



Beginning Vegetable Gardening

Growing fresh produce may be a rewarding experience. In addition to the satisfaction gained from providing your own food, growing your own vegetables allows you to control which pesticides, if any, are used in the process. To make your garden a success, follow these tips from Cornell Cooperative Extension:

Site Selection

Locate your garden as close to your home and a water source as possible. A garden that is in a convenient and highly visible spot is more likely to be well maintained than one way out back. If you live in an older home where lead paint may have been used, keep the garden well away from the foundation. Consider installing raised beds filled with new soil and compost. To learn more about considerations for testing for lead, please see: <http://blogs.cornell.edu/healthysoils/soil-contaminants/soil-testing/> You may contact Cornell Cooperative Extension of Westchester if you have additional questions.



Most vegetables require full sun; choose a site that gets at least six to eight hours of direct light all season. A southern or southwestern exposure is ideal. Locate your garden well away from large trees as these will compete with garden plants for water and nutrients as well as sunlight. Take into consideration the amount of shade trees will cast as they grow. Some lower branches may be pruned to admit more light. Cool season vegetables and some root vegetables tolerate more shade than warm season, fruiting vegetables. Beet, cabbage, green onion, lettuce, parsley, radish and Swiss chard are a few that may be grown in light shade.

Well-drained, fertile soil is essential to a productive vegetable garden. Avoid low areas where puddles remain for more than a few hours after a heavy rainfall. Many Westchester residents have to deal with heavy, poorly drained clay soil. The addition of organic matter can improve drainage by increasing aeration. A home compost pile will provide an excellent source of free organic matter for your garden. If drainage problems are severe, raised beds are another alternative.

Don't worry if you don't have the perfect site. Very few gardens have perfect conditions. Consider using a few small planting areas instead of one large one to take advantage of fragmented sunny spots around the yard. Many vegetables will grow well in containers in a sunny area, but these will require more maintenance than those planted directly in the ground. You may also interplant vegetables in a flower garden.

How Much Space Do You Need?

You don't need a lot of space to grow an abundance of vegetables if you choose the right plants. Beginners are advised to start out with a small plot, 100 square feet or less. Consider the level of commitment you're willing to make to your garden. It takes at least one hour to prepare, one hour to plant, and one half hour per week to maintain a 10 foot by 10 foot plot.

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Please contact CCE of Westchester if you have any special needs

Fencing

If deer, rabbits, woodchucks or other animals have access to your garden site, you will most likely need a secure fence to protect your vegetables. Rabbits may be deterred with a 2 foot high fence, but deer can easily clear a 6 foot tall fence, and woodchucks can climb these. Rabbits and woodchucks can burrow under a fence that is not secured at the soil level. Contact Cooperative Extension for information on for specific ways to deter the wildlife that visit your property. For information on managing wildlife visit <http://wildlifecontrol.info/publications/cornell-publications/>

Choosing What to Grow and Garden Layout

If you are new to vegetable gardening, start out with a few easy crops. You can increase the variety of plants and growing area as you gain experience. Points to consider when making variety choices include: vegetables your family likes best, those easiest to grow, those superior to purchased produce, those that make the best use of space, relative to cost, and disease resistance. For a list of varieties that grow well in Westchester County, please see <http://westchester.cce.cornell.edu/horticulture-environment/frequently-accessed-fact-sheets> Growing guides for many vegetables may be found at <http://www.gardening.cornell.edu/homegardening/scene0391.html> Contact Cornell Cooperative Extension of Westchester if you have vegetable gardening questions.

Home grown peas, snap beans and disease resistant tomatoes, for example, can be easy to grow and usually have better flavor than store bought. Celery, in contrast, is difficult to grow and is often better if purchased. Salad and other greens, beets, herbs, radishes, snap beans and disease resistant tomatoes are good choices for those with limited space. Broccoli, cabbage, cauliflower, corn, cucumber, squash and melon take up considerably more room and require careful attention to pest management.

Once you have decided what you are going to grow, how many plants will you need? Although this will vary considerably according to your taste and intended uses, you will want to avoid too many plants of any one crop at a given time. A dozen lettuce plants, or a few square feet of radishes may quickly overwhelm you if they mature all at once. Plant them a few at a time in bi-weekly successions to avoid this problem. Likewise, a few tomato plants will supply the average family with more than enough fruit. You may plant warm season crops in between the rows of cool season vegetables to make the most of garden space. The early crops will be harvested before the warm season vegetables need the extra room. Seed packets and catalogs often list information on how much space is needed and how much produce to expect.

