
Yankton
Seed Library

Soil & Garden Preparation

- Presented by Missouri Valley Master Gardeners

Healthy Yankton Community Gardens

- Located on City Limit Road
- Sites available March 14, 2016 Avera Pavilion
- Cost $20
- Contact HealthyYankton@gmail.com for more information

Start your own location

- Remove turf
  - Strip sod manually
    - Labor intensive
    - Chemical free
    - Quick results

Start you own location

- Lasagna Gardening or Sheet Composting
  - Start with a thick layers of wet newspaper or cardboard boxes
  - Add a thick layer of organic matter
  - Layers break down over time
    - Low labor
    - No chemicals
    - Slow results, usually takes a month or more

Start your own location

- Use chemical spray such as Roundup
  - Low labor
  - Residual chemical
  - Quick results it is safe to plant anything, edible or non-edible in a place where you have sprayed weed killer after three days to a week

Raised Beds

- Advantages
  - Never walk on the soil, no compaction
  - You add the soil and control the quality
  - Warm earlier so you can plant earlier
  - Can plant more densely
  - Simplified weeding
  - Easer access

Raised Beds

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Raised Beds

Container Gardens

- Advantages
  - Small space required
  - Ensure at least 6 hours of direct sunlight
  - Drainage is critical
  - Select good growing medium
- Disadvantage
  - Heat absorption
  - Dry out quickly

Container Gardening

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Healthy Soil

- The basis for healthy production
- Combats and adapts to climate change; play key role in the carbon cycle
- Stores and filters water to improve our resilience to floods and droughts

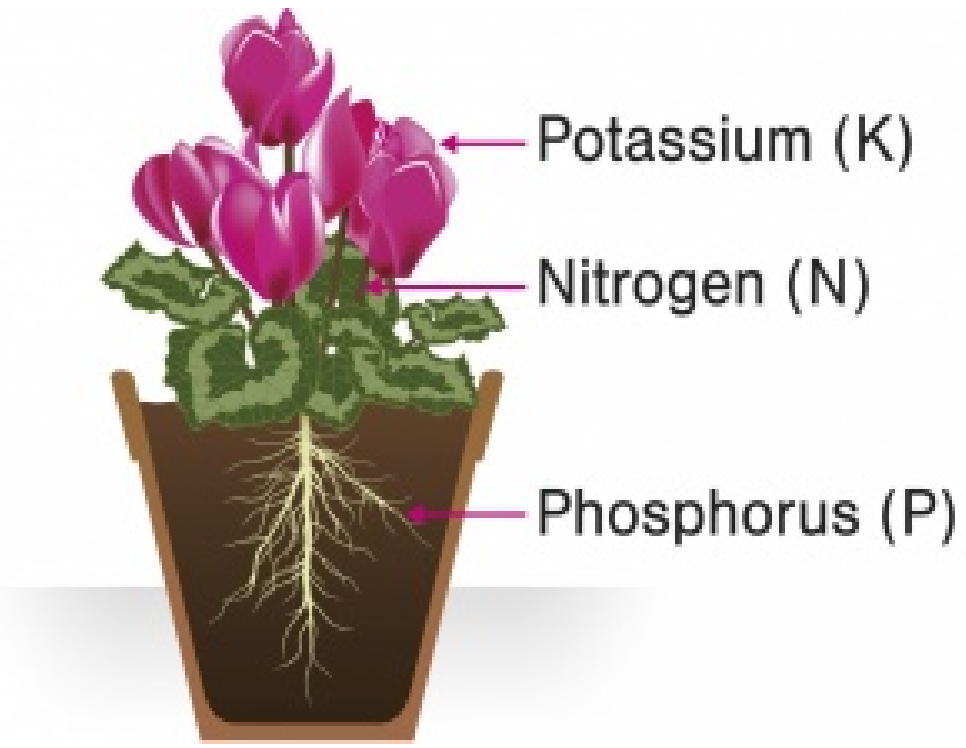
- Minerals
- Organic matter
- Water
- Air

