VIRTUAL VICTORY GARDEN HANDBOOK

Grow your own food from home.

Back in World War II, victory gardens were planted in backyards, schools, and community spaces. It was considered war work to grow a garden. Today, still, growing a garden can be an act of victory; an opportunity to get outside, learn, grow food, and so much more.

We at Spark-Y are pleased to offer this gardening handbook, as well as a host of online videos and resources at **spark-y.org/VVG**, designed for new and seasoned gardeners to learn and grow together. Here's a list of what you'll find inside:

PLANNING YOUR GARDEN

☀ Why start a garden?

Gardening can be fun, exciting, challenging and rewarding. Before you begin, perhaps it would be best to ask yourself: "Why?" Your answer to this question will determine your level of satisfaction once the seeds/plants are in the ground and growing.

Are your garden intentions for food (vegetables), beauty (flowers), fulfillment (working the earth), conversation (comparing garden experiences with others), or simply solitude and fulfillment? Whatever the reason, understanding your intentions will lead to a more satisfying gardening experience.

☀ Where to start?

Start with space

Do you have an existing garden space where you live? If not, don't worry! There are lots of ways to make a creative garden space with the right resources. Consider the following:

- **Community garden** - Urban neighborhoods often have city-owned plots available for residents to use for gardening, sometimes in exchange for a small seasonal fee. Occasionally apartment buildings and senior living facilities offer on-site garden plots as well.
- **Raised beds** - Easy to build and great for areas lacking ideal soil conditions.
- **Planters and container gardening** - Planter pots can make for a beautiful and mobile urban garden, and they don't even have to be real pots (consider using buckets, old tires, used gutters, tin cans, old leftover containers, or any other soil holding & water draining contraption).

Pick your plants

It's easy to become overwhelmed with so many plant options. Here are a few suggestions to help find the best plants for your garden:

Analyze eating habits: What vegetables do you and the people in your household eat the most? Make a list to help you decide what to grow.

If you have kids, ask them what they like to eat and what they're excited about growing. Getting young minds involved in the gardening process helps them recognize the foods they eat, decreases picky eating habits, and leads to improved nutrition.

Assess your space: The amount of space in your garden will help you determine what to grow and how much of it. Here are a few tips to make sure you're using the space efficiently:

- Vines, such as peas and cucumbers can grow vertically up a trellis or a deck instead of sprawling out along the ground.
- Plant tall varieties in the back of the garden, so they don't cast shade on the smaller plants.
- If you're utilizing a raised bed or container garden, consider nixing large plant varieties in exchange for multiple smaller varieties. For example, a four square foot growing space can hold
    - One zucchini plant,

  Or
    - One kale plant, one strawberry plant, one pepper plant, AND one kohlrabi - giving you a wider variety of produce in the same amount of space.

☀ Succession planting

A succession planting schedule is a guide for planting and harvesting throughout the season to achieve continual harvests and maximum space use. It will also help determine crop rotations from year to year.

Succession planting schedules can be written out on paper, built in a spreadsheet, or designed with gardening software that can be found online. To build a succession planting schedule, follow the steps below:

> **Step 1:** List the plant varieties and quantities you intend to grow in your garden on the left hand side of your paper or spreadsheet. Along the top, list the growing season either by month or by week.
>
> **Step 2:** Do some research to find out when each variety should be planted outside - some plants like peas and bok choy are cold hardy and can be planted outside before the last frost date. Others such as tomatoes and peppers may die or have stunted growth if they are exposed to frost. Keep track of which varieties are cold-hardy versus warm-season to help determine when each should be planted outside.

Step 3: For each variety, list the intended planting date and harvest date. You may be able to get an entire crop of cold-hardy vegetables before the warm-season varieties need to be planted, maximizing space!

Step 4: Using the intended planting and harvesting date, make a visual of your succession planting schedule like the example below. This will help you determine where and when to plant each variety.

