References

Vegetable Gardening
2015

Max Campbell
Sources of Information

- www.aces.edu
- Master Gardeners’ Class/www.mginfo.org
- Other web sites/All Southern State’s Extension Services
- County Extension Office/819 Cook Ave./256-532-1578
- ASAN/SARE/AFVGA
- Vendors
- Catalogs
- Books
- Friends?
- HBG DVG/CASA Volunteering
- Read Labels
Always Read

- Seed Packets
- Chemical Directions
- Fertilizer Bags
- ANR’s
Books

• Most books are written by cool environment gardeners for profit
• There are thousands to choose from
Key References

• aces.edu          Al Cooperative Extension Service
• ANR-0479          The Alabama Vegetable Gardener
• Vegetable Crop Handbook for Southeastern United States — 2014
• Integrated Pest Management-Home Garden Vegetables
  – Integrated Pest Management Index
  – 2013 IPM-1305    Insect Control
  – 2013 IPM-1306    Disease Control
  – 2013 IPM-1307    Weed Control
  – Vegetable IPM Guide 2036 Organic
• Chapter 12  Alabama Master Gardener Program
Vegetable Gardener

PLANNING FOR THE HOME GARDEN

A successful home garden comes with planning and careful attention. Select the right varieties and place them in the right spots, use the right amount of fertilizer, use adaptative practices, cover crops, and harvest at the right time.

STAND: Select a site with full sun. You cannot grow vegetables in competition with other crops or weeds. The soil should be well-drained and free of harmful chemical or debris.

SOIL MANAGEMENT: Improve your garden soil by adding organic matter—compost, leaf mold, or well-rotted manure—in the fall.

LIME AND FERTILIZERS: A soil test is the only way to determine lime needs and the best way to figure fertilizer needs. Get information for soil tests at your county extension office. Test at least every 3 years. For most vegetables, the soil pH should be around 6.0 to 6.5. Mix lime into the soil a month or two before planning to be done.

CROP ROTATION: Crop rotation is one of the best guides for disease and pest control. It helps break up the lifecycle of pests and diseases. Rotate vegetables to avoid disease carryover.

SEED AND PLANTS: Seed and transplants are expensive, so get the best available. Don't plant too thickly. Plant seed too thickly, such as tomatoes and carrots, along will deeply to thin later. Plant larger seed, such as beans and cucumbers, about 1 inch deep. Use only healthy, fresh, and clean plants. Sow them at the same level they originally grew in the pot. Always use transplants to seed soil around roots. Set all transplants deeper than they grew originally.

CULTIVATION: To control weeds, cultivate frequently but shallowly. Chemical weed killers are not normally recommended for home gardens. Before sowing, get full information on how to use and what crop to use them on.

IRRIGATION: Water is essential for a top-notch garden. During long dry periods, soak the garden thoroughly once a week; don't just sprinkle daily. Light irrigation helps keep only during the growing season. Overhead irrigation, especially late in the afternoon, can spread certain diseases. If you use overhead irrigation, do so earlier in the day or place dry, shade-diffusing, or evaporative windbreaks on top of the vegetative growth.

INSECT CONTROL: For a successful garden, you must control insect pests in a timely manner. Many low-cost insect monitoring tools are available. Those homemade-based traps give accurate information about pest activity and season-long pest levels. Once pests are detected and identified, use a three-step, integrated pest management (IPM) approach of cultural controls, mechanical barriers, and insecticidal treatments. If needed, note that all insecticides are poison and must be used in their prescribed manner to minimize effects on nontarget insects, such as beneficials.

UNABUSED CHEMICALS FOR INSECTS, WEBS, OR NEEM OILS: According to the instructions on the label, it's illegal to use these chemicals on your garden. Read the label and follow the instructions. These chemicals are toxic to humans. Use them as directed on the label.

HARVESTING: The main reason for having a garden is to get fresh, high-quality vegetables. Harvesting early to get vegetables in the proper stage of maturity is just as important. If beans, cucumbers, or okra are left to mature fully, the plant will produce less. Early-season harvest is best for most vegetables. If the garden is heavily infested with pests, you might need to leave your garden for a year.

www.aces.edu
2014 Southeastern U.S. Vegetable Crop Handbook

www.thegrower.com/south-east-vegetable-guide/pdf
Making Your Garden Vegetables Less Susceptible to Insect Damage

Integrated pest management or IPM is the judicious use of multiple pest management tactics when pest populations reach or exceed the action threshold. The action threshold is simply the level of pest populations at which control should be implemented to avoid damage to the crop. Action thresholds help determine both the need for control actions and the proper timing of such actions.