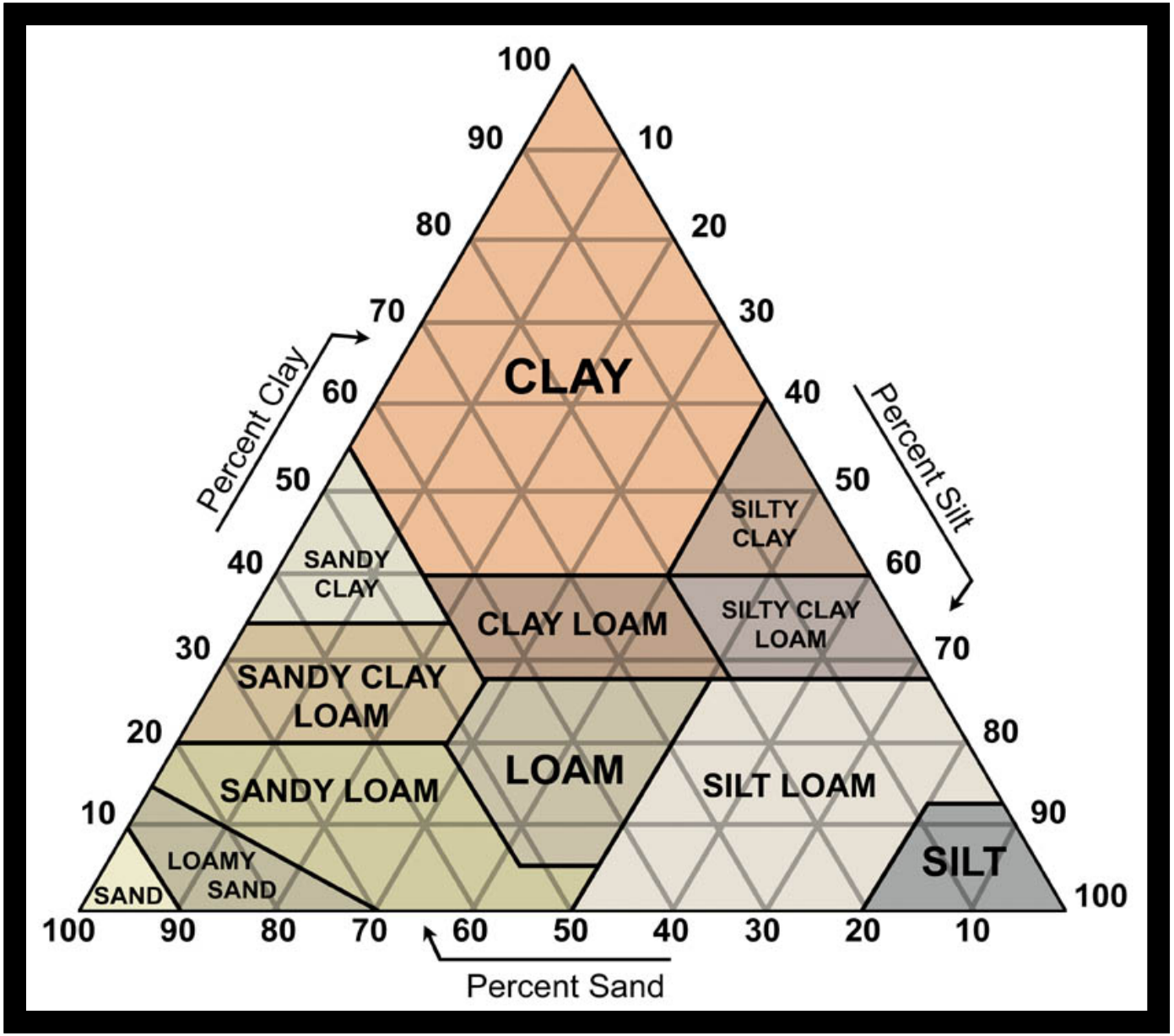
Organic Matter

- Material derived from the decay of plants and animals
- Always contains compounds of carbon and hydrogen

Not all soil is created equal!