With a succession planting schedule, you are now armed with a tool to help you determine planting and harvesting dates and efficient crop rotations which will maximize the space and production of your garden. Using the example below, I now know that I can plant a whole crop of peas in the spring before planting tomatoes in the summer, and I might even be able to get a crop of lettuce in after harvesting the tomatoes, meaning three separate varieties of plants being grown and harvested in the same space during the same growing season.

Key	**Start indoors**	**Plant outside**	**Harvest period**								
				April	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**
Plant Name	**Days to maturity**	**Outside Planting date**	**Harvest date**								
Peas	60	4/15/20	6/14/20								
Tomato	70	06/01/20	08/10/20								
Lettuce	55	08/10/20	10/04/20								
Kale	60	04/15/20	06/14/20								
Bell Pepper	80	06/01/20	08/20/20								
Cucumber	60	06/01/20	07/31/20								
Beans	55	08/20/20	10/14/20								

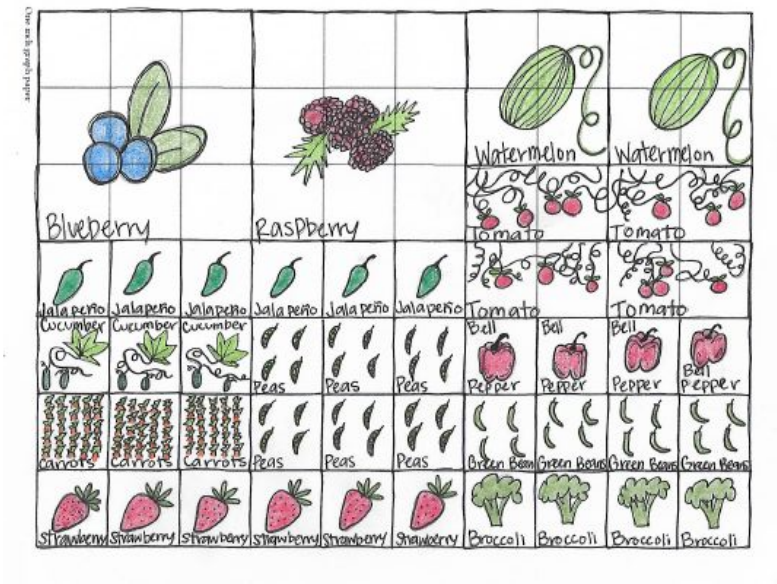
☀ Garden Map Layout

A garden map will help you figure out how much space is available in your garden and how many plants of each variety will fit in that space.

Using the measurements of your garden, draw the outline of each of your garden plots, raised beds, or planting containers, with the dimensions next to each. If possible, try to draw the outlines using a consistent scale. For example, I like to use 1 centimeter graph paper, and a scale of 1ft = 1cm.

After drawing the outlines of your garden spaces, list the types of plants you want to grow and the amount of space they each need. This information can usually be found on the back of seed packets or online. After determining how much space you have, and how much space each of your plants need, you can start to add plants to your garden map in the locations you think they will look and fit best, based on their special needs. While doing this, keep the following tips in mind:

- Tall plants such as corn, tomatoes, pole beans, etc., should be planted at the back of a garden plot, or on the north edge, so they don't shade shorter plants.
- If you have a large garden plot rather than raised beds or planters, you will also want to factor in walking paths, so the space is easily accessible when it comes time to weed or harvest. About 4 feet is the recommended maximum between paths. Similarly when building a raised bed, 4 feet is the recommended maximum width. The average arm reach is about 2 feet, so a 4 foot wide grow bed or garden plot would be fully accessible from one side or the other. Any wider and it gets difficult to reach the middle.
- When planting your garden initially in the spring, it will be easy to overcrowd your plants, as they will still be rather small. Don't do this! They will grow much bigger throughout the season, and will thrive better with the appropriate amount of space.
- Some plants actually do better when planted near each other. If you're interested in learning more, research "companion planting" online.
- Here is an example of a garden map:



PREPARING YOUR GARDEN SPACE

☀ Choosing the right spot

When deciding where to place your garden, it's important to choose a spot with appropriate lighting, healthy soil, and access to water.

