

Vegetable Gardening Basics

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The Family Food Garden

Gardening with your family provides rewards beyond fresh, healthful food; it's also an opportunity to get outdoors and connect with one another.

How Gardening Grows Healthier, Happier Families

In our over-worked and over-stimulated world, there's probably no better way to bring health, happiness and meaning to your life than gardening. For many, the garden is a sanctuary, and garden time is private time to be jealously guarded. But the evidence is growing that the benefits of gardening—especially food gardening—are simply too good not to share.

Gardening is good exercise

Did you know that 30-45 minutes in the garden can burn as many calories as a round of circuit training? It's better-quality exercise, too, because unlike exercise machines which focus on one muscle group, gardening strengthens many muscle groups at once.

Gardening improves flexibility, stamina and balance too. And because the exercise happens naturally while your mind is occupied, you don't suffer the tedium that makes treadmills and stair climbers so hard to stick with. In fact, gardening is one of the few activities that relaxes your mind while exercising your body.

Gardening leads to good nutrition

A diet high in fruits and vegetables has been shown to fight obesity, prevent diabetes and reduce the risk of cancer. Kids love to watch plants germinate from seed, grow to maturity and bear fruit—and that interest is likely to translate to the dinner table. To make the lesson stick, involve kids in preparing garden produce: "Can you help me cut up some of those peppers we grew in the garden?"

Eating right is a challenge for adults, too. Seniors need more vitamins, protein, calcium and fiber, and their slower metabolisms demand a lower-calorie diet. Yet they often resort to "convenience foods" that are just the opposite: high in calories and sodium, low in other nutrients. And working parents are often the worst eaters in the family, wolfing down sodas, sweets and salty snacks on the go. For all adults, having a garden to snack from can literally be a lifesaver.

Gardening reduces pesticide exposure

Agricultural pesticides pose a serious risk to human health. Some people claim that most pesticides are not harmful. What this really means is that they aren't known to be harmful—because they've never been tested! In fact, store-bought produce contains more pesticides than ever, because so much is imported from countries with lax environmental regulations. Take pesticides out of your diet by growing a chemical-free family garden (and always wash your store-bought fruit and vegetables).

Gardening improves childhood development

For several years, pediatricians have been concerned about children growing up indoors, with little direct experience of nature. This "nature deficit disorder" is more than just a buzzword. Evidence is growing that children suffer measurable developmental deficits when cut off from nature. Happily the reverse is also true: time spent outdoors improves cognitive and emotional function.

But can gardening make your family happy? Yes!

Did you know that gardening is used as a form of therapy in senior centers, hospitals and even prisons, because it is so good at combating depression? Schools which have established gardens to teach plant science or nutrition have found an unexpected benefit: students who garden are less tired, bored and irritable than students who are stuck inside all day.

For families, gardening is a way to stay connected, to exchange news of the day while sharing meaningful work. Families also share the sense of accomplishment that comes with a thriving garden. Who can resist the thrill of the year's first juicy tomato, home-grown salad or a weighty crop of potatoes?

What is a Family Food Garden

Growing fresh, organic food for your family is good. Growing fresh, organic food with your family is even better! Gardening is a great way to get more exercise, improve your diet, and reduce your exposure to agricultural chemicals. Best of all, spending time outdoors on a shared activity will bring your family closer together. That's the idea behind the Family Food Garden.

What is a Family Food Garden? Well for starters, it's not like the big, labor-intensive garden your parents or grandparents had. These "mini-farms" made sense for thrifty people putting up as much produce as possible. But in a Family Food Garden, the emphasis is on learning and having fun, while getting the maximum reward for the minimum effort.

Start with Raised Beds

Raised beds are the building blocks of your Family Food Garden. They can be placed on any soil (wet, stony or hard-packed) and you don't have to remove sod or till the lawn. Raised beds are tidy and contained. They can be planted intensely, which increases your yield per square foot and crowds out weeds, so you spend less time weeding.