- Soil Texture
- pH-alkaline or acid
- Nitrogen Phosphorus and K Potassium




100
90
80
70
60
50
40
30
20
10
Percent Clay
Percent Silt
Percent Sand
CLAY
SILTY CLAY
SANDY CLAY
CLAY LOAM
SILTY CLAY LOAM
SANDY CLAY LOAM
LOAM
SILT LOAM
SANDY LOAM
LOAMY SAND
SAND
SILT

Light sandy soil		 rye	 barley	 root crops	 vegetables
Medium loam		SUITABLE FOR ALL CROPS			
Heavy clay soil		 wheat	 beans	 grass	
Stony soil (non-calcareous)		winter pasture	rough grazing	 forestry	
Calcareous soil		grass	 clover	 barley	 seed crops
Alluvial silt (undrained)		permanent grass			
Alluvial silt (drained)		SUITABLE FOR ALL CROPS			
Peaty soil (acid moorland)		rough grazing	 forestry		
Peaty soil (alkaline fen)		 vegetables	 flower bulbs	 potatoes	 wheat

Soil Texture

- Sandy feels gritty, also refers to a soil texture that consists of at least 85% sand particles

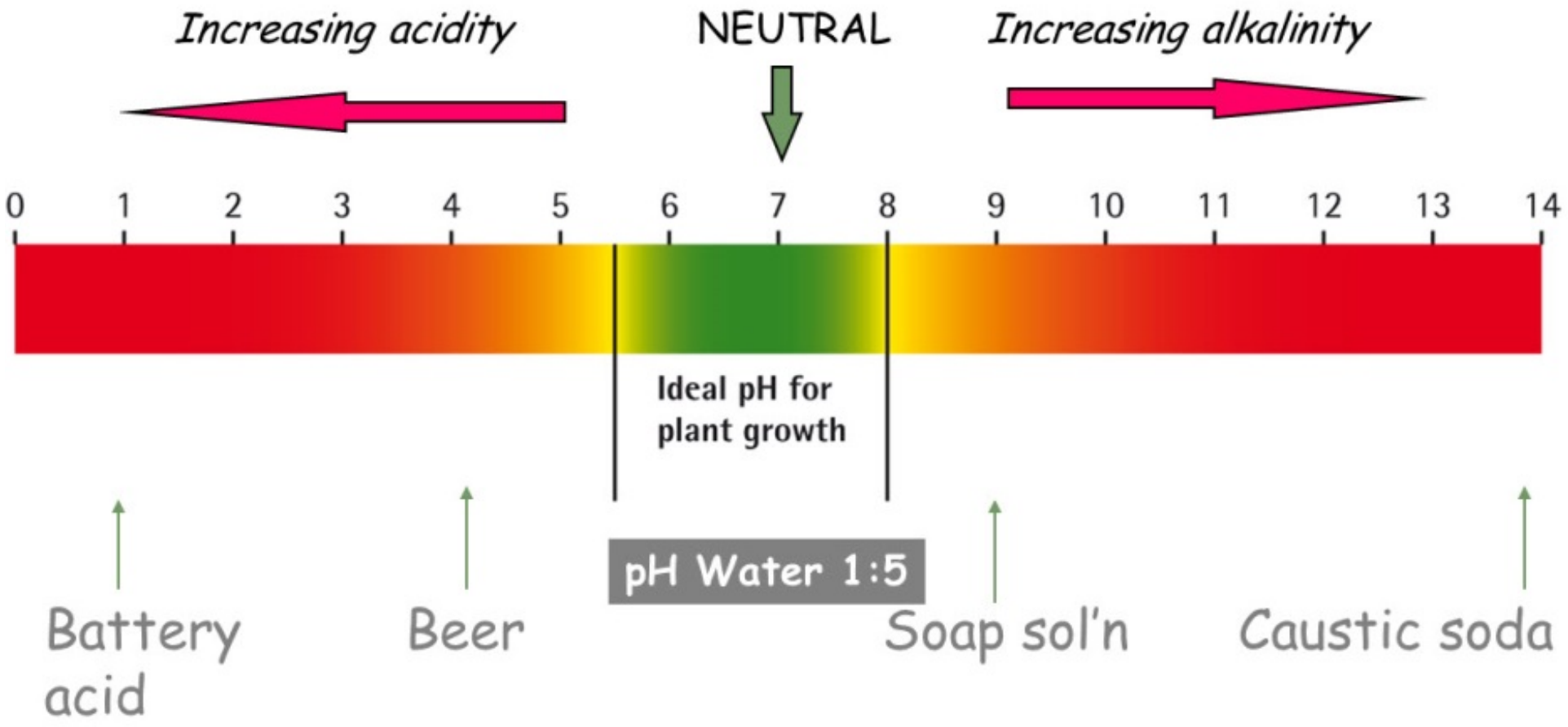
- Clay the smallest-sized soil particles. Often have plate-like shapes. Feels sticky when wet.