Lighting

Most edible plants will require full sun to grow adequately. When choosing where to place your garden:

- Choose a well lit, south-facing area if possible.
- Be mindful of trees, bushes, fences, houses, etc., that may shade the space for a significant portion of the day, and avoid those areas.
- If you are struggling to find a space with appropriate lighting for the majority of the day, consider building a mobile container garden such as a grow bed on wheels or pots placed in a wagon. This can be moved throughout the day to follow the sunlight.

Soil

The health of your soil will greatly affect the growth of your plants. If you're growing in the ground near an urban area it's smart to take a soil test before planting to determine if the soil is appropriate for planting edible plants or if it contains contaminants such as lead or heavy metals. Soil with contaminants will need to be remediated before planting edible varieties. Alternatively a container garden or raised grow bed can be placed on the land and filled with healthy soil and compost for gardening.

The University of Minnesota Twin Cities campus does offer soil testing for home gardeners. To learn more, check out soiltest.cfans.umn.edu. The soil test costs around $17 and will provide you with the results of Ph, soil texture, organic matter, nitrogen, phosphorus, and potassium. It will also give you specific recommendations for amending your soil.

Water access

Be sure to place your garden in a space that has access to water.

- **Hose -** Place gardens within reach of a hose when possible.
- **Water Catchment -** Install a rain barrel or water catchment system to collect water for garden use. You can also simply leave a bucket near your garden that will fill with rain water. Leave a cup or watering can near it for scooping water and watering your plants
- **Community gardens -** Get permission from a nearby homeowner to hook up a hose on their water line. If this is not possible, reach out to your city to find out if they offer a hydrant permit. A hydrant permit allows community gardeners to pay a small seasonal fee for the city to put a meter on a nearby hydrant for garden watering use.

☀ Tilling & Composting

Tilling new gardens will help break up the soil and clear the space of grass and weeds for the growing season. It is recommended that a garden be tilled in the first season, but then managed appropriately so tilling is not needed in following years. Unfortunately, excessive tilling can damage the soil structure which can lead to erosion, compaction, and a decrease in beneficial soil microbes. It can also cause weed

seeds to be turned up from the soil, which may cause new weeds to start popping up in your garden again.

Tilling a Garden - New gardens, and gardens with too much compaction or weeds will likely need tilling.

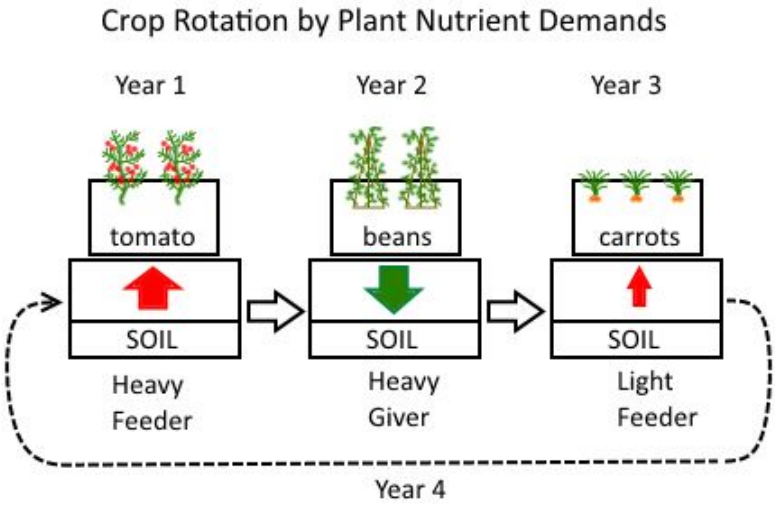
- *Manual tillers* are useful for smaller garden plots or beds. They can be purchased from most garden supply or hardware stores.
- *Motorized and electric tillers* can be used on larger garden plots to break up the soil and turn under weeds. Some gardeners own this machinery, but use it only once a year, so it can be a great resource to share or borrow from a friend. They can also be rented from local tool supply and hardware stores.
- *Alternative methods:* When a tiller is not available, there are still ways to turn up a garden or start one from scratch. Remove any sod, weeds, or plants from the top of the soil, and use a shovel or spade to turn it until the soil is workable and fluffy. Compost can also be incorporated using a shovel.

