Rockbridge Extension Master Gardeners

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The Vegetable Garden

Extension Master Gardeners Bedford

Virginia Cooperative Extension
Virginia Tech • Virginia State University

This module was developed from information provided by
Jim Revell, Extension Master Gardener

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Welcome to ‘The Vegetable Garden’

In this module you will learn the principles for starting a vegetable garden. You will learn the culture, pests and pest management for the most commonly planted vegetables in the geographic area.

- Read Chapter 9, in your Master Gardener Handbook before viewing these slides.
- Browse the Suggested Readings at the end of these slides. They contain online sources that will be helpful for your learning.
- The Test Your Knowledge section is for fun and review

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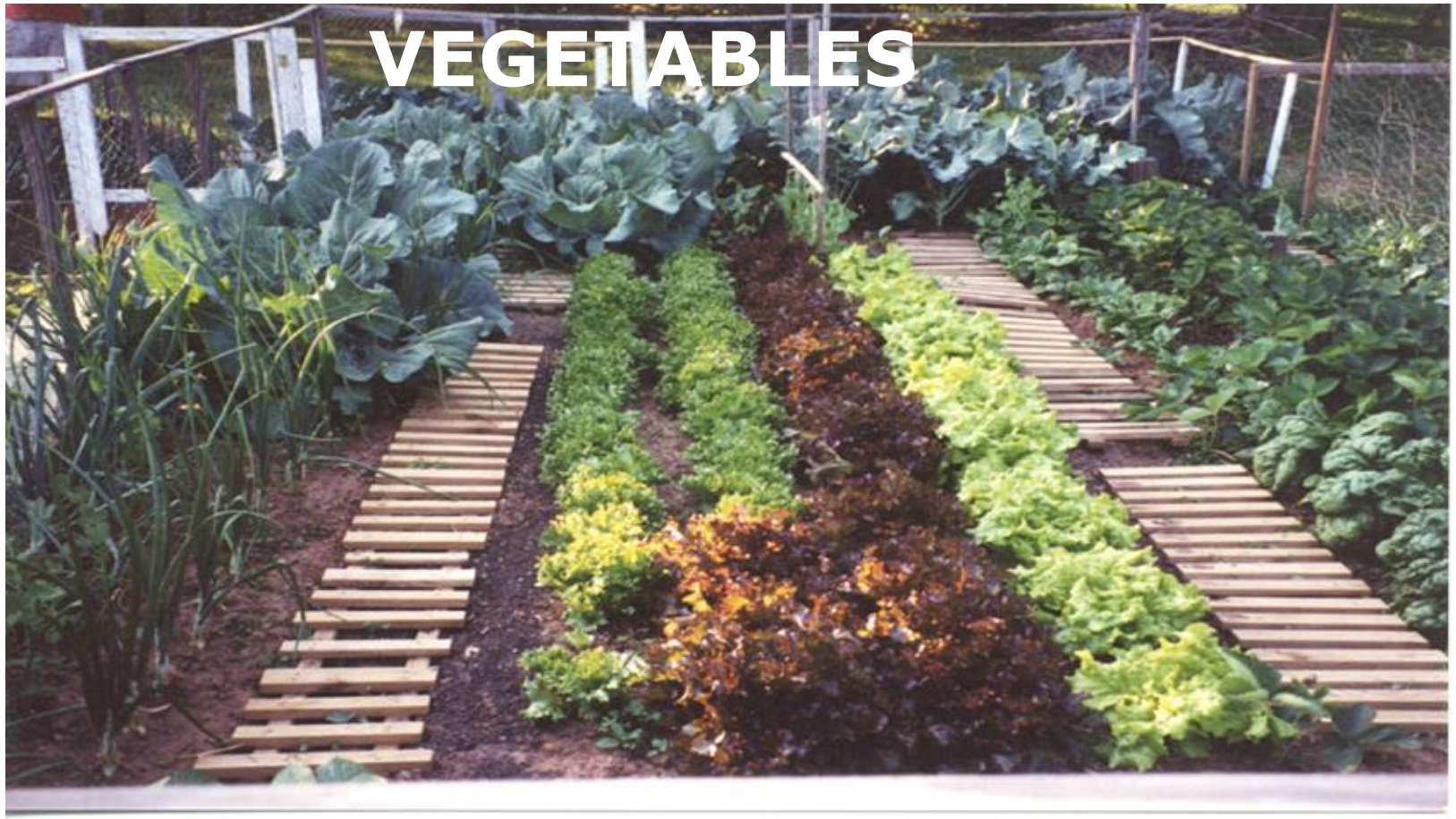
What I Will Learn in this Module (Objectives)

