



# Gardening Equipment

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Garden catalogs and stores are full of gardening tools, many highly specialized; some are very useful, others are nice but not necessary, and some are gimmicks. The gardening equipment you need depends on the size of your garden, your age and strength, and whether you want to get the job done in a hurry or prefer to take your time. The minimum equipment needed by most gardeners includes a shovel or spade, a hoe, a rake, and a trowel. A wide selection of styles is available in each of these tools, and the choice is really one of personal preference and price range. You can get the best value for the price range you choose by knowing each tool's uses and particular qualities to look for when comparison shopping. Buy at the end of the gardening season when prices are reduced.

## Tools for Cultivating

### Hand Tools

A garden **shovel** with a pointed blade is lighter and smaller than most other shovels and is well suited for use in the garden. Shovels are earth movers with dish-shaped blades mounted to the handle at an angle. A spade has a flat blade and is designed for cutting rather than lifting or moving soil. Spades are excellent for shaping straight-sided trenches and for edging beds. For general-purpose digging, lifting, and moving, a long-handled shovel is ideal. Both shovels and spades come with long or short handles in standard or D-shaped styles. Choice of handle style will depend on personal preference; long handles offer greater leverage and are less tiring to use in many cases. Short handles are often thicker and stronger than long ones.

A **spading fork** is another useful digging tool. It is ideal for breaking and turning heavy soils and for loosening subsoil layers when double digging a bed. Turning coarse compost, spreading mulches, and digging root crops are other jobs suitable for a spading fork.

A **hoe** is essential in any garden for preparing the seed bed, removing weeds, and breaking up encrusted soil. Several different hoe styles are available. The pointed hoe with a heart-shaped blade is lightweight and useful for opening seed furrows and cultivating between plants. The hula, or action hoe, is a type of scuffle hoe, which is very lightweight and maneuverable. Pushing and pulling it just under the soil surface eliminates newly emerging weeds and breaks up any crust on the soil surface. This type of hoe is most easily used on soil which is not compacted, since the blade is relatively thin and lacks the clod-breaking capabilities of a heavier hoe; it is also less effective in cases where weeds have gotten a good start. Other types of scuffle hoes are somewhat sturdier and are used with a pushing motion rather than pushing and pulling. Probably the most commonly used hoe is the square-bladed hoe, which lends itself well to many garden tasks.

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A sturdy **rake** is useful in clearing the garden of rocks and debris. It is also helpful in spreading mulches and smoothing seedbeds. The size of the rake right for you depends on your size and strength and the uses you intend to put it to. As the number of tines increases, the rake weight also increases; avoid choosing a rake so heavy it will tire you after a short period of use. The length of the rake handle is important too; the tip of the handle should come up to your ear when standing upright. A handle that is too short will make your work harder, causing excess bending and back strain.

Especially in the spring, a **trowel** will be in constant use for those many digging jobs that need not be done with full-sized tools. The trowel is perfect for transplanting seedlings and bulbs or digging shallow-rooted weeds. Small hand cultivators, often sold in sets with trowels, are good for weeding in small areas and between closely spaced plants. Another useful, small digging tool is appropriately named a **digger** (a.k.a. weeder, cultivator, asparagus knife). This tool is available from most hardware or discount stores inexpensively. It is useful for digging up weeds with long taproots, such as dandelions or Queen Anne's lace, or for prying out Johnson grass rhizomes. It consists of a long (10 to 14 inches), solid-metal rod with a two-pronged blade at one end and a handle at the other. This tool is practically indestructible and well worth the small investment of its price for people with strong hands and arms or extremely loose, friable soil.

Some other tools that may have a place in the garden tool shed include the pickax, mattock, and wheel cultivator. Pickaxes are used to break up extremely hard-packed or stony soil. Mattocks are for the same purpose, but are equipped with a cutting blade for areas where larger roots need to be removed. A mattock may also be used to chop up debris for composting. A wheel cultivator has a number of attachments for soil preparation and weed control and may prove a good investment for those with larger gardens.