Compost - Compost is a great way to fertilize your soil naturally. The main nutrients plants need from a fertilizer are Nitrogen (N), Phosphorus (P), and Potassium (K). All of these are included in compost! Add compost to your garden plot before tilling, so it can be worked into the soil as tilling occurs. Compost can also be added as a side dressing to the seedlings after planting: simply place a layer of compost around the base of the plant. The nutrients in the compost will be available for the plant to take up, allowing it to grow bigger and stronger. In most gardens that are just getting started, an ideal ratio is 30-50% compost to 50-70% topsoil. Too much compost can lead to excess phosphorus, which makes it harder for plants to absorb the other nutrients they need. It can also lead to excess nitrogen, which will easily wash away and can become a harmful pollutant in lakes and streams. Fresh manure based compost can be even more harmful: it has such high concentrations of nitrogen that it can burn plant roots or stop seeds from germinating. Use about 25% compost in a new container or raised garden bed, and add ¼-½" of compost to the top of your garden plot, grow bed, or container garden each spring and fall.

☀ Crop Rotations

Rotating your plants from year-to-year will decrease the risk of pest and disease issues in the garden, while improving soil fertility.

Using your garden map from last year, determine where each specific plant species was planted, and choose a new spot to place each variety this year. Each plant utilizes different nutrients from the soil in different amounts. Keeping a single plant variety in the same space from year-to-year will deplete the soil of the nutrients that plant needs to thrive. Alternatively, rotating the plant to a new space will give the old location time to recoup the nutrients it lost last year, and improves the chances that the plant will thrive this year with increased access to



Example shows rotation through a single garden bed

nutrients in the new location. Plants that are considered “heavy feeders” taking up the most nutrients in a growing season include tomatoes, peppers, eggplant, corn, cucumber, and more. Some plants are “nitrogen fixing,” meaning they add nutrients to the soil as they grow. These varieties include beans, peanuts, soybeans, and other legumes.

If a particular disease or plant pest was affecting a specific plant variety the previous year, that pest or disease may still be living dormant in the soil ready to attack the plant again. Crop rotation can also help with pest and disease control. Planting a species that is not susceptible to the particular pest or disease noticed the previous year can allow more time for the microbes causing that issue to die off, so it doesn’t affect the plant again.

PLANTING

☀ Starting seeds indoors

Why do it?

Some plant varieties can be started indoors before the last frost date. This is usually done for one of two reasons:

1) to increase the growing season for varieties that need a lot of time to reach maturity
2) to provide better germination conditions for plants that don’t do well when they are directly seeded into the garden

Some hot peppers, for example, can take up to 150 days to reach maturity in frost-free conditions. In Minnesota, our frost-free growing season is about 140 days, so these varieties would need to be started indoors before the last frost date in order to get a productive harvest from them.

Some varieties that can be started indoors include: tomatoes, peppers, eggplant, cucumber, squash, broccoli, cauliflower, brussel sprouts, flowers, and many more!

How to do it?

To start your seeds indoors you will need: a planting container, soil, water, and light. Also, be sure to read the seed package for important information related to planting depth, width, time to germination and when to plant outdoors.