Plant for Variety

Instead of filling a bed with one crop, plant a variety in each one. Mixed plantings are more visually interesting than monocultures, and there's always something to harvest. You won't get as much of your favorite vegetable this way, but if weather or disease affects one crop (like late blight does tomatoes), you'll be glad you diversified. Within one crop you can plant for variety and visual interest; try bright red carrots, purple asparagus and orange beets—even the fussiest eaters can't resist them.

Select a Pre-Planned Garden

If you aren't sure where to start, we have over a dozen pre-planned designs you can use for free. All are highly productive and proven in our own test gardens.

A Few Minutes a Day

Rather than spending your whole Saturday weeding, watering and harvesting, do a little every day or every other day. You only need 30 minutes after school or after work, especially if you involve the whole family. Tending your garden this way is easier, and it helps you catch your crops at their peak—it's surprising how a few days can change the size of a zucchini or the flavor of tender greens. Tip: Take the family to the garden before dinner, not after. This encourages healthy, right-off-the-vine snacking. Plus, you'll be amazed how often your harvest goes directly from the garden into the pot!

Close to Home

If you're going to visit your garden often, you don't want it way off in some corner of your property. Plant as close to the kitchen door as possible, and make sure a water supply is near at hand. You'll find that close proximity plus frequent tending practically guarantee a thriving garden and a satisfying harvest.

Enjoy it Now

If you or your family are new to gardening, don't complicate matters by trying to learn preservation techniques right away. Canning, pickling and rendering sauces are wonderful activities, but you don't have to do them all the first year. Concentrate on crops you can enjoy now (greens), or put in the freezer (herbs), or which store without preparation (potatoes and onions). Remember, the goal isn't to put away enough food to get through the winter, pioneer style; it's to have some healthy fun with the family.

Grow as You Go

You can start a Family Food Garden with a couple of raised beds, some crop covers, and some plant supports. You can add more beds next year as your skills improve. Perennial crops, such as asparagus and rhubarb, also produce more as they get established. So the sooner you plant them, the better.

As your garden grows, you may want to lay decorative walkways between the beds, add an archway at the entrance, even a garden bench to relax in. You'll need a compost bin or two to contain yard waste, and a place to store tools. You can even decorate with some colorful pots (filled with culinary herbs, of course) or solar lighting. There are so many possibilities. It's a good idea to sketch out your "dream garden" to scale so you'll always be building toward a plan.

Don't Fret

The most important thing to remember is that you don't have to be perfect, and neither does your garden. It isn't important that every leaf and fruit be smooth and unblemished. What is important is to spend time with living and learning with your family, enjoying the fruits of your labor, and reconnecting with nature. So do a little planning, take it slow, and have fun in your Family Food Garden!

All 12 garden designs presented are from Gardener's Supply. To design your own garden, they have a Design Your Own Kitchen Garden Planner.

This information is from the Gardener's Supply Company website (www.gardeners.com) and is reprinted with permission.

Crop Rotation

Crop rotation will benefit vegetable crops in two ways: first, it will prevent the build-up of soil-borne pests and diseases; second, it will allow for the replenishment and efficient use of soil nutrients.

Crop rotation is the practice of growing different crops, rather than the same vegetable or members of the same family of vegetables, in the same place each year.

To minimize pest and disease problems and to help renew soil nutrients, members of the same plant family **should not** be planted in the same part of the garden more than once every three or four years.

Vegetable insect pests tend to feed on similar plants and members of the same plant family. For example, an insect pest that attacks and eats cabbage will lay its eggs before it dies. If cabbage or a member of the cabbage family is planted in the same spot the next year, the eggs of the insect will hatch and the pests will find exactly the food they need to continue the pest life cycle. Soilborne diseases--fungi, bacteria, and viruses--also can be hosted by specific plants as well. Removing host plants or alternating unrelated plants into the garden can break the cycle of pests and disease.