Homeowners and gardeners can practice IPM by using insecticides as a last resort, by employing alternative pest management strategies, and by conserving natural enemies. There are many ways to reduce or eliminate the need for insecticides; some of these are described in the sections that follow.

To stay informed about pest occurrences, management recommendations, and the latest IPM information, readers may subscribe to the “Alabama IPM Communicator” newsletter, an official publication of the Alabama IPM Center. To subscribe, please send an email to bugdoc@aces.edu or visit the newsletter archive at www.aces.edu/go/128. You can receive rapid updates by subscribing to the Alabama Vegetable IPM channel on Facebook.

Healthy Soil

Healthy soil will result in plants better able to resist insects and diseases. Before planting, the garden soil must be turned over and organic matter, such as manure or compost, should be added to supply essential nutrients. Organic nutrients are released slowly in contrast to synthetic fertilizers, which provide “quick-fix” nutrients. When possible, compost should be purchased from a trusted local source; buying poor-quality compost may result in insect infestations like maggots and grubs.

Sustainable Pest Management Practices

In order to establish more sustainable gardening practices, gardeners should try to reduce their dependence on the use of pesticides. The USDA National Organic Program Standards for Pest Management provides some excellent steps that can be used in vegetable gardens. These standards are science-based recommendations that are as follows:

- Level 1: Systems-based practices. These include cultural tactics such as variety selection, crop rotation, water management, sanitation (starting with clean fields), trap cropping, and companion planting.
- Level 2: Mechanical and physical practices. These include installing barriers like insect netting and row covers; using traps, traps, and repellents; regular monitoring; and hand removal of insects from foliage.

- Level 3: Bioregulation and other insecticidal materials. Only approved insecticides can be used in commercial organic farming. Home gardeners can also use these organic insecticides some of which are very expensive, but cost could be a limiting factor. Home gardeners who wish to garden more sustainably may also use conventional insecticides but only on an as-needed basis and only in hot spots, specific areas of infestation. Prevention of pest establishment is more important than therapeutic treatment of insects in the garden.

- For a specific list of organic insecticides, refer to the publication “Insecticides for Organic Commercial and Homeyard Vegetable Production” (ANR-1428). For tips about insect monitoring using pheromone traps, refer to the publication “Pheromone Traps for Monitoring Insect Pests” (ANR-1430).

Companion Planting

Companion planting is the practice of strategically placing insect-repelling plants next to crops that will benefit from their repellent effects. Some plants contain or give off compounds that repel insects. For example, planting garlic among vegetables helps to deter aphids and beetles. Some insect species, such as tomato hornworms, and marigolds interplanted with squash or cucumbers will repel cucumber beetles and nematodes.

Beneficial Insects

Most insects encountered in nature are beneficial and have a critical role in the natural food chain. Therefore, a gardener should be able to identify garden insects and determine whether they are harmful or beneficial. Table 4 provides a short list of insect predators that help seek and destroy insect pests and that are commonly seen in the garden. There are also many insect parasites that are too small to see individually.

Applying insecticides can destroy the natural balance by eliminating beneficial insects. Switching to one early season application of systemic insecticides on labeled garden vegetables can provide early season insect control and allow establishment of natural enemies.

Crop Rotation

Planting vigorous vegetable varieties and using proper crop rotation are two basic IPM tactics. Planting vegetables in a different section of the garden from year to year may help reduce pest infestation by disrupting insect life cycle.
DISEASE CONTROL

The abundant selection of pesticides on the market for disease control in home vegetable gardens makes it difficult to recommend specific products by the manufacturers' trade names. Many products have the same active ingredient, making any one of them appropriate for a specific problem. However, different brands will vary in the percentage of active ingredient contained, so the user must consult the label for the amount of product to actually mix with water. Not all brands of a single fungicide are labeled for the same vegetables or the same diseases, which is why the user must consult the label to determine if the crop or disease is listed. Follow the label and follow all safety precautions. Also, new products may be added to the selection throughout the year. In addition, EPA restrictions and precautions are subject to change at any time, according to current research results.

For these reasons, the recommendations in Table 1 list only the common name (the active ingredient) of the pesticides suggested for each disease problem. Table 2 lists the various trade names available (or the time of publication) for each active ingredient. The trade name is the most prominent name on the package.