- Basic questions to ask before planning a vegetable garden
- Guidelines for choosing garden site
- How to prepare soil
- Recommended pH for vegetable gardens
- Basic guidelines for starting from seed or transplants from nursery
- Basic principles and techniques for watering
- Average last killing frost in the spring and average first killing frost in the fall for the area
- Most commonly planted vegetables in the area: their cultures; their most common pests; and their recommended pest management

Photo credit: J. Revell, EMG



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Economic Value

1) Per Walmart

   Broccoli crowns, $1.98/lb

2) Compare with package of broccoli seeds:

   Territorial Seed:

   - ½ g ($3.25 - $4.45)

   Burpee:

   - 150 seeds ($3.95)



Photo: P. Turner, EMG

Planning the Garden

Photo credit



1. Who's going to do the work?
   Are the gardeners older, or do they have any limitations?
   If so, adaptations may be needed to help the gardener.

2. What do you and your family like to eat?
   Raising vegetables that everyone likes may get more help with gardening tasks.

3. When will you have time to garden?
   If you have limited time to garden, be sure to make the garden small enough that you can take care of it. If you are a weekend gardener, be sure to use plenty of mulch to help keep weeds at a minimum.

4. Where is the best location?
   Remember that vegetables take lots of sun to grow. Having the garden near the house makes it easier to get fresh veggies for meals.

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Planning the Garden

5. How much space will you need?
   Some vegetables take lots of room (pumpkins, squash), others not so much (pole beans). You may want to draw out a plan for your garden space

6. How are you going to use the harvest?
   If you plan to preserve your vegetables (canning or freezing), you may want them to get ripe all at one time. However, if you want some to eat throughout the season, you may want to plant smaller amounts several weeks apart, so you get fresh veggies all season

What Kind of Garden do you Want?

- Raised beds
- Vertical garden
- Intensive gardening
- Wide row planting
- Interplanting
- Succession /Relay gardening
- Containers

Raised Beds

1. Framed or not; 3-4 feet wide; raised 6-8 inches above pathways
2. Warm up earlier
3. Helps in drainage
4. Ease in planting
5. Ease in harvesting
6. Fewer insects

Photo credit: J. Revell, EMG



Raised rows with hoop frames

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Photo credit: J. Revell, EMG

Vertical Garden

with plants

1. Fence type
2. Pole type
3. Cage type
4. "A-Frame" type

Used to maximize space; Helpful to gardeners limited mobility; Can be used for tomatoes, cucumbers, melons, pole beans; Vertical may dry out more quickly

Photo credit: P. Turner EMG



Pole beans growing up strings to a circular PVC bar

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Interplanting/Companion Planting

"Three Sisters" - - Corn - Beans – Squash

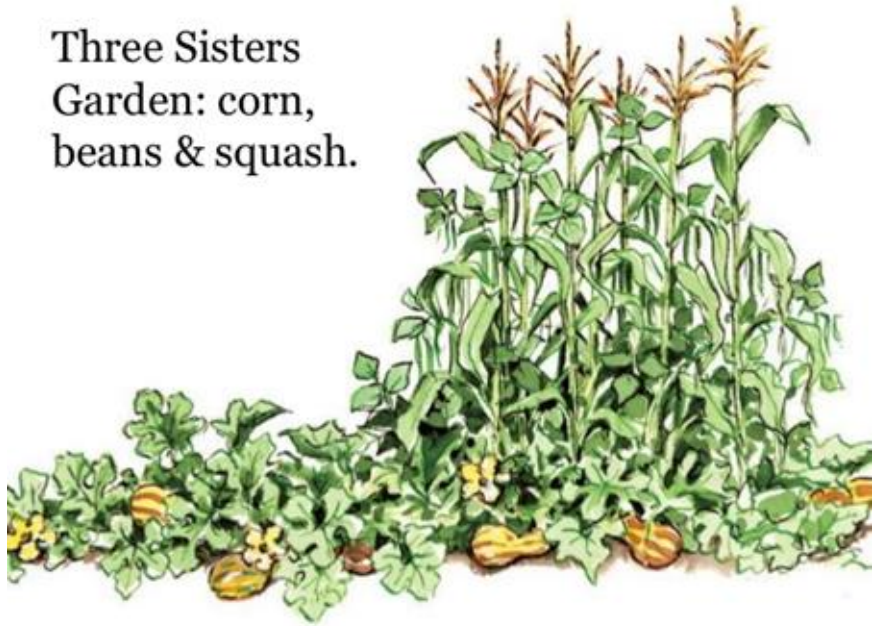

Photo credit

Companions are mutually beneficial

- Help each other grow; some plants provide shade for sun-sensitive plants
- Decrease pest problems; plants like onions repel some pests; some plants can lure pests away from other plants
- Use space more efficiently; grow climbing squash on corn stalks
- Attract beneficial insects

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Wide Row Planting

- Planting vegetables in bands 1-4 feet wide is an effective way to increase vegetable yields per square foot
  - beets, carrots, chard, leeks, lettuce, onions, parsnips, radishes, spinach, turnips, beans, kale, cabbage, beans, peas, garlic and shallots do well in wide rows. Tomatoes and corn need more room.
- The foliage of the maturing plants helps shade the soil, retain moisture and suppress weeds.
- To save valuable garden space, stagger your plants in alternating rows by planting equal distances rather than lining them up in a single file row.