Crop rotation also helps prevent soil nutrients from being depleted. Vegetables draw upon a wide range of soil nutrients for growth: nitrogen, phosphorus, and potassium are the key or major soil nutrients. Members of the same vegetable family usually draw the same nutrients from the soil.

Crop rotation will prevent the soil from wearing out: heavy nitrogen, phosphorus, and potassium feeding crops such as tomatoes are rotated with soil-building crops such as beans which add nitrogen to the soil and then with light-feeding crops such as onions.

Here are the major vegetable plant families and some notes on crop rotation:

- **Onion Family:** Garlic, onions, leeks, shallots. These are light feeders. Plant these after heavy feeders. Follow these crops with legumes.
- **Cabbage Family:** Broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage, collards, cress, kale, kohlrabi, radishes, turnips. These are heavy feeders. These crops should follow legumes. After these crops allow the garden to go fallow for a season or plant a cover crop or add plenty of compost and organic matter to the garden.
- **Lettuce Family:** Artichokes, chicory, endive, lettuce. These are heavy feeders. Follow these crops with legumes.
- **Beet Family:** Beets, spinach, Swiss chard. These are heavy feeders. Follow these crops with legumes.
- **Grass Family:** Grains--corn, oats, rye, wheat. Follow these crops with members of the tomato family.
- **Bean Family:** Beans and peas, clover, vetch. These crops enrich the soil, soil builders. Plant these crops before or after any other crop family.
- **Tomato Family:** Eggplant, peppers, tomatoes, potatoes. These crops are heavy feeders. Plant these crops after members of the grass family. Follow these crops with legumes.
- **Squash Family:** Cucumbers, melons, summer and winter squash, pumpkins, watermelon. These crops are heavy feeders. Plant these crops after members of the grass family. Follow these crops with legumes.
- **Carrot Family:** Carrots, celery, anise, coriander, dill, fennel, parsley. These are light to medium feeders. These crops can follow any other group. Follow these crops with legumes, onions, or let the garden sit fallow for a season.

You can use the notes above to accomplish crop rotation or you can simplify the rotation as follows:

Simple Four-Year Crop Rotation

To follow a simple four-year crop rotation, divide your garden into four areas or plots: Plot One, Plot Two, Plot Three, and Plot Four. In each of the next four years, grow a different crop or different members of the four crop families in a different plot following this rotation:

- **Plot One:** Tomato family (year 1); Onion family (year 2); Bean family (year 3); Cabbage family (year 4).
- **Plot Two:** Cabbage family (year 1); Tomato family (year 2); Onion family (year 3); Bean family (year 4).
- **Plot Three:** Bean family (year 1); Cabbage family (year 2); Tomato family (year 3); Onion family (year 4).
- **Plot Four:** Onion family (year 1); Bean family (year 2); Cabbage family (year 3); Tomato family (year 4).

Companion Planting

Companion planting is based on the idea that certain plants can benefit others when planted next to, or close to one another. It also exists to benefit certain plants by giving them pest control, naturally without the need to use chemicals, and in some cases they can give a higher crop yield.

While companion planting has a long history, the benefits of companion planting have not always been understood. Traditional recommendations, for companion planting have been used by gardeners for a long time, but recent tests are proving scientifically, that they work.

Other ways that companion planting can be beneficial is to plant a crop like any Legumes, on an area where it will feed nitrogen into the soil, then it will not be necessary to use any chemical fertilizers for the next crop.

Companion planting also exists in a physical way. For example, tall-growing, sun-loving plants may share space with lower-growing, shade-tolerant species, resulting in higher total yields from the land.

Beneficial habitats are another type of companion planting that has received a lot of attention in recent years. The benefit is derived when companion plants provide a good environment for beneficial insects, and other arthropods, especially those predatory and parasitic species that help to keep pest populations in check.