To use these recommendations, (1) look in Table 1 for the name of the vegetable and then the disease that you need to treat. There you will find the common names of recommended products and comments specific to those products. (2) Look in Table 2 for the common name (or names) that were given in Table 1 for your problem. There you will find the trade name (or names) to shop for. When you shop, you may find other products available with the same active ingredient that are not listed in Table 2 because they have come on the market since the publication of this guide.

It is very important that you carefully read and follow all directions, restrictions, and precautions on the manufacturer's label before using any pesticide product. The comments in Table 1 do not cover all the information needed for safe and effective use of the fungicides. You may also find information helpful in selecting the product you prefer to use.

Current insecticide, miticide, and disease control recommendations for commercial vegetable crops in Alabama can be found in the Southeastern U.S. Vegetable Crop Handbook, which is directed towards commercial vegetable farmers. Home gardeners may find its contents informative as well. Copies of this handbook can be downloaded by going to the following link: http://www.thegrower.com/south-east/vegetable_guide/

You will need Adobe Reader to download the different sections.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Fungicide Active Ingredient (Common Name)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPARAGUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cercospora Leaf Spot, Rust</td>
<td>chlorothalonil mancozeb</td>
<td>Spray firms after harvest at first sign of disease. See label.</td>
</tr>
<tr>
<td>Rust</td>
<td>chlorothalonil mancozeb</td>
<td>See label</td>
</tr>
<tr>
<td>BROCCOLI, BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternaria, Downy Mildew</td>
<td>chlorothalonil copper mancozeb</td>
<td>Apply at first sign of disease. Apply at 7-day intervals until disease is no longer a problem. See label.</td>
</tr>
<tr>
<td>Black Rot</td>
<td>copper</td>
<td>Plant injury may occur. See label.</td>
</tr>
</tbody>
</table>
Home Garden
Vegetables

Weed Control Recommendations for 2013

Good weed control may determine to a large extent the success of your home garden. Weeds compete with the crop for soil moisture, sunlight, space, and plant nutrients. They compound disease problems and serve as hiding places for insects. Also, weeds may prevent dust and sprays from thoroughly covering your garden plants, resulting in poor pest control.

Weeds can usually be divided into two groups—grasses and broadleaf weeds. Grasses are multi-branched plants with fibrous root systems. Once grasses become established, they are difficult to control without injuring the vegetable crops. Grasses are very competitive in gardens and make harvesting difficult. Many broadleaf weeds grow upright and have impact systems which make them easier to pull than grasses; therefore, the vegetables receive less injury.

Preventative Weed Control. New weed seed may be brought into a garden on petals or fruits that have been used in weedy areas. Poorly tilled, compost and manures sometimes contain troublesome weed seeds. Weedy hay used for mulch may bring in anumber of new weed problems. Occasionally, home-grown vegetable seed may also include some weed seed.

Most of the weed problems in the garden are homegrown problems. That is, they come from weed seed produced in the garden in years past. Season-long weed control to prevent weeds from reseeding should be a basic part of any weed control program. Controlling weeds by preventing them from making a seed crop may be a long-term process, but in the end it is the only sure way to control this problem.

Mechanical Weed Control. Historically, gardeners have used hoeing, plowing, hand-pulling, and snatching to control weeds. Mechanically controlled methods used on a regular and continual basis provide good weed control for serious gardeners. This usually means frequent light cultivations with a plow and hoe to destroy weeds in the two- to four-leaf stage. A few minutes spent destroying the first flush of weeds that usually emerge after every rain is much more effective than hours or days spent trying to destroy established weeds.

Many gardeners have too large a garden to control weeds in the time available for that task. A few well-managed rows may produce greater yields of higher-quality vegetables than a larger area tended in a slipshod manner.

Mechanical weed control gives immediate results. There are no problems of uniform applications, drift, and residues as with chemicals. Weeds may be controlled mechanically under a wide range of soil moisture conditions, and very little skill is required. Also, mechanical methods may be used as often as needed. Mechanical weed control is the most practical approach to weed control in small gardens. The greatest weakness of mechanical methods is the lack of residual control.