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Succession / Relay Gardening

- Plant something new in the spots vacated by spent plants. Corn after peas is a type of succession
- Relaying consists of multiple plantings of one crop to provide a continuous harvest. Sweet corn and bush beans are usually recommended for relaying, but cucumbers or other crops that yield for two weeks or less are also good prospects
- One approach to relaying is to plant one variety several times at about two-week intervals. Another approach is to make one planting of two or more varieties that differ in maturity time, e.g., 50-day and 60-day beans or early-, mid-, and late-season sweet corn
- Planting a spring, summer, and fall garden is another form of succession planting. Cool season crops (broccoli, lettuce, peas) are followed by warm season crops (beans, tomatoes, peppers), and, where possible, these may be followed by more cool-season plants, or even a winter cover crop.

Growing Vegetables in Containers

- If you don't have room for a vegetable garden, consider planting vegetables in containers. Vegetables such as carrots, radishes, lettuce, tomatoes, peppers do well in containers. Dwarf fruit trees can also be grown in containers, but do not produce as well as standard varieties.
- Use a lightweight potting mix (not soil) in the container; a mix of one part peat moss; one part garden loam, one-part coarse sand or perlite works well.
- Vegetables grown in containers will dry out more quickly than those in the ground; those in small pots dry out quicker than those in larger ones. Containers indoors dry out less quickly than outdoors.
- Insect problems and weeds are less of a problem in containers. Harvesting is easy from pots.

Intensive Gardening Methods

An intensive garden allows you to get the most from the space you have, reduce the amount of weeding you need to do, and conserve water.

Methods of intensive gardening include:

1. Raised beds
2. Vertical gardening
3. Interplanting
4. Wide row planting
5. Succession planting
6. Container Gardening

Intensive Gardening Methods

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Planning Guidelines

Fall is a good time to start your planning. It gives you time to get soil tests, add compost, and amend the soil if needed

Winter is when the seed catalogs start coming; Order your seeds; Design your planting plan on paper

Spring: Plant cool season crops (lettuce, beets, cabbage); and plan your summer vegetable garden; What do you want to plant when those cool season crops are finished?

Summer: Start planning for fall crops (kale, collards, turnips)

Know How Long it Takes Your Plants to Grow and Produce

- Some crops take all summer to grow and produce (salsify; parsnips; pumpkins)
- Some take only months and can be followed by another crop (peas, beans)
- Some vegetables are sensitive to frost so planting must be timed to permit full ripening before fall frosts (tomatoes, peppers)

Locating the Garden

1. **Level, loose, well-drained soil**
   - If your land is not level, plant across the slope to avoid erosion
   - You can loosen your soil by adding compost, which will also increase drainage
2. **Minimum 6 hours of sun; best 8-10 hours of sun**
   - All vegetables like sun; Some cool season vegetables tolerate less sun and may be planted in the shade of a larger plant
3. **Avoid low spots (frost pockets)**
   - Frost drifts down hill; Planting your vegetables on higher spots may help avoid some frosts
4. **Avoid windy locations**
   - Wind exaggerates the impact of cold temperatures on plants; It also can dry out plants
5. **Consider your water source/supply**
   - You are more likely to keep your plants watered if the water supply is nearby

... Locating the garden

6. **If the site is in an urban area or near a current or former industrial site, may want to test for heavy metals**
7. **Consider property boundaries where pesticides/herbicides may be used in neighboring yards/farms**
8. **Avoid trees (black walnuts) and shrubs**
   Trees and large shrubs can block the sun and can steal much needed water from your veggies; Black walnut trees (leaves, roots, etc.) will kill most other plants growing near them; Never use the leaves from black walnut trees in mulch
9. **Avoid potential sun blockers (buildings)**
   While it is nice to have the garden near the kitchen, make sure the house or other buildings do not shade the garden
10. **Plan for crop rotation**
    When the same crop is planted in the same spot year after year, the soil may lose nutrients and harbor disease organisms; also, insects which overwinter in the soil have an easier time finding the new plantings. Rotating crops helps with soil composition and insect control