### Power Tools

The power **rotary tiller** is probably the power tool most commonly purchased by gardeners. Whether or not a gardener needs a rotary tiller depends on the size of the garden, the gardener's capabilities, and the intended uses of the tiller. Renting a tiller or hiring someone to till the garden meets the needs of most gardeners. If a tiller is to be purchased, tiller selection may be based on the nature of the work to be done, the quality of the machine and ease of repair, as well as personal preference. The tiller's engine powers rotating blades, or tines, which can make garden soil loose and fluffy, ready for planting. It can also chop up plant debris and mix it into the soil. Incorporating organic matter and manures into the garden is easily accomplished with a tiller, reducing the tendency to procrastinate this necessary



chore. The ability of the tiller to do these jobs effectively is a function of its weight, strength, design, and type of tines, as well as the type of soil. A heavy, powerful tiller is most effective on stony, clay soils, while in a small garden or one with light soil, a smaller tiller is more appropriate. Very lightweight tillers, known as soil blenders, are designed mainly for raised-bed gardening.

Rotary tillers are available with front-mounted or rear-mounted tines. Rear-tined tillers are generally better able to self-propel on all but the rockiest soils. They travel straight and can produce a footprint-free seedbed. Rear-tined tillers often have a number of attachments available for a variety of uses, such as hillng potatoes, making raised beds, even plowing snow! The price of a rear-tined rototiller is considerably higher, in most cases, than that of the front-tined type; consideration should be given to the payback time necessary for such a large investment. If gardening is simply a hobby, or if the garden is small, a front-tined tiller may be suitable. Front-tined tillers are usually light in weight, but may require considerable strength to guide them through the soil. Operating this type of tiller is comparable to handling a large floor polisher, such as those used in schools and hospitals; mainly, leverage is required for control. New gardeners are sometimes scared away from these tillers because of the initial experience of having a tiller run away from them. The front-tined tiller may not make as straight a pass as the heavier, rear-tined type, but it is much easier to turn. Due to this increased maneuverability, the front-tined tiller is easy to use in small gardens and in corner areas.

The purchase of a tiller is a major investment. Features to look for include heavy cast-iron, steel plate and tubing, heavy bearings, strong welds used in construction, and easily operable controls. Ask to look at the operator's manual and try to determine how simply a tune-up can be performed; you may save yourself a great deal of trouble and money if you can replace plugs and points yourself, particularly, if you have no truck on which to load the tiller. Also consider the locations of service centers and parts dealers. Careful attention to your needs, abilities, and price range is important. Talk to people who have the types of tillers in which you are interested. If possible, borrow or rent various types of machines and send for information before buying.

If you are considering the purchase of a used rotary tiller, plan to do so well ahead of time so you will not be rushed into a purchase. If you do not know much about such equipment, it might be helpful to have a mechanically minded friend look over the machines you are considering. Above all, test each tiller for ease of starting and operation. An engine that smokes or runs roughly may require a lot of work. Tines should operate smoothly and freely. Check the welds in the handles to see that they are strong; rewelding may mean that the handles have broken at some time, a common problem in older tillers. Look at the dipstick, if there is one; low oil or very sludgy oil may mean that the tiller has been maintained poorly. Oil and other fluids may also be checked by opening the drain plugs. Look for excessive dirt around the engine or in the air filter. This may also mean bad maintenance habits. Ask the owner for an operator's manual, and ask where the machine has been serviced in the past. A good tiller is a long-term investment, so plan carefully before you buy.

**Other Power Tools:** There are few other power tools needed in the vegetable garden. Cordless tools come with various cultivating attachments. Most are rechargeable and can make garden chores more pleasurable; these tools are especially useful to those with physical disabilities that limit strength. However, these tools only work effectively in a bed high in organic material and free of coarse debris.