Once you have selected your crops and garden site, you may find that a paper layout that shows where the plants will go is helpful. Consider building permanent paths and planting beds. These will allow you to use water and fertilizers more efficiently. The beds may be as long as you like, but limit the width to approximately three to five feet so you can reach the center without walking on the planting area; this will avoid soil compaction.

You may group plants with similar cultural requirements together, or group early crops in the same plant family together to make repeat plantings easier. Locate taller vegetables on the north side of the garden so they won't shade shorter ones. Save space by trellising crops that produce long runners or vines. Many people plant these crops where they can grow on a garden fence.

You may plant in rows, or in blocks or "squares." Block planting allows you to grow more plants per square foot that may result in a higher yield. Plants shade the soil as they grow, reducing the need for water and weeding. Row planting may allow for better air circulation and reduce disease problems but may require more water and weeding.

Learn as much as you can about the crops you plan to grow. Cornell Cooperative Extension of Westchester Horticulture Advice Line, Cornell University online gardening resources at

<http://gardening.cals.cornell.edu> other university and government web sites, experienced gardeners, gardening books, magazines, and seed catalogues are good sources of specific information.

Preparing the Soil

Most local soils contain adequate nutrients for plant growth. You may do a soil analysis to determine the level of organic matter, soil texture and major nutrients. Contact Cooperative Extension for details. Alternatively, you may test your soil to determine its pH (acidity or alkalinity). Many nutrients are available to plants only in certain pH ranges. For a nominal fee, Cornell Cooperative Extension will test your soil pH and give you recommendations to correct it if necessary.

Soil is workable if it is free of frost and dry enough to crumble in your hand when you squeeze it in your fist. Mark off the edges of your plot and remove any large rocks, weeds or sod inside. Pay special attention to perennial weeds (those that grow back every year) and grasses, as many of these will regrow from small pieces left behind. Use a sharp spade to strip sod off one inch below the soil surface. The sod may be composted or used to patch bare spots in your lawn. After you have removed all vegetation from the plot, add any needed amendments and loosen or turn the soil with a shovel or spading fork.

There is no need to bring in "topsoil". The native soil, with the addition of some organic matter and occasional fertilizer for crops that are heavy nutrient users, if necessary, will support your plants. You may add an inch or two of compost to supply organic matter; mix it thoroughly into the soil beneath to avoid separate layers of different types of soil.

As you turn the soil over, break up any large clumps. Working the soil to an eight inch depth is sufficient. After you have finished turning the bed, use a metal garden rake to smooth the surface. After this initial preparation, you may mulch the soil and avoid future tilling.

Planting

Cool season vegetables

Cool season crops such as broccoli, cabbage, carrot, kale, onion, pea, and turnip tolerate frost. These may be planted as soon as the soil can be worked, although they will benefit from some protection (see below). Broccoli should be planted when night temperatures are reliably above 50° F. The cooler the soil, the slower seed germination and plant growth will be. For example, early in the season, if two batches of seed are planted one week apart, the second planting can catch up to the first as the weather warms. It is usually safe to plant cool season crops between late March and mid-April in Westchester. Beets, lettuce, mustard, potatoes, radishes and Swiss chard will tolerate a few light frosts. Most early vegetables will expire or go to seed in hot weather.

Warm season vegetables

Warm season vegetables such as bean, cucumber, eggplant, okra, pepper, squash and tomato are damaged even by light frosts. These should be planted after the danger of frost is past and the soil has warmed up. The last spring frost in Westchester is generally May 15-20. The last frost may occur earlier in southern Westchester, but our weather is often not fully settled until Memorial Day or the first week in June. In most seasons it is a good idea to wait until Memorial Day or the first week in June to plant tender crops.

Direct seed or transplant?

Most crops may be direct seeded (seeds planted directly in the garden), but many perform better when grown from transplants (seeds started ahead in a container of soil). Some vegetables may be started either way. Crops to direct seed include: bean, beet, carrot, Chinese cabbage, cucumber, kale, lettuce, melon, pea, radish, Swiss chard, squash and turnip. Crops grown from transplants include: broccoli, cabbage, eggplant, kale, leek, onion, parsley, pepper and tomato. Transplants of popular vegetables may be purchased at a garden center. Choose young, sturdy looking plants.