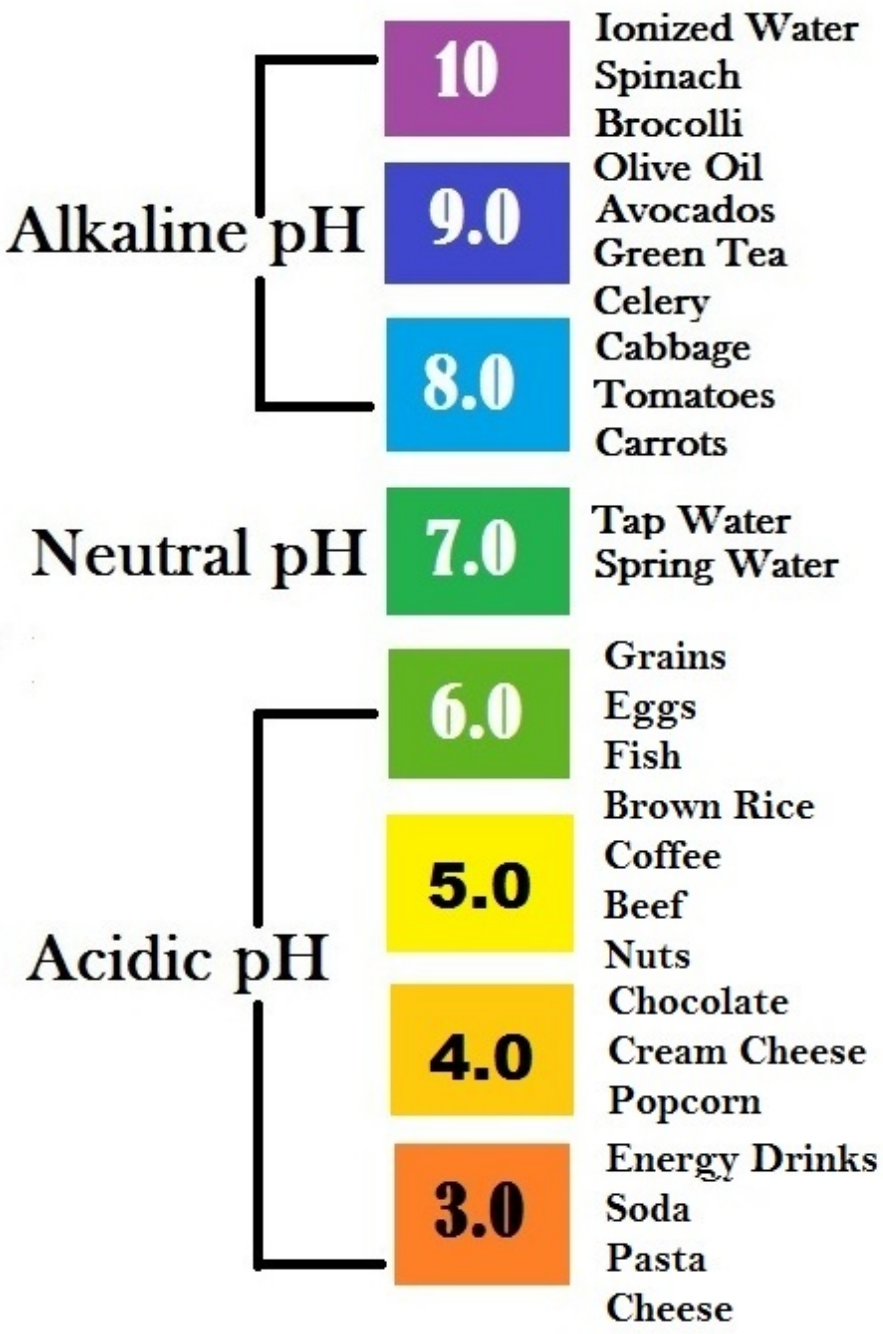
  Soil texture that consists of at least 40% clay particles