Matching Mulch can be a valuable asset in controlling weeds in perennial and long-season crops like asparagus, strawberries, tomatoes, and peppers. Six inches of pine straw or 3 inches of leaves or well-decomposed manure will help suppress most weed problems. Mulch also helps keep the soil surface cool and cuts down the evaporation of soil moisture. Many gardeners clean cultivate and mulch heavily to control weeds later in the season in crops like tomatoes, peppers, and okra because late cultivation could damage these large, spreading plants.

Mulch gradually decomposes during the season, and sometimes this may cause plants to develop a slightly yellow cast. A light application of about 1 part of ammonium nitrate per 100 feet of row will usually correct this problem. Additional manure may be added as needed when the older material sereiles or decomposes. At the end of the season, the mulch can be turned under or incorporated to add organic matter to the soil.

Chemical Weed Control. There are very few herbicides labeled and available for use in the home garden. These herbicides are discussed in the following table. These herbicides control only annual grasses and, in some cases, small-seeded broadleaf weeds. They usually do not give acceptable control of most broadleaf weeds.

You may choose to use a herbicide to control grasses in the garden. However, you must be prepared to rely on hoeing, plowing, hand-pulling, and/or matching to control broadleaf weeds that escape chemical treatment.

Summary. Because of the high variability among vegetable crops, weed problems, cultural practices, and soil types, no step-by-step weed control system has been devised. Using a combination of herbicide treatment, mechanical weed control, and matching—capitalizing on the best features of each of these practices—is the best approach to weed control in the home garden.

Precautions. Always follow the manufacturer’s directions printed on the label for handling and use. Store and discard containers properly.
Serenade. Bacillus subtilis. Bacterial diseases, powdery mildew, gray mold, early blight, fire blight. Any vegetable, including greenhouse use. Contains WG.
sites.aces.edu
More References

• ANR-1045  Garden Bugs
• ANR-1345  Raised Bed Gardening
• ANR-1139  Container Gardening
• ANR-47    Alabama Gardener’s Calendar
• ANR-63    Planting Guide for Home Gardening in Alabama
• ANR-1423  Keys to Producing and Selecting Quality Vegetable Transplants
• ANR-1422  Basics of Fall Gardening
• Georgia Bulletin 1011  Growing Vegetables Organically
• ANR-1128  Weed Identification for Horticultural Crops
• ANR-794   Commonly asked questions about composting
• ANR-638   Backyard Composting
Some more references
aces.edu

• Common Diseases of Cucurbits ANR-809
• Tomato Diseases Identification ANR-895
• Tomato Insect Management ANR-1191
• Wilt Diseases of Tomatoes ANR-797
• Virus Diseases of Tomatoes ANR-836
• Common Diseases Of Leafy Greens ANR-1189
• Cucumber Beetles and Bacterial Wilt of Cucurbits ANR-1026
Some more references
aces.edu

- Basics of Crop Irrigation   ANR-1169
- Backyard Composting       ANR-638
- Backyard Tomato Production ANR-302
- Home Soil Testing         ANR-6
- Crop Rotation             ANR-1254
- Growing Herbs             ANR-1164
- Pruning Fresh Market Tomatoes ANR-1060
- http://www.aces.edu/counties/Madison/Master Gardener Information
Some more references

aces.edu

- Weed Control in Home Gardens       ANR-322
- Weed Identification                ANR-1128
- Garden Bugs                       ANR-1045
- Tomato Insect Management Guide    ANR-1191
- Identifying Caterpillars          ANR-1121
- What’s Bugging You                 ANR-1289
- Control of Mammals and Birds      ANR-898
- Nematode Control                  ANR-0030
The Auburn Cookbook
Barbara Struempler

Quantity Requested must be less than available quantity
Price: $15.00 Pages / Length: 480
Publication Date: 12/10/2002
Copies in Stock: 4776
Growing your own foods?

Enjoy your garden goodies year round with the help of this guide.

Home Food Preservation is a must-have with all the basics about canning, pickling, freezing, drying, and making jellies and other spreads.