A garden shredder may be useful for a large garden with a lot of plant wastes. There are hand-operated shredders that are slow but useful if wastes become available in small quantities and are not too coarse. Gasoline shredders are quite expensive and may be disappointing to the gardener who wants to chip branches and other large materials.

They are best used for shredding leaves, small branches, and other plant wastes (though sunflower stalks would probably be too much for one). They are also noisy and give off air pollutants. A chipper, on the other hand, will chip large branches and other coarse material, but the cost of \$1000 or more makes the chipper uneconomical for the home gardener. Wear ear protection when using power tools.

## Pruning Tools

**Pruning shears** are good for branches up to 3/4 -inch in diameter. Attempting to cut larger branches risks making a poor cut and/or ruining the shears. There are two blade or cut styles of hand shears: scissor action (also called bypass blades) and anvil cut. In the anvil style, a sharpened blade cuts against a broad, flat plate. In the scissor style, a thin, sharp blade slides closely past a thicker (but also sharp) blade. The scissor style usually costs more, but makes cleaner, closer cuts. When buying pruners, test the pruners in your hand to make sure you can hold them comfortably. If they are too large or small, too heavy or too hard to squeeze, try another style or brand—there is a wide variety of pruning tools available. If you have trouble using pruning tools, there may be special equipment available to suit you. For example, ratchet pruners are useful if your grip is not strong because they can be closed easily with very little pressure.

**Lopping shears** have long handles and are operated with both hands. Even the cheapest can cut 1/2 -inch diameter material. The better ones can slice through branches of 2 inches or more, depending on species and condition (e.g., pin oak is tougher than linden, and dead wood is tougher – until decay sets in – than live wood). Lopping shears are also available with telescoping handles (to extend reach) and a ratchet mechanism.

**Pole pruners** have a cutter with a hooked blade above and a cutting blade beneath. The cutter is on a pole and is operated by a cord or chain pulled downward. Fully extended, they can be used to reach branches 12 feet or more above the ground. The poles can either be in sections that fit together or telescoping. Wooden poles are heavy. Aluminum poles are light but can conduct electricity if they touch an overhead wire. Fiberglass or some type of plastic compound is probably the best answer. Poles can be fitted with saws, but these can be frustrating to use. Use of pole pruners can be dangerous, as material cut overhead can fall on the operator (unless it hangs up in other branches); exercise caution and wear head and eye protection. Obtaining an accurate pruning cut with a pole saw is very difficult. Consider employing a professional to make those cuts that you cannot easily reach with a ladder and shears or hand saw.

**Hedge shears** have long, flat blades and relatively short handles, one for each hand. Heavy-duty shears, with one blade serrated, are good for difficult jobs. Power hedge shears are also available. The most common for home use are electric models. Although these are efficient for shearing, they often result in ragged cuts that are entry points for insects and disease. Keep blades sharp. If there is a choice in plants, consider using a small plant that will not need shearing.

There are many makes and models of **pruning saws**. Fineness of cutting edge is measured in points (teeth per inch). An 8-point saw is for delicate, close work on small shrubs and trees. Average saws are about 6 points, while 4 1/2 -point saws are for fairly heavy limbs. A fixed-blade saw with a protective scabbard is safer and easier to use. Folding saws often require either a screwdriver (for a slotted-head holding screw) or will have a protruding wingnut, which can scar the trunk when a limb is cut. If the saw suddenly folds while in use, the operator's fingers can be damaged. Blades can be either straight or curved. Many prefer a curved blade that cuts on the draw stroke. A double-edged saw has fine teeth on one side, coarse on the other; these can do significant damage to surrounding branches and may be difficult to use in densely branched plants. Bow saws are good only where no obstruction exists for a foot or more above the area to be cut.

**Chain saws** come in a variety of sizes, both gas and electric. Chain saws are used to remove large limbs or entire trees. Chain saws should be used only with appropriate safety gear by people who fully understand their operation and handling for pruning. Improper or careless handling can do significant damage to trees in a very short time. Therefore, the use of chain saws is not recommended for homeowners.