Planting container:
Most nurseries use 10x20” planting trays, and a variety of pot sizes when they start plants indoors, but the home gardener can find items around the house to use!

- Egg cartons
- Toilet paper rolls
- Paper towels
- Old mugs or food containers

Soil: Nurseries and hardware stores have potting soil available for home gardeners, but you can also “make” your own at home by sanitizing the soil from your yard. To do this you can simply bake it in your home oven: fill an oven safe container with soil, and remove any debris including grass or twigs. Bake the

soil at 200 degrees fahrenheit for about 30 minutes or until the soil reaches an internal temperature of 180 degrees. Let cool before placing into soil containers.

Water: Water the soil *before* seeding. This will decrease soil dust, and help the seeds stay in place when they get watered later. Appropriately watered soil should feel "moist" to the touch. If you squeeze a handful and just a few drops of water come out, it's perfect! If it rains down water, or doesn't drip any at all, you may need to reevaluate.

Seeds: After filling your planting containers with soil, place your seeds into them. The size of the seed will help you determine how deep to plant it - a good rule of thumb is to plant the seed two times as deep as the seed is wide or long. For example if I were planting a bean seed that is about ½" long, I would plant it 1" deep in the soil.

Light: Place your plants in a sunny space to germinate, or under a plant light. South facing windows tend to get the most light, and are a great spot to place your plants if available. Remember to rotate (turn) your planting containers as the new plants will grow to the light. Hardware stores and nurseries often sell lights with a plant available spectrum - these types of lights will have more red and blue in them, providing ideal conditions for the plant. A plant light isn't essential for seed starting at home, but will lead to higher germination rates and healthier plants for production purposes.

☀ Transplanting outdoors

Young plants that have a few leaves are called "seedlings" or "starts". To transplant a seedling outside, start by hardening it off - this is done by leaving it outside during the day in its planting container, and not watering. You may want to start by putting your seedling outside for just 2 hours, then 4 hours the next day, and so on. Hardening off will increase the plant's chances of survival and decrease its risk of shock when it gets transplanted outside.

To transplant a seedling outside:

- Dig a hole in your garden where you would like the plant to live.
- Place two fingers on either side of the stem. Tip the pot upside down, and gently remove the pot.
    - If you used a compostable planting container such as a toilet paper roll or egg carton, the pot doesn't need to be removed. The whole container can get buried in the garden.
- Place the plant in the hole, and cover the roots with soil until the plant is at the same depth in the garden that it was in the container. Most plants don't like to be buried too deep as that can cause the stem to rot, though there are exceptions to this rule: tomatoes have "adventitious roots" that grow out of the stem. If a tomato is planted too deep, roots will grow from the buried portion of the stem, resulting in a healthier plant that can accumulate more nutrients from the soil. This is not the case with most plants, so in general: bury all plants to a normal depth, but bury tomatoes as deep as possible.

Mulch: After transplanting your seedlings into the garden, place a layer of mulch around them. Mulch can come in many forms:

- Organic materials collected around the yard can be used as mulch, such as dried leaves or grass clippings.
- Wood mulch, and cover or marsh hay (not feed hay) can also serve as a garden mulch, and can be picked up at a hardware store or nursery.

- **Pro tip: Do not use normal hay as a mulch - it contains seeds and will turn your garden into a hay field.

Mulching your garden will decrease weeds, increase soil moisture, and will break down to add organic matter and excess nutrients to your garden space. You will be surprised that it naturally decomposes into the soil by the next year!

Water: After planting and mulching your seedlings, water them! You will know your garden has been watered enough when you can feel that the soil is moist up to your middle knuckle when a finger is placed into it.

☀ Direct seed planting

Many seed varieties can be directly sown into the garden, rather than being started indoors. Direct sowing is often done with varieties that don't need an extended growing season, such as cold hardy peas, beets, collards, and many leafy greens. It is also practiced when a large amount of the plant is needed, such as when growing corn or beans.