Step-by-step instructions complete with lists of all materials and equipment you’ll need.

delicious recipes based on current USDA guidelines
quick-reference charts
information on food safety

a glossary of terms for beginners
spiral binding for convenience

Price: $12.00
Pages / Length: 266
Publication Date: 06/10/2006
Copies in Stock: 9821
References for Canning/freezing/drying/cooking vegetables

- [http://nchfp.uga.edu/index.html](http://nchfp.uga.edu/index.html)
- HE-322  Botulism
- HE-43  Let’s Can Tomatoes
- He-0071 Pickles $ Relishes
- He-0026 Canning Snap Beans
- He-360  Drying fruits at home
- EFNEP-0190  Wise Methods of Canning Vegetables
About Us
The National Center for Home Food Preservation is your source for current research-based recommendations for most methods of home food preservation. The Center was established with funding from the Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture (CSREES-USDA) to address food safety concerns for those who practice and teach home food preservation and processing methods. more

Publications
Your place to find current research-based recommendations from the USDA, NCHFP, The University of Georgia Cooperative Extension Service, and other land-grant universities in the Cooperative Extension System.

http://nchfp.uga.edu/index.html
Schedule Planting

- ANR-479  Alabama Vegetable Gardener
- ANR-63  Planting Guide for home Gardening in Alabama
- ANR-1254  Crop Rotation
- ANR-47  Alabama Gardener’s Calendar
- ANR-1061  Soil Temperature for Seed Germination
Crop Rotation: An Essential Part of Planning a Home Garden

Growing the same crop in the same location year after year will allow those organisms to reach levels that can cause infection of plants or simply kill them outright.

Another reason to rotate is that some crops use more of certain nutrients than others use. Growing the same crop in the same spot can deplete the soil of those nutrients.

When deciding how to rotate plants in your garden, remember many vegetables belong to the same family. For example, Irish potatoes, eggplants, and tomatoes are all members of the nightshade family. Don’t plant Irish potatoes this year in the same location that you planted eggplants last year.

The key to successful crop rotation in a home garden is knowing which plant families contain the crops that you are interested in growing. Below is an easy guide to grouping vegetables by families. Don’t plant anything from the same family in the same location or in the same soil 2 years in a row.

<table>
<thead>
<tr>
<th>Family</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliaceae (Onion Family)</td>
<td>Onion, garlic, leek, shallot, chive</td>
</tr>
<tr>
<td>Apiaceae (Carrot Family)</td>
<td>Carrot, parsley, parley, celery</td>
</tr>
<tr>
<td>Arctenaceae (Sunflower Family)</td>
<td>Lettuce, radish, salad, broccoli, artichokes</td>
</tr>
<tr>
<td>Brassicaceae (Mustard Family)</td>
<td>Cabbage, broccoli, cauliflower, Brussels sprouts, kohlrabi, turnip, Chinese cabbage, kale, collards, mustard greens, radish, rutabaga</td>
</tr>
<tr>
<td>Chenopodiaceae (Goosefoot Family)</td>
<td>Beet, Swiss chard, spinach</td>
</tr>
<tr>
<td>Convolvulaceae (Bindweed Family)</td>
<td>Sweetpotato</td>
</tr>
<tr>
<td>Cucurbitaceae (Gourd Family)</td>
<td>Cucumber, squash, watermelons, summer squash, winter squash, pumpkin, gourd, hales, melons</td>
</tr>
<tr>
<td>Fabaceae (Pea Family)</td>
<td>English pea, snap bean, Lima bean, soybean, cowpea, field pea</td>
</tr>
<tr>
<td>Malvaceae (Mallow Family)</td>
<td>Okra</td>
</tr>
<tr>
<td>Poaceae (Grass Family)</td>
<td>Sweet corn, popcorn, ornamental corn</td>
</tr>
<tr>
<td>Solanaceae (Nightshade Family)</td>
<td>Tomato, pepper, eggplant, Irish potato, hunk tomato</td>
</tr>
</tbody>
</table>

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Soil temperature for seed germination