Plant Growth Factors

1. **Water:** Most vegetables require at least 1-2 inches of water per week. Some vegetables (tomatoes) do not like water on their leaves (subjects them to fungal growth). It is best to water at the base of plants.
2. **Light:** All vegetables need light to grow and produce; at least 6-8 hours per day
3. **Temperature:** Vegetables have temperature ranges in which they grow best. For example, tomatoes need warm soil to grow, but do not set fruit if the temperature stays over 90 F for several days. Cool season crops (lettuce, cabbage) prefer temperatures ranging from 40 - 80 F while warm season crops prefer temperatures between 50 – 85 F.
4. **Humidity:** High humidity is a good environment for growth of fungal diseases
5. **Fertilizer:** A healthy fertile soil may not need fertilizer to grow vegetables. Healthy soil contains the nutrients needed to grow vegetables. However, if the same area is used several years in a row, some nitrogen may be needed.
6. **Soil**: Healthy soil = Healthy plants

Soil Preparation



Photo credit

Ideal soil

1. Deep (12-14 inches), well-drained
2. High organic matter (5%)
3. Contains elements essential for plant growth (Nitrogen, Phosphorus, Potassium)

Soil test

1. Do every three years
2. Reports pH (Vegetables prefer 6.2-6.8, slightly acidic)
3. Reports Nitrogen, Phosphorus, Potassium with recommendations if needed
4. Reports organic matter in percentage (desirable 5% or more)

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Tilling the Garden

- Rotary tilling is generally sufficient but tilling and plowing may be needed when initially starting a garden
- Tilling or plowing can cause compaction and destruction of healthy organisms
- Double-digging: loosens soil more than 12 inches down; improves drainage
- Deep-rooted cover crops may keep soil loose without tilling
- Fall tilling and cultivation are best (not advised for slopes or erosion situations)
- Low till, or no till methods help avoid negative impacts regular tilling can cause

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Photo credit: J. Revell, EMG

Tilled garden

No till Raised bed



Photo credit: J. Revell, EMG

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Soil Amendments for pH/Nutrients

- Most soils in our area are acidic and will need amendments to change the pH. Always test soil to confirm!
- Lime is most often used.
- When wood ash is applied at rates likely to adjust soil pH, it also supplies substantial amounts of several plant nutrients including potassium, phosphorous, calcium and magnesium. (Be careful, it can change the pH quickly – Do soil tests)
- Organic fertilizers – compost, cover crops, aged manure
- Synthetic fertilizers can improve soil nutrients

Soil Amendments for Soil Quality

1) Course sand
   (not advised for our clay soil)

1) Perlite/vermiculite

3) Compost

4) Manures



Photo credit: J. Revell, EMG



Compost Bin

Photo credit: J. Revell, EMG

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… Soil Amendments



Photo credit

5. Organic Matter
    a) Home-made compost
    b) Manures (rabbit, horse, sheep, worm)
    c) Leaf compost
    d) Composted sawdust
    e) Straw

Photo credit

6. Cover crops (rye, oats) planted in the fall and mowed or turned over in Spring, can add organic matter and nitrogen to the soil



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Irrigation

- Water cans are useful for watering small areas, but consider that a 1 gallon can full of water weighs a little over 8 pounds
- Garden hose / soaker hose / sprinklers make watering plants easier. Soaker hoses are most efficient and effective since they deliver the water directly to the root area
- Drip irrigation, like soaker hoses is efficient and effective in delivering water to the root area
- 2-3 inches of mulch can reduce water needs by as much as half
- Shading and use of windbreaks can help conserve moisture

Critical watering periods for selected vegetables:

- Beans: pod filling
- Broccoli / Cabbage: Head development
- Carrot: seed emergence and root development
- Corn: silking, tasseling, ear development
- Cucumber / eggplant / melon: flowering and fruit development
- Peas: pod filling
- Tomato: flowering, fruiting

Weed Control

- Healthy soil
- Cultivation / Tilling in the fall
- Mulching
- Barriers such as plastic sheeting
- Intensive gardening: placing plants close together; they shade soil and prevent weed growth
- Cover crops in the winter suppresses unwanted weeds and when tilled under in spring provide nutrition and organic matter
- Last resort Herbicides

Intensive Gardening Methods

PMG

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Fertilizing the Garden



Photo credit

1) Standard Synthetic Fertilizer (10-10-10)

1) Organic
   - Blood meal, bone meal, greensand, alfalfa meal, kelp meal, gypsum, limestone, fishmeal, worm castings
   - Fish emulsion / seaweed extract or combination