- Loam a texture with moderate amounts of sand, silt, and clay, in nearly equal proportions. Good texture for farming and gardening

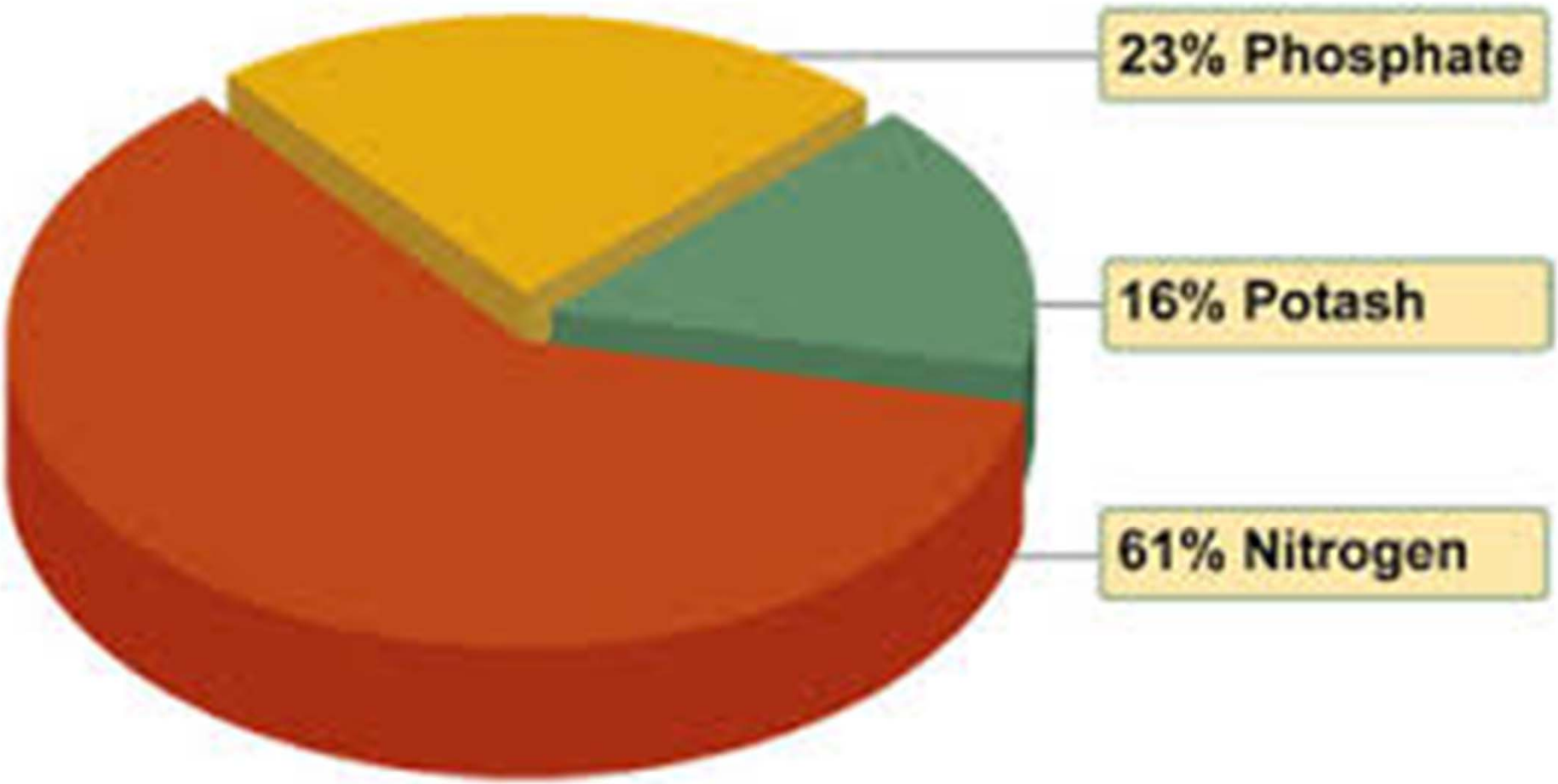
Soil pH – what is it?