Anr-1061

Horticulture Notes

Soil Temperature Conditions for Vegetable Seed Germination

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>Min (°F)</th>
<th>Optimum Range (°F)</th>
<th>Optimum (°F)</th>
<th>Max (°F)</th>
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<tbody>
<tr>
<td>Asparagus</td>
<td>50</td>
<td>60-85</td>
<td>75</td>
<td>95</td>
</tr>
<tr>
<td>Bean</td>
<td>60</td>
<td>60-85</td>
<td>80</td>
<td>95</td>
</tr>
<tr>
<td>Bean, Lima</td>
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<td>65-85</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>Beet</td>
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<td>50-85</td>
<td>85</td>
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</tr>
<tr>
<td>Cabbage</td>
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<td>85</td>
<td>100</td>
</tr>
<tr>
<td>Carrot</td>
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<td>45-85</td>
<td>80</td>
<td>95</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>40</td>
<td>45-85</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Celery</td>
<td>40</td>
<td>60-70</td>
<td>70</td>
<td>85</td>
</tr>
<tr>
<td>Chard, Swiss</td>
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<td>50-85</td>
<td>85</td>
<td>95</td>
</tr>
<tr>
<td>Corn</td>
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<td>60-95</td>
<td>95</td>
<td>105</td>
</tr>
<tr>
<td>Cucumber</td>
<td>60</td>
<td>60-95</td>
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</tr>
<tr>
<td>Eggplant</td>
<td>60</td>
<td>75-90</td>
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<td>95</td>
</tr>
<tr>
<td>Lettuce</td>
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<td>40-80</td>
<td>75</td>
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</tr>
<tr>
<td>Muskmelon</td>
<td>60</td>
<td>75-95</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>Okra</td>
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<td>70-95</td>
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<tr>
<td>Onion</td>
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<td>50-95</td>
<td>75</td>
<td>95</td>
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<tr>
<td>Parsley</td>
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<td>50-85</td>
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<td>Parsnip</td>
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<td>50-70</td>
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<td>Pea</td>
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<td>Pepper</td>
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<td>Pumplin</td>
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<td>Radish</td>
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<td>95</td>
</tr>
<tr>
<td>Spinach</td>
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<td>45-75</td>
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</tr>
<tr>
<td>Squash</td>
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<td>70-95</td>
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<td>100</td>
</tr>
<tr>
<td>Tomato</td>
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<td>95</td>
</tr>
<tr>
<td>Turnip</td>
<td>40</td>
<td>60-105</td>
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</tr>
<tr>
<td>Watermelon</td>
<td>60</td>
<td>70-95</td>
<td>95</td>
<td>105</td>
</tr>
</tbody>
</table>

Soil temperatures should be taken by inserting a soil thermometer 3 to 4 inches deep into the soil surface and noting temperature. Soil thermometers are available from garden centers, feed and seed stores, and from many garden supply catalogs. Soil temperatures should be consistent for several days before seeds are sown to ensure that the seeds are being exposed to optimal temperatures for germination.

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1/21/2015
Basics of Fall Vegetable Gardening

Many vegetables are well adapted to planting in the summer for fall harvest, which will extend the gardening season so you can continue to harvest fresh produce after earlier crops have finished producing. The fall harvest can be extended even further if you protect the plants from early frosts or plant them in cold frames or hotbeds.

Many cool-season vegetables, such as carrots, broccoli, cauliflower, and Brussels sprouts, produce their best flavor and quality when they mature during cool weather. In Alabama, the spring temperatures often heat up quickly making vegetables such as lettuce and spinach bolt or develop a bitter flavor when they mature during hot summer weather.

Growing a productive fall vegetable garden requires thoughtful planning and good cultural practices. In Alabama, August and September are the main planting times for a fall garden. Depending on your specific location, you may need to adjust the planting dates. For a more accurate planting schedule, determine the average date of the first killing frost in the fall, and then count backward from the frost date, using the number of days to maturity to determine the best time to plant in your area.

Preparing the Site

Before preparing the soil for a fall garden, you must decide what to do with the remains of the spring garden. In most cases, the decision is not difficult because the warm-season vegetables are beginning to look ragged. Remove the previous crop residue and any weed growth, and then till or spade the soil to a depth of at least 6 to 8 inches.

If the spring crops were heavily fertilized, you may not need to make an initial preplant fertilization. If not, you can apply 1 to 2 pounds of a complete fertilizer such as 10-10-10 per 100 square feet of bed space. Be sure to thoroughly incorporate the fertilizer.

Planting the Fall Garden

Direct seeding, which involves planting seeds rather than using transplants, for crops such as broccoli, cabbage, and collards is often used in the fall. However, the success of this planting method depends on having adequate moisture available to keep the young seedlings actively growing after germination. An overhead sprinkler can help provide seeds with sufficient moisture to germinate.

Alabama summers can be hot and dry, and soils may form a hard crust over the seeds. This crust can interfere with germination, particularly in heavy clay soil. Lettuce and spinach seeds will not germinate if the soil temperature exceeds 85 degrees F. Be sure to keep the soil moist until the young seedlings have emerged.