To sow directly:

- Start by researching the appropriate amount of space between plants and rows for each variety.
- Use a trowel or your finger to dig a row in the soil about 2x deeper than the seed is wide (for example, a ½" wide seed should be planted at a depth of 1").
- Place the seeds in the row with the proper amount of spacing between, and cover lightly with soil.
- Water immediately after sowing, and keep well watered until the seeds germinate.
- When the seedlings have emerged from the soil, place mulch around them.

GARDENING

☀ Tools

Many gardening tools are available on the market, but the average home gardener certainly doesn't need much to get started! Many tools can be found around the house or fashioned from something else. There are also many gardeners willing to share or swap tools among friends and neighbors. When starting out, reach out to your gardening community to see what may already be available.

A few tools that will really come in handy include:

Shovel, hand trowel, or mattock: These tools can be used to turn your soil in the absence of a tiller, and can help pull up weeds, dig holes for transplants, and make planting rows for direct seeding.

Weeding hoe: A hoe is used for weeding the garden and can greatly decrease the amount of bending and lifting involved, making the job much easier.

Wheelbarrow: A wheelbarrow is great for moving plants, soil, compost, and/or weeds around the garden. In the absence of a wheelbarrow a bucket can also be used.

Rake: A rake can help level the ground after tilling or planting, and can assist in removing unwanted items in the garden such as leaves, branches, twigs, and rocks.

☀ Weeding

Weeds in the garden will compete with your plants for nutrients, light, and water. Technically the definition of a weed is simply any plant that is in an unwanted location, so even a tomato plant growing within a strawberry patch could be considered a weed if it's unwanted in that space. Common garden weeds in Minnesota include: creeping charlie, purslane, quackgrass, dandelions, thistle, and many others.

When - Keep an eye on your garden, and pull up any weeds as soon as possible. A good rule of thumb is to weed once a week.

How - Weeds can be pulled up by hand, and in some cases will be easier to pull up by hand than using a tool. That being said, hand-pulling of weeds can be immensely hard on the body, especially the back and knees. Be sure to maintain good posture when weeding. Hoes and other weeding tools can greatly improve efficiency, and decrease risk of injury.

Tips - When weeding, be sure to pull up the entire root of the plant. Many weeds are so hardy that if a portion of the root is left, the whole plant will grow back. The only exception to this is if a weed is growing right next to one of the crop plants--in this case, pulling the weed's roots might also damage the plant's roots, so we recommend snipping the stem off at the level of the soil.

☀ Thinning

When planting seeds it is common to seed a bit more than necessary in case the germination rates are poor. Usually over-seeding will result in the need to thin out the crop, so the remaining plants have adequate space for ideal growth.

Thinning simply means removing some of the plants. This is best to do soon after germination. To thin your crop, find out what the ideal spacing is between each plant, and thin to that spacing. For example: peas should be planted about 2" apart. If your patch of peas come up ½" apart, remove the excess until you have pea plants that are spaced at 2" apart. To remove the extras, pinch the plant at the base of the stem, or cut the stem with scissors. Pulling up the whole plant including the root, can cause damage or death to the plants nearby, so pinching or cutting the additional plants at the base of the stem is the best way to thin your plants.

☀ Pest Management

There are many types of critters that may inhabit a garden space, some beneficial and some not so. Pests in a garden may cause damage and food safety issues, but there are ways to mitigate and control them naturally.

Animals: Animals such as dogs, cats, rabbits, deer, and mice will see your garden as a tasty snack. They may eat or trample produce and can leave droppings, causing food safety concerns. Prevent these critters with fencing or natural controls: planting marigolds for example can release a scent unliked by many animals and insects, causing them to stay away. Some growers also use netting over their plants to prevent birds and squirrels from stealing the harvest.