- measure of the acidity or alkalinity of a soil
- concentration of hydrogen ions (H+) in the soil solution




Alkaline pH
10
Ionized Water
Spinach
Brocolli
9.0
Olive Oil
Avocados
Green Tea
8.0
Celery
Cabbage
Tomatoes
Carrots
Neutral pH
7.0
Tap Water
Spring Water
Acidic pH
6.0
Grains
Eggs
Fish
5.0
Brown Rice
Coffee
Beef
Nuts
4.0
Chocolate
Cream Cheese
Popcorn
3.0
Energy Drinks
Soda
Pasta
Cheese

Nutrients



Nitrogen

- Nitrogen (N) is often called the Builder
- Promotes the growth of leaves and stems
- Gives dark green color and improves the quality of foliage
- Necessary to develop cell proteins and chlorophyll

Phosphorus (P)

- Normal growth and maturity
- Photosynthesis, respiration, energy storage and transfer, cell division, cell enlargement and several other processes in plants

Potassium K

- Plants grow faster
- Use water better and be more drought resistant
- Fight off disease
- Resist pests
- Grow stronger
- Produce more crops

Soil tests

- Respirat
- Nitrites
- Conduct
- Brix
- NPK


"The nation
that destroys
its soil
destroys
itself."
- Franklin D. Roosevelt

Seed Starting

- Lets you get a jump on spring
- You know how your plants started, keep it organic
- Allows you to experiment with more varieties
- Cost

Seeds

- Consult the seed packet or Garden Planner for when to start seeds
- Best choices are plants native to warmer climates
- May need to use more seeds if the seeds were packaged for prior years

Containers

- Anything goes
- Drainage is important
- Clean containers and sterilize them in a solution of 1 part bleach to 9 parts water
- Large volume gardeners often do a two-step: They closely sow seeds in a shallow tray until they sprout, or germinate. Then they gently pick the small sprouts out and transplant them to larger containers
- A cover keeps the seeds moist

Soil

- Start seeds in a fresh, sterile seed-starting mix that is light and fluffy to hold just enough moisture
- Do not use soil from your garden or re-use potting soil from your houseplants
- A general formula you can make
  - 4 parts compost
  - 1 part perlite
  - 1 part vermiculite
  - 2 parts fiber

  Or equal parts of perlite, vermiculite, and peat. Add 1/4 teaspoon of lime to each gallon of mix to neutralize the acidity of the peat

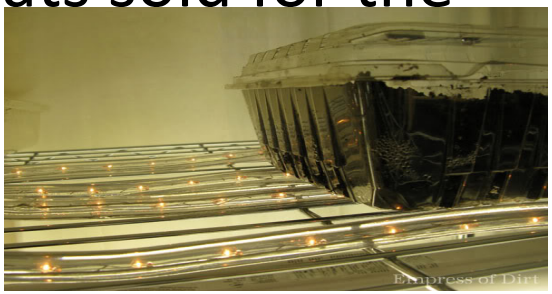
  Moisten mixture before you put in container

Light

- Most critical for maximum, success 16 hours is ideal
- Uncover and put seedlings in bright light as soon as they sprout
- Most gardeners use artificial lights make sure seedlings get enough light
- fluorescent lights can be used
  - two sets of double 48-inch tubes topped by metal reflector shades and hung on chains above the seedlings, no more than 4 inches away
  - rotating my seedling collection so each tray receives 12 hours of light daily

Warmth

- Germination is the sprouting stage, when the embryo of the plant emerges from the seed
- You will need gentle warmth (not harsh heat)
  - by setting the containers on top of a refrigerator or dryer
  - by propping them a few inches above (not on) a radiator
  - or by using special heating mats sold for the purpose



Water

- Check daily
- Use mister or a small watering can to keep the soil moist but not soggy
- Let the soil dry slightly between watering
- Set up a fan to ensure good air movement and prevent disease
- Feed the seedlings regularly with liquid fertilizer, mixed at the rate recommended on the package

Hardening off

- Getting your seedlings acclimatized to life outdoors
- Start 2 to 3 weeks before the estimated last frost date
- During the days place in a protected out door location
- Increase their exposure to the elements a little more each day, but bring them in overnight
- Eventually they stay out 24/7
- When conditions are favorable, plant everything in prepared garden beds or containers