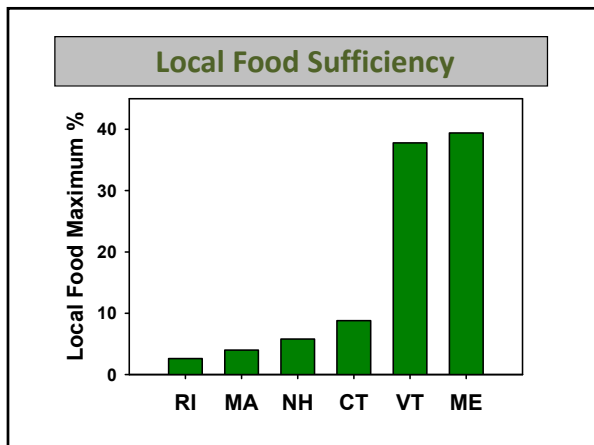
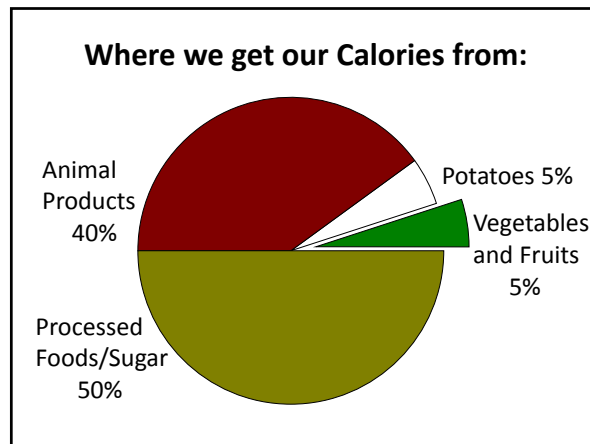



Backyard Vegetable Gardens

UMass Home Lawn & Garden Webpage
ag.umass.edu/interest-areas/home-lawn-garden

- ### Planning a Vegetable Garden
- Planning what to plant - food preferences
 - Garden size - depends on crop preferences; crop type (bush vs. tall or vine); annual vs. perennial.
 - Location
 - sun/shade (most need 6-8 hours sun; warm season fruit veg. need full sun; root veg. little less; leafy veg. can tolerate some shade.
 - Location
 - soil texture (water holding capacity/drainage).

Bush vs. Vine Tomatoes



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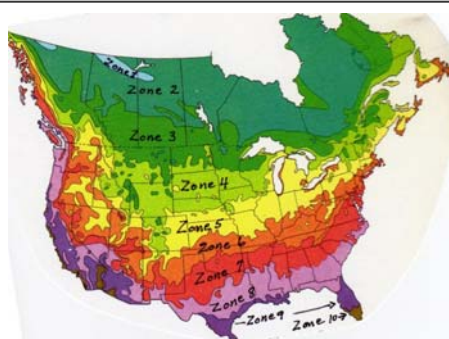
Planning a Vegetable Garden

- Preparing the soil
 - Use a soil test (soiltest.umass.edu)
 - Apply limestone & fertilizer according to test results
 - Add 2" organic matter to top 6" soil; avoid sawdust
 - Turn the soil to incorporate lime, fertilizer & OM
- Starting a new garden in a lawn
 - Mow area short, lay at least 5 layer of wet newspaper on grass, spread 6"-8" of mixed compost and soil on newspaper, and plant without disturbing newspaper.

A Permaculture Vegetable Garden



When to Plant



When to Plant

- Many plants grow well from seed if air and soil temperatures favor growth. Use transplants for faster establishment or where season is short.
- If you grow your own seedlings allow them to adjust to outdoor conditions (hardening off).
- Water plants before transplanting and plant at the same depth as they were in the container.
- Water so they do not wilt.

When to Plant

- Cool season crops - can tolerate mild frost; plant 2 weeks before last expected frost or as soon as soil dries and warms.
- Peas, carrots, lettuce, broccoli, Brussels sprouts, cabbage, onion, and radishes.
- Seedling transplants of cooler weather crops (broccoli, cabbage, cauliflower, onions).

When to Plant

- Warm season crops - plant after danger of frost and when day temp. & soil temp. get to 60-65F.
- Snap beans, corn, cucumbers, melons, pumpkins, and squash.
- Use transplants for tomato, pepper, eggplant, or melon seedlings.



Planting the Vegetable Garden

- Preparing to Plant
 - Plant in straight rows, is easier to cultivate & weed.
 - Spread fertilizer on each side of row & rake into soil.
 - Use hoe or stick to make straight shallow furrow.
 - Space rows & seeds according to crop growth habit.



Planting the Vegetable Garden

- Planting Seeds
 - Use seed size as a guide to planting depth.
 - As a guide plant seeds 2-4 times the width of the seed.
 - Plant small seeds (lettuce) no more than ¼" deep.
 - Plant large seeds (beans, peas, corn, squash 1-2".
 - Press soil gently, but firmly over seeds for good seed to soil contact.
 - Water if soil is not damp.