When you are ready to plant, refer to your garden layout. Set plants and seeds at their recommended spacing. Transplants with a central stem should be set just slightly deeper than they were growing in

their containers. Gently firm the soil around their roots, and water them generously. (Tomatoes may be buried up to their leaves; roots will grow along the buried stem.) Be sure to thin direct seeded plants as necessary. Thinning allows the remaining plants to develop to their full potential and promotes proper air circulation necessary to prevent many diseases. Thinnings of leafy vegetables are useful as baby greens or salads.

Care After Planting

Plant protection

You may extend your growing season by protecting young plants from light frosts with plastic row covers, “hot kaps” or other cloches, spun bonded polyester fabric (such as Agronet® and Reemay®), or by using a cold frame. Row covers and fabrics provide limited frost protection, but they trap heat around the plants and may provide protection from insects. Row covers must be removed once hot weather arrives or when insect-pollinated plants flower. Cold frames allow you to plant up to three weeks early. Cold frames may be covered for extra frost protection, but must be vented to prevent excess heat build-up during the day.

Dark soil and mulches absorb the sun’s heat. You may get a jump on the spring planting season if you mix compost into the garden in the fall. Black plastic mulch may be used to warm the soil for heat-loving crops, but this is not renewable and takes up precious landfill space when it must be discarded. Even with care, plastic will last only a few seasons.

Watering

Keep seeded areas evenly moist until your plants emerge. Most mature vegetables require an inch of water per week. A soaker hose provides an easy and efficient means of watering. To minimize disease problems, water early in the day, and try to avoid wetting the plants’ leaves. Use of mulch (up to two inches), such as grass clippings, ground leaves, or compost will slow water evaporation from the soil and will also discourage weeds. Organic mulches keep plant roots cool during very hot weather and have the added benefit of enriching your soil as they decompose.

Weeding and Pest Management

Weeds will compete with your plants for nutrients and sunlight as well as moisture. They can quickly overrun a garden, but are easily managed when small. A two inch layer of shredded leaves, pesticide-free grass clippings (applied one inch at a time) or other mulch will prevent most weed problems. Regular, weekly removal of weeds will enable you to keep ahead of those that do come up. You can use the time you spend weeding to check for insect and disease problems as well. Learn to recognize early symptoms of pests and diseases. You will have better success managing pests if you catch a problem at an early stage. Information on insect disease management is available from Cooperative Extension.

Fertilizing

Many vegetables are heavy feeders that may benefit from added fertilization as they grow. Check that the soil pH is in the optimal range near neutral, where vegetables grow best, and add fertilizer only as indicated by symptoms of nutrient deficiency (these may mimic other symptoms, such as environmental stress) or a soil test. Over-application of fertilizer is likely to injure plants, especially if the soil is dry. Slow-release and organic fertilizers are less likely to burn plants. Excess fertilizer applied to fruiting vegetables may result in a lot of tender vegetative growth with few flowers and fruits. This growth may also be more attractive to pests such as aphids.

Apply fertilizer according to label directions. Granular fertilizer is generally applied a few inches away from the base of the plants and worked into the soil. Take care not to damage any roots nearby. Liquid fertilizer may be poured around the base of the plants. How often you fertilize will depend on the types of plants grown. Long season crops, container crops and heavy feeders such as squash and tomatoes generally require more fertility than short season vegetables such as lettuce or other greens. Root crops may also require little fertilizer.

Harvesting

Use thinnings as baby greens, then begin to harvest salad crops when they are large enough to make a serving. You may harvest the outer leaves of plants such as lettuce, mustard and chard a few at a time, or you may pick the whole plant if you need to make room for later crops.

Many crops require a regular harvest to stay productive. Snap beans, peas and summer squash will slow down or stop fruiting if their seeds begin to mature. Leafy crops and broccoli will also produce more if picked regularly. If you plan to take a summer vacation, avoid growing varieties that will mature or be at their peak while you're away, unless you can arrange for someone to care for your garden and keep up with the harvest.

There are as many ways to garden as there are gardeners. Don't be afraid to experiment with different growing methods until you find the one that is right for you.

Sources:

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Topoleski, Leonard D., The Home Vegetable Garden, Cornell Information Bulletin 101.

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