Insects: Many types of insects may affect your garden space. Try to refrain from spraying chemicals on your plants, because this can kill the insect pollinators you want and need (like bees and butterflies)! Instead use natural methods, or biological controls:

- *Garlic spray:* Garlic is a natural deterrent to many pests, and can prevent an infestation. Concentrated garlic can be purchased online, or made at home by muddling garlic cloves and mixing with water
- *Ladybugs:* Ladybugs are considered a "beneficial insect" because they will eat soft-bodied pests such as aphids, mites, and scale. Adult ladybugs will eat up to 50 aphids a day, and ladybug larvae will eat even more! Live ladybugs can be purchased online, and will generally stay where the food is.
- *Soapy water:* Soap will dehydrate and kill soft-bodied pests. Mix about 5 tablespoons of dish soap to 4 cups of water in a spray bottle. Use this method on the non-edible portion of your plants, or before they start fruiting.
- *A note about Japanese beetles:* These critters will affect all types of plants from tomatoes to beans - Don't squish them or purchase the traps to hang in your garden! Both methods cause pheromones to be emitted, which attract *more* Japanese Beetles - instead cut the top off of a 2 liter bottle and fill the base with soapy water. Flip the top part of the bottle upside down and put it back on the base, creating a funnel into the bottom of the bottle. Brush the beetles off of the plant and into the bottle - They won't be able to get out through the funnel, and the soap will kill them.

☀ Pathogen Management

A wide variety of organisms and nonliving factors can cause problems on plants in the yard and garden. Plant diseases are caused by microscopic organisms like fungi, bacteria, viruses, and others. For example, these can cause leaf spots, distortion, browning, blight, wilting, and others. Crop rotations can help mitigate pathogen issues. Contact the University of Minnesota or a Master Gardener for help identifying and treating plant pathogens.

☀ Watering

Be sure to keep an eye on the moisture of your garden, and water when needed, especially container gardens and raised beds which will dry out faster than in-ground gardens.

Pro tips:

- Mulch around plants will help keep soil moist.
- Your garden has enough water when a finger stuck into the soil feels moist up to your middle knuckle.
- Water in the morning or evening for best results - watering during the day can cause heat damage to your plants, and will evaporate quicker.
- Use a soaker hose or direct water towards the base of the plants to prevent moisture on the leaves and fruit of the plant, which can lead to rot and/or disease issues.

PLANNING NEXT YEAR'S GARDEN THIS YEAR

☀ Build a compost pile

Gardens produce a lot of organic waste, but when managed appropriately that waste can be recycled into compost and reused in your garden.

Compost is made up of organic materials that have been broken down. When added to your garden, compost adds nutrients to the soil naturally for uptake by your plants. Compost can completely eliminate the need to use additional fertilizers in your garden.

A compost pile is simple to build, and can take many forms! To get one started, ask yourself...

- How much space do I have for a compost bin or pile?
- How much compost do I need?
- And, how much can I make?

How much space do I have?

- *A compost pile* is great for those with a lot of land or space - The organic waste is simply layered in a pile outside and left to condition. This takes very few resources to get started, and can be as large or as small as desired. The one downfall is that it does lack in aesthetics, and is not usually very pretty to look at.
- *A 3-bin compost system* is ideal for school and community gardens if there is space to install one. It can hold three separate stages of compost at any given time, and can provide a consistent supply when maintained adequately. There are a lot of free plans online for simply DIY versions of 3-bin compost systems. They can also be purchased from farm and garden supply stores.
- *Backyard compost systems* come in many forms. These are usually a more reasonable size for the home gardener. You can purchase one or make one from supplies you already have. Often these are made from wood and chicken wire, but can also be contained in a barrel, bucket, large bin, or made from other materials found around the home.

How much compost do I need?
This will depend on the size of your garden - A good rule of thumb is to add about ¼-½" of compost to your garden each spring.

How much compost can I make?
Healthy compost piles will be made up of about...