Photo credit



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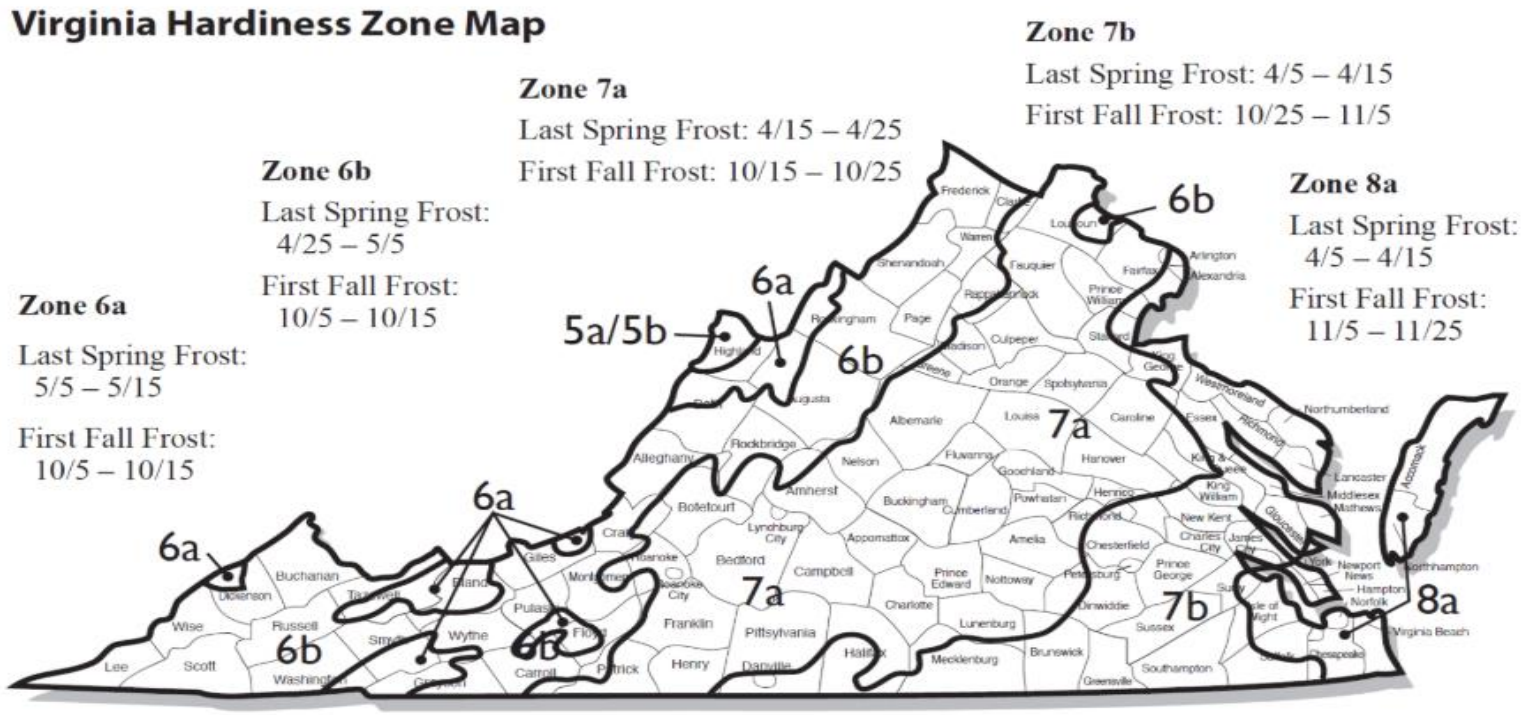
Planting Dates

Recommended for Veggies

The following website from Virginia Tech provides excellent information on planting dates, amount to plant, and expected yields for vegetables. Click on the link below to go to this website.

[Vegetable Planting Guide and Recommended Planting Dates]



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Where to Get Seeds / Transplants

- Small plants can be purchased at local nurseries or garden centers at the beginning of the growing season
- Seeds can be purchased at many different stores, garden centers, or from mail order catalog
- If you don’t plan to use the seeds right away, store them in plastic bags or containers in the refrigerator
- There are many Seed exchanges on the internet

Start Your Own Seedlings

1. **Compressed pellets**. Small compressed disks that expand when wet; will support seedling growth; no need to buy potting mix; When ready to put into the garden, you can plant the entire pellet and plant



Photo credit

2. **Nursery potting trays** filled with potting mix Use soilless potting mix which is lighter than soil



Photo credit

3. **Peat Pots/Cow Pots** filled with potting mix. These pots can be planted in the soil, so the seedling is not disturbed by transplanting. However, they can dry out quickly



Photo credit

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Plant Propagation From Seed

Starting Seeds Indoors

Seeds can be started indoors, sometimes weeks before the last spring frost. Seed packets often tell how soon you can start them indoors