## Carts/Wheelbarrows

A wheelbarrow or cart is very handy to have in and around the garden area. Select one that is easy to handle when full, with good maneuverability. Durable construction is well worth paying for to ensure a long, useful life. Be sure to choose the size appropriate for your physical abilities and garden needs. A wheelbarrow generally requires more strength and control than do most garden carts, but many of the small carts generally available are made of relatively flimsy metal and, though inexpensive, are not particularly long lasting or suitable for heavy items such as rocks. Again, consider your needs. If you plan to haul only light straw, leaves, sawdust, and such materials, then one of the small carts may be suitable. For heavier jobs, you may need a wheelbarrow; or investigate some of the newer garden carts, especially those with bicycle-size tires, which make easy work of hauling. They are made of heavy plywood and metal, but are well balanced and easy to maneuver. These carts do, however, involve a sizeable investment (up to several hundred dollars) and a large storage space. Therefore, only serious gardeners or those with other uses for such a cart find them economical. One alternative is to build your own from one of several plans available from gardening magazines or private companies.

## Pest Control Equipment

Pest control equipment is needed in most gardens. Even organic gardeners often need sprayers for dormant oils or dusters for botanical insecticides. There is a wide range of equipment to choose from - from cans of insecticides with sprinkler tops to motorized knapsack sprayers. Here again, one's own needs and budget are the determining factors.

Using the same spray equipment for weed and insect control is neither safe nor desirable. No matter how well a tank is rinsed after using some herbicides, a residue may be left in the tank, gaskets, hoses, and other parts. If the same equipment is then used to spray a plant with insecticide or fungicide, the herbicide residue may kill or injure the plant. The wisest policy is to maintain two sprayers, one for herbicides and another for insecticides and fungicides. Have them clearly labeled according to use pattern. Sprayers should be rinsed after each use. Don't forget to flush hoses and nozzles. Sprayers must be kept clean and in good working order. Nozzles should be replaced when they begin to show signs of wear. Pesticide application equipment comes in all shapes, sizes, types, and prices. Select equipment according to common sense.

**Hose-end sprayer:** A bottle with hose attachments that holds liquid pesticides. The pesticide is mixed with water in a certain ratio as the water flows out of the garden hose. These devices are inexpensive and serve the purpose quite adequately; however, it may take some figuring to get the appropriate ratio of pesticide to water. An adjustable nozzle is a good feature to look for. An antisiphon device should be part of a hose-end sprayer because if there is drop in your water pressure, the chemicals can be sucked up into your water system. The extra price you may have to pay for this safety feature will be well worth the peace of mind.

**Compressed Air Sprayer** (backpack or tank sprayer): Spray is mixed in a small tank (generally one to five gallons). The tank is carried like a backpack, over the shoulders. A hand-operated pump supplies pressure during application. A single nozzle releases the spray at the end of a hand-held wand. It is difficult to apply a wettable powder

with this type of equipment because such a spray mixture requires agitation. The applicator has excellent control over coverage, making this sprayer a good choice for treating dwarf fruit trees, vegetables, and ornamentals. Spray will not reach into tall trees. As water weighs more than 8 lbs. per gallon, small tanks are easier to carry than large tanks.

**Hand Duster:** The duster may consist of a squeeze tube or shaker, a plunger that slides through a tube, or a fan powered by a hand crank. Uniform coverage of foliage is difficult to achieve with many dusters. Dusts are more subject to drift than liquid formulations due to their lightweight and poor sticking qualities. Many dust formulations are sold in dispenser canisters.