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Vegetables
Which Tools

- Hoe/Push Hoe
- Shovel/Spade
- Trowel
- Fork
- Cultivator/Rake
- Tiller
- Hammer
- Pruners/Scissors
- Wheel Hoe/Planter/Cultivator
- Tractor
- Wheelbarrow/Basket
- Friends/Family
- Gloves
- Sprayer/Duster
- Hose/Bucket/Sprinkler
- Spreader
- Leaf shredder/chopper
Seed and Plant Sources

- Seed/Co-op/Garvin’s/Others
- Plants/Wal-Mart/Lowes/Home Depot/Farm Town/Garvins/Greenhouses(Bonnie’s)/Harvest Food Mill/Catbird Seat
- Mail Order/Catalogs
- HBG Plant Sale
- Heirlooms
- Friends/neighbors
- Start your own plants
Keys to Producing and Selecting Quality Vegetable Transplants
Web sites

• [http://www.ces.ncsu.edu/fletcher/programs/tomato/releases/index.html](http://www.ces.ncsu.edu/fletcher/programs/tomato/releases/index.html)
  – NC State Tomato Breeding Program
• [http://www.aces.edu/department/com_veg/](http://www.aces.edu/department/com_veg/)
  – Extension Commercial Vegetable Web Page
  – Tomato Growers Supply Company
• [http://njaes.rutgers.edu/tomato-varieties/](http://njaes.rutgers.edu/tomato-varieties/)
  – Rutgers University
  – Bonnie Plants
Some Seed Catalogs

- www.catalogs.com/garden-yard/vegetable-seed-catalogs.html
- www.southernstates.com
- www.superseeds.com
- www.johnnyseeds.com
- www.nicholsgardennursery.com
- www.burpee.com
- www.tomatogrowers.com
- www.parkseed.com
- www.totallytomato.com
- www.southernExposure.com
- www.rhshumway.com
- And 100’s more
Gardening Styles/Types/Techniques

- Row Gardening
- Raised Beds
- Wide Row Gardening
- Lasagna Gardening
- Vertical Gardening
- Square Foot Gardening
- Containers
- Intensive Gardening

ANR-475
ANR-1345
Dick Raymond
Patricia Lanza
Derick Fell
Mel Bartholomew
Pam Crawford
Gardening Styles/Types/Techniques

• Edible Landscapes
• The Edible Front Yard  Ivette Soler
• Organic  ANR-475  OMRI
• World Record  Charles H. Wilber
• Greenhouse/High Hoop(high-tunnel)
• Roof Top Gardening
• Apartment Gardening  Amy Pennington
• Hydroponic  ANR-1151
• No Till
• Heirloom Vegetable Gardening
Gardening Styles/Types/Techniques

• Indoor Gardening
• Community Gardening
• Victory Gardens
• Water Gardening
• Impact Gardening
• The Backyard Homestead Carleen Madigan
• Companion Gardening
• Drip Irrigation Robert Kourik
• **AND all our own methods!! (Fence Gardening)**
• And many more.
Videos/Web Sites Drip Irrigation

- http://www.ces.ncsu.edu/chatham/ag/SustAg/irrigatelinks.html
- http://store.rainbird.com
- http://irrigationtutorials.com
- http://t-tape.com
- http://dripirrigation.com
- http://irrigationdirect.com
- http://www.irrigation-mart.com/
- http://www.lowes.com/Garden-Center/Drip-Irrigation/_/N-1z0y1uq/pl?Ns=p_product_qty_sales_dollar|1
- http://www.bbhobbs.com/
- http://video.about.com/gardening/Installing-Drip-Irrigation.htm
- http://www.dripdepot.com/drip_irrigation_videos/playlist
- http://www.youtube.com/watch?v=SSHImq_J33I
- http://thegrower.com/south-east-vegetable-guide
- http://hunterindustries.com
- http://www.bing.com/search?q=aces.edu&qs=AS&form=QBLH&pq=aces.edu&sc=8-8&sp=1&sk=
- http://www.itrcweb.org/
- http://ga.water.usgs.gov/
- http://dripirrigation.org/control_zone_equipment.html
- http://www.digcorp.com/
- http://www.growerssupply.com/farm/supplies/cat1a;gs_greenhouse_irrigation.html
- http://www.dripirrigationzone.com/
- http://www.irrigationdirect.com/
Listen to this!

