizers

- Most vegetables vary in their nutrient requirements
- Commercially available fertilizers can supply much of the nutritional needs of the plant
- The aim of the fertilizer program is to supply adequate levels of the important nutrients so that plant growth is not limited

The Big Three Elements

- **Primary Nutrients**
  - Nitrogen (N)
  - Phosphorus (P)
  - Potassium (K)

Nitrogen

- **N-P-K**
  - Nitrogen is generally the most limiting to plant growth
  - Excess nitrogen promotes vegetative growth at the expense of fruit development

Phosphorus

- **N-P-K**
  - Phosphorus is necessary for root, fruit, and seed development
  - Generally, high concentrations of phosphorus are needed in close proximity to the plant for best performance

Potassium

- **N-P-K**
  - Potassium is important for plant vigor, for improving root, stem, and fruit growth
  - Also increasing low temperature tolerances
Fertilizers – What to Use
- There is no magic formula for determining the nutrient needs of the garden.
- The best way to determine nutritional needs is to have the soil tested at a reliable soil testing laboratory.

Fertilizers – When to use
- When planting:
  - Transplants can really use a water soluble fertilizer
- Feeding during season:
  - Banding when planting transplants or seeds

Fertilizing – Banding
When banding:
- Important not to place the fertilizer too close to the seed or transplant.
- High salt content of the fertilizer can be injurious to the germinating seed or damage the new roots on the transplant.

Fertilizing – Banding
- In most cases, fertilizers should be banded 2 to 3 inches to the side and 1 to 2 inches below the seeding or planting depth.

Breaking Up The Soil
- To incorporate coarse organic matter where decomposing microbes can break it down.
- To aerate the soil.
- To break up hard spots – encourage root growth.

Seedbeds - Flatbeds
Several types of seedbeds can be used for successful gardening.
- Flatbeds
  - The easiest to make is a flat bed
  - The flat bed is raked smooth after tilling and before planting seeds in the desired area.
Seedbeds – Raised Beds
- With shallow soils, raised beds increase the depth of topsoil the plant can grow in

Seedbeds – Raised Beds
- Raised beds require more work to make, warm up faster in the spring, but tend to dry out faster in the summer

Seedbeds – Raised Beds

Seedbeds – Raised Beds

Seedbeds – Raised Beds

Seeding and Planting

Straight Rows
- While straight rows make attractive gardens which are easier to seed, they don't always utilize the limited space of the garden most efficiently
- Straight rows are easier to plant and allow tillers to be used for later weed control

Seeding and Planting

Other methods of sowing include:
- Broadcast planting
- Hilling
- Intensive spacing
- All of these can be incorporated into the garden
- Row planting methods are the most common
Planting Times

- Planting time is based on locality, frost-free period, and time to crop maturity
- Know your temperatures
  - Dates of the last killing frost in the spring
  - Dates of first killing frost in the fall
  - Helps to determine when to plant the tender, warm season vegetables

Growing periods of vegetables vary greatly

- Those that require a long growing season need to be planted as early as possible
  - Include potatoes, tomatoes, peppers, eggplants, and onions
- Vegetables that mature rapidly can be planted at intervals during the season to extend their productive periods
  - Include spinach, beans, carrots, and radishes

Seed Germination

- Some seeds are more difficult to establish in the garden than others
- Onions, beets, and carrots germinate slowly
- If soils dry out rapidly, erratic germination and poor plant stands occur

Transplants

- Transplanting depth varies with the vegetable
- Tomatoes can be planted deeply since they develop roots out of their stems
- Plant cell grown plants slightly deeper than the root ball to keep the media from drying out after planting

Tomatoes, broccoli, lettuce, and celery all transplant easily and grow rapidly once placed in the garden

- Beans, sweet corn, squash, cucumbers, and melons can be transplanted if they are handled with care
- Crops with tap roots, such as beets and carrots, cannot be transplanted

Transplants do best when planted late in the day or on cloudy days

- Some protection is required if conditions are extremely dry and hot
- Water transplants before and after planting
- Starter solutions (diluted fertilizers) have readily available nutrients for rapid growth
- Starter solutions with a high phosphorus encourage root growth
Watering Techniques

- Flood
  - Not much in this area

- Row
  - Waters right at the root of plants
  - Uses a lot of water – chance of flooding

- Sprinkler
  - Overhead works well for ground covers and annuals
  - Too much overspray, less efficiency, water weeds with your plants

Watering Techniques

- Drip Irrigation
  - Allows for maximum use of water
  - Waters only the plants that you want
  - Waters deep, water less often
  - A little more expensive initially
  - Saves money in the long run
  - Better for our climate
  - Many different designs

Choosing the Right Vegetables

- Choose varieties for this area
  - Hardiness Zone 5 or 6 (sometimes 7)
  - Microclimates can exist

- The right variety is the one you enjoy the most and will use the best!

- Most varieties sold locally are great
  - Vegetable seeds and plants
  - Careful of some of the perennials and shrubs

Finding Gardening Information

- Seed catalogs – Great source of information
  - List tried and proven varieties as well as the latest releases from plant breeders
  - Planting dates and spacing needs
  - Pest and disease resistance
  - Climatic requirements

Best Resources For Utah County

- USU Extension Office
  - http://extension.usu.edu
  - (801) 851-8460

- Thanksgiving Point Workshops
  - Every month there are new gardening workshops
  - Sign up for the Gazette to learn more
  - www.thanksgivingpoint.com

Questions & Answers

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