## Watering Equipment

Watering is an essential garden job for most gardeners. An adequate water supply makes a big difference in garden yields. Purchase of watering equipment depends on available facilities, water supply, climate, and garden practices. If there is no outdoor spigot near the garden, the expense of having one installed may be greater than the benefits gained except in very drought-prone areas or in the case of a gardener who is fully dependent on the season's produce. Where rainfall is adequate except for a few periods in the summer, it is wise to keep watering equipment simple; a garden hose with a fan-type sprinkler will suffice. A water breaker for small seedlings is useful. But, in areas where there are extended periods of hot weather without precipitation, the local water supply is likely to be short. Overhead sprinklers are wasteful of water, so in this case, a drip irrigation system may be in order. Drip irrigation puts water right at the roots and doesn't wet plant leaves, helping to prevent disease. Timers are available that allow automatic watering with drip and some other systems. However, this type of system is relatively expensive and may be considered a nuisance by some gardeners because of maintenance and placement requirements. Cultural practices, such as mulching, close plant spacing, shading, or wide bed planting, will significantly reduce water needs.

## Soil Monitoring Equipment

Soil test kits can be purchased in various sizes and levels of sophistication. These are handy, but not always necessary; soil testing does not have to be done more frequently than once a year for most gardening purposes. If inexpensive garden soil tests are offered through the Extension offices or private labs, it is often preferable to have them do the tests, as results are likely to be more accurate. Some gardeners like to monitor the soil quality frequently, though, making a soil test kit a worthwhile purchase. An electronic pH tester is on the market for those who like gadgets.

**Soil thermometer:** Soil temperature is critical for many vegetable and food crops. Soil thermometers measure soil temperature and the internal temperature of a compost pile. Seeds planted in soil that is too cold will often rot and seedlings planted in cold soil will delay growth until the ground temperature gets warmer and will likely result in stunted plants. A soil thermometer will assist the gardener in determining the proper time to plant seeds and seedlings. Optimal soil temperatures for seeds of early vegetables are between 45 and 50° F and 50 to 55° F for seedlings. Soil temperatures for warm weather species should be at least 65° F.

**Other environmental monitoring equipment:** Serious gardeners often invest in various types of equipment that allow them to monitor the microclimate around the garden or indoors. A rain gauge is an inexpensive device that helps the gardener determine if enough rain has fallen for garden plants. A minimum-maximum thermometer is a costly, but often useful, device to measure nightly lows and daytime highs within an area; these are especially valuable in a greenhouse. Light and watering meters can be purchased for indoor plant monitoring.

# Other Equipment

## Seeding and planting tools

Depending on the size of your garden and your physical abilities, you may want to consider a row seeder. Seeders with wheels make easy work of sowing long rows of corn or beans or other vegetables. Seeders are available which make a furrow, drop the seeds properly spaced, and close up the furrow behind the seed - all in one pass. They do not perform quite as well on small-seeded crops, and it is not really worth the effort of setting up a seeder for small areas. A hand-held seeder is probably a better choice for this type of work. Broadcast seeders are available for sowing seeds, such as rye or wheat, for a cover crop, but are generally not necessary for the average home gardener since broadcasting is easily done by hand once the proper technique is learned.

## Trellises/cages

Trellises and cages for vining plants save space and keep fruits off the ground, reducing the amount of stooping required for harvest and damage to plants. Look for heavy-duty materials and sturdy design that will stand up to rain, wind, and drying. Wire should be of a heavy gauge, and wood should be treated with non-phytotoxic (i.e., not toxic to plants) materials. Metal parts should be rustproof or at least rust-resistant. If you build your own, you will probably save a considerable amount of money and get better quality for the price.

## Composting equipment

If you wish to make compost regularly, it will be helpful to have compost bins in some form. You can construct two bins out of planks or concrete blocks. Make the bins about 4 feet high, 4 feet wide, as long as desired, and open at one end for easy access. Leave spaces between blocks or planks for aeration. Plant refuse may be accumulated in one bin while the composting process is taking place in the other. A third bin may be desirable for nearly finished or finished compost storage. A simple, portable, compost bin can be made with three or four sturdy used pallets that are simply stood on their ends in a square or open square and lashed or otherwise held together. This type of bin can be disassembled for easy turning and emptying, then reassembled around the new pile. A chicken wire cage supported by three or four wooden stakes will also work satisfactorily, but is somewhat less sturdy. There are also ready-made and kit composters available, including slat-sided cylinders into which refuse is added from above and compost removed at ground level. Rotating barrels for easy turning are also available; gardeners who have physical disabilities may find either of these types easier to deal with than the standard compost bin. Whichever type of compost maker you use, it's a good idea to make use of the nutrients that leach out from under the pile. This is easily done by locating the composter in the garden (which also reduces hauling time), or under a large fruit tree, or by making some provision to catch the runoff from the pile and use it as liquid fertilizer.