Vegetable Companion Chart

Plant	Good Companions	Bad Companions
Basil	Pepper, Tomato, Marigold	
Bush Beans	Beets, Cabbage, Carrots, Celery, Corn, Cucumbers, Eggplant, Lettuce, Pea, Radish, Strawberry, Savory, Tansy, Marigold	Onion
Pole Beans	Carrots, Corn Cucumber, Eggplant, Lettuce, Pea, Radish, Savory, Tansy	Beets, Onion
Beets	Bush Beans, Cabbage, Onion, Sage	
Cabbage Family	Bush Beans, Beets, Celery, Onions, Tomato, All Strong Herbs, Marigold, Nasturtium	Strawberry
Carrots	Bush Beans, Pole Beans, Lettuce, Onion, Peas, Radish, Tomato, Sage	Dill
Celery	Bush Beans, Cabbage, Onion, Spinach, Tomato	
Corn	Bush Beans, Pole Beans, Cucumber, Melons, Peas, Squash	Tomato
Cucumbers	Bush Beans, Pole Beans, Corn, Lettuce, Onions, Peas, Radish, Marigold, Nasturtium, Savory	No Strong Herbs
Eggplant	Bush Beans, Pole Beans, Spinach	
Lettuce	Bush Beans, Pole Beans, Carrots, Cucumbers, Onion, Radish, Strawberries	
Melons	Corn, Nasturtium, Radish	
Onion	Beets, Cabbage, Carrots, Celery, Cucumber, Lettuce, Pepper, Squash, Strawberries, Tomato, Savory	Bush Beans, Pole Beans, Peas
Parsley	Tomato	
Peas	Bush Beans, Pole Beans, Carrots, Corn Cucumber, Radish, Turnips	Onion
Pepper	Onion	
Radish	Bush Beans, Pole Beans, Carrots, Cucumber, Lettuce, Melons, Peas, Squash	Hyssop
Spinach	Celery, Eggplant, Cauliflower	
Squash	Corn, Onion, Radish	
Strawberry	Bush Beans, Lettuce, Onion, Spinach	Cabbage
Tomato	Cabbage, Carrots, Celery, Onion, Mint	Corn, Fennel

Read more: [Good & bad companions for vegetables | Garden Guides http://www.gardenguides.com/410-good-amp-bad-companions-vegetables.html#ixzz1C0K94aJc](http://www.gardenguides.com/410-good-amp-bad-companions-vegetables.html#ixzz1C0K94aJc)

Seed Starting Tips

Supplies - What You'll Need

Here are the basics of what you'll need to get your garden seeds started:

1. **Containers** - Either purchased pots or flats or containers you've saved, like egg cartons and yogurt cups. Used pots should be cleaned and disinfected by soaking in 1 part bleach to 10 parts water.
2. **Potting Mix** - Seeds do best in a soilless mix where there are fewer inherent problems than with garden soil
3. **Seeds** - Your choice
4. **Labels/markers** - Trust me, you won't remember what's what
5. **Plastic Bags or Covers** - These will trap warmth and humidity where the seeds need it
6. **Water**
7. **Light Source** - If you don't have a bright window, you will need some kind of florescent or high density plant light

Preparing the Potting Mix

Loosen and dampen the potting mix before you put it into your seed starting containers. It is easier to get a uniform level of moisture if you do it this way.

Dampen the mix to the consistency of a rung-out sponge. It should be wet, but not dripping, with no dry lumps.

There are many good potting mixes available. Using a soilless potting mix rather than outdoor soil is preferable because potting mixes don't readily compact, don't contain weed seeds and don't have disease spores and other possible problems.

Also, since new seedlings don't require fertilizer until they sprout their first true leaves, you don't really need a mix with fertilizer already in it.

Filling the Containers

- Use the pre-dampened potting mix to fill your seed starting containers.
- Don't pack the potting mix into the container.
- Fill about 2/3s full and tap the container on the table top, to help the potting mix settle.
- Gently firm with your hand or a small board.

Planting the Seeds

Start Planting: Once you have your containers prepared, you can begin planting the seeds.