1. **Seed Planter**
   - 3 x 5 cards folded can be used to move small seeds to the soil
   - Chopsticks can be used to make holes for planting
2. **Sand** (coarse) sprinkled on top of the soil helps to reduce fungal infections and damping off; Sand can also be used to cover the seeds, instead of making holes to plant in
3. **Cover**. Plastic wrap or a sandwich bag can be used to cover newly planted seeds to help keep them moist until they germinate. Once seedlings have their second set of leaves remove the cover
4. **Labels**. Popsicle sticks, venetian blind pieces make good labels for your seedlings. Be sure to label immediately so you don't forget what you planted in which pots
5. **Light source**. Most seeds will germinate in low light; however, as soon as they germinate they need lots of light to grow (12-16 hours of light a day). You can provide this light with fluorescent lights such as a shop light
6. **Heat**. Most seeds need warm soil to germinate. Inside the house, under a shop light or other fluorescent light, the soil temperature should be warm enough to facilitate germination of the seeds

Starting Seeds Outdoors

1. **Planting Depth**: no deeper than 2-3 x the diameter of the seed; Seed packets usually tell how deep to plant
2. **Row Planting**: know how big your plants will grow so you can allow enough space between plants and between rows
3. **Scattering / Plot**: Some small seeds are easier to plant by simply scattering them over loose soil. Lettuce is one example
4. **Hills / Raised Beds**: work well with squash, cucumbers

Photo credit



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Six primary garden tools:

Photo credit



1. **Gloves:** Protect the hands from injury, microbes, and critters that might be hiding in the plants
2. **Shovel:** Labor saving device for digging
3. **Spading fork:** lifts and loosens soil
4. **Hoe:** Making rows and digging weeds
5. **Rake:** Moving soil, leaves or grass
6. **Trowel:** Handy for close work like digging, loosening soil, removing weeds

Shredders can be helpful in breaking down leaves, small branches, grass, etc. to use in mulch

Carts / wheelbarrows: Make moving gardening tools, mulch, fertilizer, etc. easier

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Tools to Test the Soil

1. Basic Kit tests pH & basic fertility (high, normal, low)
2. Detail Kit tests pH, nitrogen, phosphorus, potassium
3. pH Meter tests pH only
4. pH / Soil Meter tests both pH and general fertility
5. Soil thermometer tests soil temperature

Photo credit



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Optional Equipment

Light Meter
Photo credit





Refractometer Photo credit

Rain gauge
Photo credit



- Light meter measures light over the period of a day
- Refractor measures sugar content in fruit
- Rain gauge to see how much water your plants are getting

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Fall Veggie Gardening

Many crops thrive in the fall:

Broccoli – cabbage (*sweeter in the fall*)

Spinach may over winter in our area

Lettuce (cool season crop)

The Virginia Tech website below provides great information on fall veggie gardening. Click on the website to go there.

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Vegetable Gardening

Preparing the Garden for Winter

- Clean-up: Removing weeds, dead plants and debris from the garden reduces homes for insects and fungal diseases over winter
- Add amendments such as compost and slow-release nutrients
- Cover crops such as rye grass provide protection to the soil over winter and when cultivated into the soil in spring add compost and nutrients

Building Soil Organic Matter with Cover Crops

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Season Extenders

Photo credit



- **Cold Frame**: A transparent enclosure, used to protect plants from adverse weather, primarily excessive cold or wet. The transparent top admits sunlight and prevents heat escape. Essentially, a miniature greenhouse
- **Hot beds**: A heated cold frame
- **Row covers**: Pieces of material (in spun bonded polyesters) laid over plants in the garden
- **Cloches**. Covers set over plants to protect them from the elements
- **Greenhouses**



Photo credit: J. Revell, EMG



Season Extenders

Building and Using Hotbeds and Cold Frames

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Vegetables Recommended for Virginia

The following website provides information on vegetables recommended for growing in Virginia and the planting dates

[Vegetable Planting Guide and Planting Date]

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Vegetables Commonly Grown in Virginia

Tomatoes

Photo: P. Turner, EMG



Culture. Full sun; plant deeply; mulch; remove bottom set of leaves; remove suckers; water deeply and regularly – do not overwater; stake to keep leaves off ground; plant 1.5-3 feet apart; balanced fertilizer; slightly acidic soil

Common pests. Tomato fruitworm; tobacco budworm; vegetable leafminer; blister beetles; cabbage looper; Colorado potato beetle; flea beetles; hornworms; aphids; whiteflies; stinkbug; thrips; cutworm

Diseases: Blossom end rot (lack of calcium); Catfacing (cool weather); Fusarium and Verticillium wilt (fungal); Anthracnose (rot); Early & late blight

Pest Management. See Chapter 2, PMG

Potatoes

Photo: P.Turner, EMG



Culture: full sun; loose well drained moisture retentive soil; pH 5.8-6.5; plant at soil temp above 45 degrees; Recommend planting in 8-10 inch trench, 10-12 inches apart; gradually fill in trench; mulch

Common Pests: flea beetles; leafhoppers; wireworms; white grubs; Colorado potato beetle; aphids; blister beetles