## Season extenders

Your annual harvest can be greatly increased by extending the growing season, starting earlier in the spring and harvesting past frost. (See VCE Publication 426-381, *Season Extenders*.)

## Harvesting equipment

Harvesting equipment varies depending on the size and type of garden, whether or not food is to be stored, and the way in which it is to be processed. Baskets are useful to most gardeners. They may be purchased at garden or farm supply stores or sometimes may be

scrounged from local grocery stores or fruit stands. Berry baskets for small fruits, baskets with handles for carrying vegetables, and peck or bushel baskets for storage are all useful. Fruit pickers are nice and easy to use for tall fruit trees. A sharp knife for cutting vegetables off plants is handy and helps prevent plant damage.

Food processing equipment includes canners, blanchers, dehydrators, and sealers for frozen food packages. There is even a home vacuum-packer available. A food mill is inexpensive and very useful for making sauces and juices; a blender or food processor is also useful to the gardener with extra food. More specialized tools include corn cutters which remove kernels from the cob, bean Frenchers and shellers, cherry pitters, strawberry cappers, apple corers and peelers, jelly strainers and thermometers, and many more. For canning, a large kettle or pot is indispensable for preparing food prior to canning. A jar lifter will prevent burned fingers; a funnel for transferring food to jars reduces messiness. As always, choices depend on individual needs.

## Purchasing and Maintaining Tools

When purchasing tools, buy for quality rather than quantity. Your tools will be in frequent use throughout the garden season. Cheap tools tend to break or dull easily and may end up making a job unnecessarily difficult and frustrating. Quality tools will last and tend to increase in value with time if well kept. Tools should be lightweight for easy handling, but heavy enough to do the job properly. Metal parts should be of steel, which will stay sharp, keep its shape, and outlast softer metals. Wooden handles may split or splinter; fiberglass handles are more durable. Consumers' magazines and gardening publications frequently have articles explaining what to look for in tools and listing alternatives to local hardware stores, which often carry a single line of tools. Several excellent books featuring garden tools have been published and may be available at the library or through inter-library loan.

Keeping a tool clean and sharp will increase its usefulness and lengthen its life. Learn the techniques of sharpening each tool, and practice them frequently. Professional gardeners often carry sharpening stones or files while working and sharpen after every hour or so of use. Clean your tools after each use and oil the blades.

The last and perhaps most important step in tool care is to put tools in their proper places. Tools left in the garden will rust and break and can be a safety hazard. Some gardeners paint handles with a bright color to make their tools easy to spot. And, if each tool has its own place in the storage area, it is simple to determine if tools are missing before closing up for the day.

Before winter sets in, sharpen tools, then coat metal parts lightly with oil and rub wooden handles with boiled linseed oil. Drain power tools of gasoline, and obtain filters, mufflers, and tune-up parts so a fall or late-winter tune-up can get the machine ready for early spring jobs. Have maintenance done, if needed, in the winter, when demand is lowest and you can afford to let the repairer take his or her time.

In fall, any trellises or cages that have been outdoors should be cleaned and stored inside if possible. Traps and other pest control devices should also be stored if the pest season is over. Cold frames and other season extenders should be protected from damage by ice and snow or high winds, and once their job is done, should be repaired if necessary and put away if possible. Tools with wheels, like cultivators, seeders, and carts, should be oiled and stored.

Thoughtfully selected and cared for, your tools will give many years of service. This extra help in the garden will pay for itself in time.