- Make sure you read the seed package for special instructions. Some seeds may require a period of pre-chilling or soaking.
- Small seeds can be sprinkled on top of the potting mix. Larger seeds can be counted out and planted individually.
- Use at least 3 seeds per container, since not all seeds will germinate and not all that do germinate will survive. You can thin extras later.

Finish Planting

Finishing Touches

- Cover the seeds with more dampened potting mix and then gently firm again.
- Re-check your seed packet for information on how much potting mix should go on top of the seeds. Generally, the smaller the seed, the less you need to cover them.
- There are a few seeds, like lettuce, that require light to germinate and should barely be covered with potting mix.

Watering Newly Planted Seeds

And Water Again:

Although the potting mix was pre-dampened, it is still a good idea to sprinkle some additional water on top of the newly planted seed. This insures that the top layer of mix won't dry out and it also helps to firm the potting mix and insure good contact between the seed the mix.

Creating the Right Atmosphere for Your Seeds

Greenhouse Effect: Your seeds are now ready to be covered loosely with some type of plastic. This will help hold in both heat and moisture. You can place the whole container into a plastic bag or simply lay a sheet of plastic over the container. If you have special seed starting trays with plastic covers, use those.

Heat: Move your container to a warm, draft free spot and check it daily. Most seeds germinate best when the temperature is between 65 and 70 degrees F. The top of a refrigerator is an idea spot or you could consider purchasing heating mats specially made for germinating seed.

Heating mats go under the potting containers and heat the soil from below. You will usually need to water more frequently when using heating mats. Caution: Only use heating mats certified for seed starting use.

Light and Air: In general, seeds will not need light until they emerge. They will need air circulation under the plastic or you will be encouraging mold.

Signs of Life: Remove the plastic as soon as you see a seedling emerging and move the plant into indirect light. Be sure the potting mix stays moist, but not wet.

Emerging Seedlings

First Signs of Growth: Once your seedlings begin poking through the soil, they will start to straighten up and unfurl. What look like two leaves will appear. These are actually leaf-like structures, called **cotyledons**, that are part of the seed and serve as food sources until true leaves are formed and the plant is capable of photosynthesis. At this point you should move your seedlings under a light source.

Move into the Light: Your seedlings will need between 12-18 hours of light each day. This may seem extreme, but artificial light and even the low rays of the winter sun are not as intense as full summer sun. The best way to insure regular long doses of light is to attach your florescent or high intensity plant lights to an automatic timer.

True Leaves

True Leaves: As the seedling grows, the cotyledons will wither and what are called the first "true" leaves will form. This is when your seedling begins actively photosynthesizing. Since it is growing in a soilless mix, you will need to give it some supplemental feeding at this point. Use a balanced fertilizer or one high in nitrogen and potassium, to encourage good roots and healthy growth.

Potting up: Seedlings can remain in their original containers until you are ready to plant them in their permanent spots. However it is common to move the seedlings into a larger pot once several sets of leaves have formed and the seedling is a couple of inches tall. This is called "potting up" and it allows the roots more room to develop. Three to four inch pots are good sizes to pot up to, allowing plenty of room for root growth.

Thinning: If more than one seedling is growing in the same pot, either separate the seedlings into individual pots or cut off all but the strongest seedling. Don't try to pull out the extra seedlings, since this might hurt the roots of the seedling you are keeping.

Hardening Off

By the time the temperature warms outside, you should have stocky, healthy young plants. Before moving them out into the garden, take a week or two to gradually introduce them to their new growing conditions. This is called **hardening off**. It gives the plants a chance to acclimate to sunlight, drying winds and climate changes.

- Move the plants to a shady spot for increasing amounts of time, several days in a row.
- Bring them in or cover them if the temperature looks like it will dip.
- Gradually increase the amount of time they spend outside and the amount of sunlight they receive until you see that they are growing strong and appear ready to go out on their own.
- Water your seedlings well before and after transplanting and try not to transplant during the hottest, sunniest part of the day.