Diseases: blight; wilt; Rhizoctonia Canker; soft rot; dry rot; scab; mosaic virus; leaf roll

Pest Management: See Chapter 2, PMG

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Cucumbers

Photo credit



Culture: full sun; soil high in organic matter; 3 seeds per hole; raised hill; lots of space (6') or trellis; weed free; warm temps; pH 6-7; 5-10-10 fertilizer; mulch; heavy feeders; 55-65 days to maturity; high water usage

Common Pests: cucumber beetle; aphids; mites; pickle worms; squash vine borer

Diseases: Bacterial wilt; Anthracnose; mildew; leaf spot; Mosaic virus

Pest Management: See Chapter 2, PMG

Cucumbers, Melons, and Squash

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Squash

Culture: 45-50 days to maturity; rows or hills; plant at depth of 1-1.5 inches, cover seeds lightly; ample fertilizer; ample water; weed; train vines; well drained soil; mulch; crop rotation

Common Pests: cucumber beetle; squash vine borer; squash bugs

Diseases: powdery mildew; bacterial wilt

Photo credit



Pest Management: See Chapter 2, PMG

Lettuce

Photo credit



Culture: cool moist conditions; loose fertile soil; pH 6-6.5; well prepared seedbed; cover seeds lightly; thin plants; mulch; weed carefully (shallow roots); tolerates shade; tolerates light frost;

Common Pests: aphids

Diseases: stem, leaf & root rot; tip burn from irregular moisture or lack of calcium; bolting, bitterness due to high temperature or lack of moisture; leaf rots due to soil and/or water on leaves

Pest Management: See Chapter 2, PMG Leafy Green Vegetables

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GG

Photo credit



Corn

Culture: warm soil; full sun; plant seeds 1 ½ inches deep & 9-12 inches apart; cultivate shallowly to control weeds; irrigate during tassel emergence, silking & maturation of ears; pH 6.0-6.5; plant 2 weeks after last frost; wind pollinated; fertilize with complete fertilizer before planting, side dress with nitrogen fertilizer once seedlings are 6-10” tall; 1 inch /week water; light shallow tilling for weeds

Common Pests: corn earworms; corn rootworm beetle; European corn borers; flea beetles; Japanese beetles

Diseases: smut

Pest Management: See Chapter 2, PMG

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Beans

Photo credit



Culture: warm season; full sun; plant 1 inch deep in rows or hills, 2-6 inches apart (bush vs. pole); water after planting; shallow cultivation for weeds; pH 5.8-6.3; weed control; shallow cultivation; organic mulch

Common Pests: aphids; Mexican bean beetles; grasshoppers

Diseases: bean mosaic disease; bacterial bean blight; Anthracnose; root rot; rust; mites

Pest Management: See Chapter 2, PMG

Greens (kale, collards, endive, spinach, etc.)

Culture: cool season (spring & fall); direct seed; thin; moisture retentive soil pH6-6.5; organic matter; requires 1” watering per week; shallow cultivation for weeds

Common Pests: flea beetles

Diseases: Leaf spot

Pest Management: See Chapter 2, PMG



Photo credit

Peppers



Photo: P. Turner, EMG

Culture: warm temps (drop blooms above 90); pH 6-6.8; fertilize with complete fertilizer; direct seed or transplant 18" apart; mulch; peppers are heavy feeders, so additional fertilizer may be needed as a side dressing; shallow cultivate

Common Pests: aphids; European corn borers; flea beetles; cutworms

Diseases: tobacco mosaic virus; tomato spotted wilt virus; cucumber mosaic virus; bacterial spot; Anthracnose; Alternaria leaf spot; Cercospora leaf spot; southern blight and Phytophthora root rot

Pest Management: See Chapter 2, PMG

Broccoli / Cauliflower / Cabbage

Culture: Cole family; cool weather; mulch; pH 6-7; best as transplants; fertilize with fish emulsion or side dress with lower nitrogen organic mixture, for e.g., blood- or alfalfa meal

Common Pests: cabbage looper; cabbage worm; cabbage root maggot; aphids; flea beetle

Diseases: blackleg, black rot, clubroot, and yellows

Pest Management: See Chapter 2, PMG



Photo credit: P. Turner, EMG

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Integrated Pest Management (IPM)

The first step in dealing with a pest is to identify what it is and then to determine if it really presents a problem. Just because there is an insect on your tomatoes, doesn't mean you have to intervene.

Once you determine that the pest is causing significant damage and you need to intervene, your intervention should follow a staged approach.

1. Cultural practices include planting species that resist the pest; keeping the garden area clean of debris
2. Mechanical controls include hand picking insects
3. Biological controls include introducing natural antagonists to the pest (i.e. lady beetles to eat aphids)
4. Pesticides are a last resort.