- 30% nitrogen-heavy wastes such as over-ripe fruit, vegetables, leafy greens, banana peels, apple cores, etc.,
- 70% carbon-heavy wastes such as leaves, grass clippings, paper, woody plant stalks, etc.,

You can determine the adequate size of your compost bin by analyzing the amount of organic waste you are likely to produce from your garden and home in a given year. If you have more waste than you can use, some cities offer organics recycling. You can also offer the excess to a neighbor or friend for use in their compost. Alternatively if you need more organic waste to properly fill up your bin, ask a neighbor to start collecting their kitchen and garden scraps, or visit a local coffee shop or brewery - both of which often have spent grounds or grain that can be incorporated into your compost.

☀ Save seeds and save money

Sometimes the plants growing in your garden can provide a source of seed that can be harvested and saved to use year after year.

What if it's patented? Seed that has patented genetic material should not be harvested and saved - These varieties are owned by the patent holder, and are often bred to produce an inferior plant in the second year of harvest.

Where to start? Cilantro and dill are great plants to start with if it's your first time harvesting seed - you will need to let the plant get more mature than one normally would for edible purposes. When the flowers start to bloom, you're almost there! Eventually the flowers will start to dry while they are still on the plant. At this stage, place a paper bag under the dried flowers, and shake the seeds into the bag. After collecting the seeds, sift them to remove any excess debris.

Peppers, squash, and beans are also great beginner options. The seeds will be found in the center of the fruit. Remove the seeds and as much excess debris as possible.

Drying - Let all seeds dry completely before storing in an airtight container in a cool dry place.

Many seeds can be saved year after year, allowing you to create a library of seeds, and eliminating the need to buy new ones each year. Seed swapping with neighbors and friends can also improve the genetic diversity of your collection and increase seed accumulation.

FOOD PRESERVATION

In Minnesota we have winters that prevent us from growing food year-round, but don't worry! Garden produce can be preserved in many ways for those chilly winter evenings.

☀ Canning

Use a pressure cooker or hot water bath to can all sorts of fruits, veggies, and prepared foods, including: salsa, pickles, tomatoes, beans, corn, and so many others. Before canning or jarring at home, familiarize yourself with the USDA's Complete Guide to Home Canning. Understanding how to can will go a long way towards reducing waste, and preserving your garden excess, but it must be done in the proper way to avoid botulism. Most important is maintaining a pH under 4.6 or below, and ensuring that the jar lids seal properly.

☀ Drying and Dehydrating

Many garden favorites can be preserved through drying or dehydrating - herbs, peppers, and fruits are common items. Herbs and peppers can often be bunched up and strung from a doorway or the ceiling to dry. You can also place them in an oven safe dish or baking sheet and bake at a low temperature in the oven until they start to crumble. Store in an airtight container.

Electric dehydrators are a fabulous tool for dehydrating all sorts of fruits, veggies, and herbs. Dehydrating fruit can give it an almost gummy like texture that kids will love.

☀ Freezing

Freezing is potentially the easiest way to store many garden goods long-term. Squash, tomatoes, peppers, broccoli, cauliflower, carrots, beans, and much much more can be stored in this way. Start by blanching the produce and placing in freezer bags. Fill bags almost to the top with the blanched produce and remove any air, which will cause freezer burn. If you use a container, leave about a half inch of space between the top of the produce and the rim of the container. Most produce will remain good for up to a year in your freezer.

☀ Root storage

Root vegetables such as carrots, potatoes, onions, and garlic can be stored in a dark, dry space such as a basement or closet. Airflow is important: place them in a mesh bag or ventilated basket. Low humidity, and a temperature of about 55 degrees fahrenheit will produce the best results. When stored appropriately, root vegetables can last months without going bad. Winter squash and pumpkins can also be stored in this way.

Resources

- Victory Garden Handbook: link *-Original 40's WWII Era USDA Victory Garden Leader's Handbook*
- USDA Guidelines for Home Canning: Link