• Carefully select the tomato variety you plant
  – Very disease resistant
• Carefully select the tomato plant you plant
  – Very healthy
  – If it is sick send it to the dump
• Carefully select where you plant your tomato
  – Rotate
  – If you have had disease problems forget it
  – Keep bed clean, weedless, watered, mulched, sprayed?
• Carefully plant your tomato per recipe
• Carefully keep plants insect free/watered
• Consider heirloom, companion, organic, and then move on
A Tomato Planting Recipe

- Reference ANR-302/ANR-1156
- Hole 2’ wide/12” deep
- Mix 3 parts topsoil with 1 part manure/compost
- Add 2/3 cup of dolomitic limestone
- Add heavy(measurable) fertilizer
- May add peat moss
- Plant the tomato plant deep
- Add collar to protect from cutworms
- Mulch/stake/cage/string/water
- Prune
- Scout!
- Spray
- Side dress
- Pray
Some Recommended Tomato Varieties

• Sun Gold
• Juliette
• Celebrity/Carnival
• Rutgers/Homestead/Atkinson
• Roma VF
• Parks Whopper
• Brandywine
• Better Boy
• Big Zac
• Amelia
• Cherokee Purple
• Bella Rosa
Disease Symptoms

Symptoms of disease are the plant’s reaction to the causal agent.

- **Blight** – A rapid discoloration and death of twigs, foliage, or flowers.
- **Canker** – Dead area on bark or stem, often sunken or raised.
- **Chlorosis** – yellowing – Chlorosis is so generic that without additional details diagnosis is impossible.
- **Decline** – Progressive decrease in plant vigor.
- **Dieback** – Progressive death of shoot, branch or root starting at the tip.
- **Distortion** – malformed plant tissue.
- **Gall** or **gall-like** – Abnormal localized swelling or enlargement of plant part. It could be caused by insects, mites, diseases, or abiotic disorders.
- **Gummosis** – Exudation of gum or sap.
- **Leaf distortion** – The leaf could be twisted, cupped, rolled, or otherwise deformed.
- **Leaf scorch** – Burning along the leaf margin and into the leaf from the margin.
- **Leaf spot** – A spot or lesion on the leaf.
- **Mosaic** – varying patterns of light and dark plant tissue.
- **Necrosis** – dead tissue – Necrotic areas are also so generic that without additional details diagnosis is impossible.
- **Stunting** – lack of growth.
- **Wilt** – General wilting of the plant or plant part.
- **Witches broom** – Abnormal broom-like growth of many weak shoots.
- **Insect feeding injury** is also a symptom used in diagnosis, but not a symptom of disease.
Disease Signs

Signs are the actual organisms causing the disease.

- **Conks** – woody reproductive structures of fungi.
- **Fruiting bodies** – Reproductive structures of fungi; could be in the form of mushrooms, puffballs, pycnidia, rusts, or conks.
- **Mildew** – whitish growth produced by fungi composed of mycelium.
- **Mushrooms** – fleshy reproductive structures of fungi.
- **Mycelium** – thread-like vegetative growth of fungi.
- **Rhizomorphs** – Shoestring-like fungal threads found under the bark of stressed and dying trees caused by the *Armillaria* fungi. They may glow in the dark!
- **Slime Flux or Ooze** – A bacterial discharge that oozes out of the plant tissues, may be gooey or a dried mass.
- **Spore masses** – masses of spores, the “seeds” of a fungus.
- **Insects** and/or their frass (excrement) are also signs, although not signs of disease.
Some more references
aces.edu

- Common Diseases of Cucurbita ANR-809
- Tomato Diseases Identification ANR-895
- Tomato Insect Management ANR-1191
- Wilt Diseases of Tomatoes ANR-797
- Virus Diseases of Tomatoes ANR-836
- Common Diseases Of Leafy Greens ANR-1189
- Cucumber Beetles and Bacterial Wilt of Cucurbita ANR-1026
For success we must!

• Plan what we will do and record what we have done
• Maintain our soil with amendments/soil test
• Gather the vegetables when they are ready
• Keep our garden clean
• Plant the right vegetables at the right time and in the right place
• Use insecticides only when needed
• Extend our growing season in the Spring and in the Fall
• Know our weatherman well
• We should have the right tools for the job
• Obtain healthy plants and seed
Some Thoughts

- Always read and study the label
- Prune your tomatoes
- Stake or cage your tomatoes
- Always mulch/compost
- Read/study/do your homework
- Start small
- Keep good records
- Control weeds
- Plant continuously bearing vegetables
- Plant for all seasons
- Plant small fruit
- Eat well
- Scout your garden daily
- Soil Solarization
Eat what you grow!