Planting the Vegetable Garden

- Planting in Wide Rows or Shallow Beds



Planting the Vegetable Garden

- Planting in Wide Rows or Shallow Beds
 - Can be used to plant leaf lettuce, carrots, beets, radish and onion.
 - Make a shallow bed up to 24" wide, by raking soil to the side.
 - Scatter seed evenly and not too densely.
 - Cover seeds with soil previously raked to the side.
 - Press soil gently with flat side of rake for good seed to soil contact.

Planting the Vegetable Garden

- "Hill" Planting
 - Can be used for vine crops such as beans, squash, melons and cucumbers.
 - Plant 4-6 seeds within a 12-15" circle.
 - Thin seedlings to 3 per hill.
- Water all newly planted seeds and keep soil moist until seedlings appear.



Fertilizing Your Garden

- Before adding fertilizer determine the need.
- Take a soil sample to determine pH, organic matter, and major nutrients but not N.
- Send soil sample to soil testing lab and follow the recommendations for lime, P and K.
- UMass Soil and Plant Testing Lab. (\$15/sample) <http://soiltest.umass.edu>

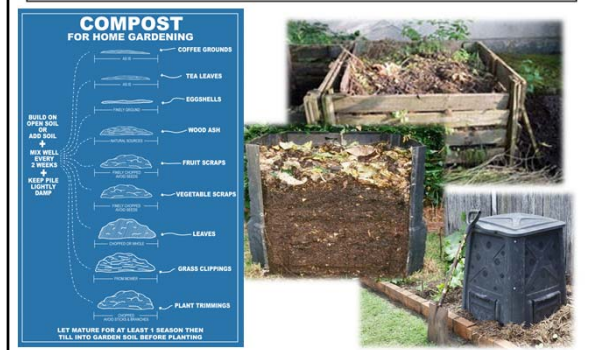
Fertilizing Your Garden

- Organic Fertilizer - must occur naturally
 - N - Chilean nitrate (NaNO_3), manure, compost, blood meal, legumes cover crops vs. fertilizer N
 - P - Rock phosphate, bone meal vs. super phosphate
 - K - green sand, potassium sulfate vs. potash
 - Ca & Mg from dolomite lime, Ca only in calcitic lime
- Manure and compost supply major and minor nutrients but manure can contain pathogens - apply 120 days before harvesting food crops.

Fertilizing Your Garden

- Compost
 - Can supply most or even all nutrients.
 - Release of nutrients slow and may take years.
 - Is an excellent soil conditioner.
 - Helps retain moisture and improves drainage.
 - Can help nutrient holding capacity of soil.
 - Provides food for beneficial soil organisms.
 - Improves physical properties but can be over applied.

Fertilizing Your Garden

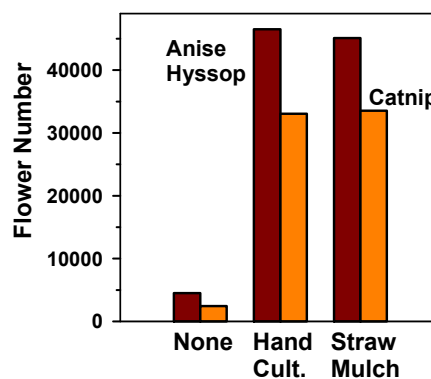


The Problem of Weeds

- Weeds often become the problem that ends many home garden efforts.
- Hand weeding with a hoe or hands must be maintained or weeds will become a large problem.
- Blocking light to weed seeds or seedlings can suppress their growth.
- Such mulches can be newspaper, black plastic, and grass clippings.
- Herbicides are not practical because of mixed plantings.



The Problem of Weeds



The Problem of Diseases

- Diseases occur when environmental conditions are suitable for pathogens to develop on susceptible plants.
- Some pathogens attack a wide variety of plants and others attack only specific plants.
- Some pathogens can attack all plant parts, while others attack only selected plant parts.
- Include fungi, water molds, bacteria, viruses and nematodes.

The Problem of Diseases



The Problem of Diseases

- Easiest and most economical way to manage plant disease in the home garden is by maintaining vigorously growing, healthy plants.
- Weakened plants are more susceptible to infection by disease-causing agents.
- Promote plant vigor. Avoid over-watering or planting in poorly drained soils.
- Practice sanitation, use resistant varieties, rotate crops, add OM, practice exclusion and use sprays as last option.

The Problem of Insects

- Beneficial insects pollinate plants, destroy pests, or improve the soil by scavenging and burrowing.
- Some insects cause problems & become pests.
- Learn to recognize insects if a destructive species, determine whether it is causing serious damage.
- Chemical control can cause additional problems by killing natural enemies of many pests.
- Most plants can tolerate some insect feeding, and pests can often be washed off after harvest.

The Problem of Insects and other Pests

- Practice sanitation, rotations, plant healthy vigorous growing crops, hand pick certain insects, and use barriers (collars and row covers).
- Also, use traps and lures, biological control and as last option pesticides.



Time for a Break