How to ID insect pests in your garden: The CSI Approach

- Here is a fun video from the University of Maryland Extension on using clues to ID insect pests in your garden

- https://www.youtube.com/watch?v=6RcI869zno4

Photo credit: J. Revell, EMG



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End of Slide Set

You can continue to next slide: 'Suggested Readings'

OR

Click on the House below to return to the Navigation Page

Photo credit: P. Turner, EMG



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4.

Suggested Readings

Note: While there are many websites outside of our Virginia Cooperative resources that have good information, that information may not be applicable for your geographic area. This is especially true regarding the life cycle and treatment times for insects.

- Growing Vegetables
- Tomato Pest Management (multiple links)
- How to Manage Pests: Potatoes (California)
- Potato Pests (Kentucky)
- Summer Squash
- Corn
- Beans

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Tests of Knowledge

Click to go to a test…

Can you Answer These Questions ?

Vegetable Matters

Apply What You Have Learned

Help Desk Quiz

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Apply What You Have Learned

1. If you have a vegetable garden, plan a rotation schedule for your garden.
2. Identify the micro-climates on your property
3. Identify the temperature ranges preferred by 2 different vegetables you might grow
4. Get a soil test done for your vegetable garden
5. Design on paper an intensive vegetable garden 4 foot x 8 foot with vegetables you would want to grow

Click to Return to "Test Your Knowledge"

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Can you answer these questions?

Answers on next slide



1. Name three of the six growth factors?
2. What would you use to change soil pH from alkaline to acidic?
3. What is scarification?
4. What are the “three sister” vegetables?

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Can you answer these questions?



1. Name three of the six growth factors?
   (three of the following) - Water, light, temperature, humidity, fertilizer, soil
2. What would you use to change soil pH from alkaline to acidic?
   Sulfur
3. What is scarification?
   Breaking of the seed coat by scarring the surface
4. What are the "three sister" vegetables?
   corn, beans, squash

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Vegetable Matter

If CASH PIN is a new variety of SPINACH, what sort of vegetable is each of the following: (rearrange letters)

Answers on next slide

1. RIP SPAN
2. COOL CRIB
3. ROBOT TEE
4. CLEAR ICE
5. AURA GASPS
6. CHIC ZUNI
7. COAT HIKER
8. BARON CAGE
9. BARBED CAGE
10. TATTOO SWEEP
11. AWFUL RECOIL
12. SURPLUS STROBES

* From "Garden Lover's Puzzle & Quiz Book" (2009) Andrews McMeel Pub.

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1. Parsnip
2. Broccoli
3. Beetroot
4. Celeriac
5. Asparagus
6. Zucchini
7. Artichoke
8. Broad Bean
9. Red Cabbage
10. Sweet Potato
11. Cauliflower
12. Brussels sprout

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Help Desk Quiz Answers on next slide

1. Peppers not growing

2. Pepper plants have lots of flowers on them but no fruit. Why and what do I do to get fruiting? Flowers are not being pollinated.

3. Snails on leaves of beans & some critter eating tomatoes? What can I use to get rid of them?

4. Wanted list of vegetables to plant in fall.

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Help Desk Quiz Answers

1. Peppers not growing

Answer: Water/moisture and fertilization in question. Check soil temperature and moisture level: Too Dry? Too Wet? Fertilize with liquid type/monitor moisture levels. Peppers will not flower if soil temperature is too cold

2. Pepper plants have lots of flowers on them but no fruit. Why and what do I do to get fruiting? Flowers are not being pollinated.

Answer: Potentially too much nitrogen resulting in excess vegetative growth. Recommended planting plants to encourage bees to come to their area. Suggested keeping bees or find a bee keeper in their area that would place a hive on their property. (Is hand pollinating pepper flowers an option?)

3. Snails on leaves of beans & some critter eating tomatoes? What can I use to get rid of them?

Answer: Metaldehyde (bait). Evenly, but lightly, scatter bait on the soil surface; do not put the bait on the foliage. Apply only to established plants. Do not water for 24-48 hours. Suggested critters eating her tomatoes might be tomato hornworms. Described hornworms so she could ID.

4. Wanted list of vegetables to plant in fall.

Answer: Root plants - parsnip, carrots, beets, radishes; cabbage; broccoli; cauliflower; spinach; Brussels sprouts; lettuce; parsley. Also informed client could extend harvest by using a cold frame; described how to build one.

Recommended Planting Dates

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The following handouts may be helpful in preparing for this lab:

- Seed for the Garden
- Vegetable Gardening in Containers
- Vegetable Planting Guide and Recommended Planting Dates
- Intensive Gardening Methods
- Fertilizing the Vegetable Garden
- Fall Vegetable Gardening
- Companion Plants for Pest Control
- Home Grounds & Animals (Pests Management Guide)

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