



Community Gardens of Tucson

Cultivating Community through Gardening

A warm welcome to the Community Gardens of Tucson (CGT)

We're happy that you've found us and hope that you will thoroughly enjoy your experience as a gardener. Community Gardens of Tucson is a 501c3 non-profit organization that was founded by George Brookbank in 1990. CGT creates and maintains community gardens, and educates gardeners, in the greater Tucson area. We currently have 25 gardens and nearly 500 members.

Although your garden is our primary concern, CGT is about much more than gardening. It is about using community gardens as a tool to build better communities. How does the humble act of gardening contribute to this lofty cause? CGT (and you!) are involved in:

- building important social connections within neighborhoods and the larger community
- improving public health by providing opportunities for exercise, recreation and stress relief
- creating a more sustainable world by growing local food
- providing access to fresh fruits and vegetables in otherwise underserved neighborhoods
- making our streets safer with a positive outdoor presence
- ameliorating urban heat by greening up the asphalt
- promoting community development and creating economic activities

So thank you for doing so much good! Enough said for now about how great you are, we have some business to take care of...

This packet provides information that you'll need to get started and to accomplish your gardening goals. By now you will have met your Site Coordinator and chosen your plot (or will be doing that very soon). Your Site Coordinator has primary responsibility for management of your garden. Please contact them with questions or concerns. If you need further assistance, CGT admin is happy to help - contact us any time.

In this document you will find:

- Garden Etiquette (p.2)
- Guidelines and basic instructions for preparing your plot (p.3-4)
- Guidelines and basic instructions for planting (p.5-6)
- Irrigation repair instructions (p.7)
- Composting procedures (p.8)
- A list of needed supplies and suggestions on where to find them (p.9)

Garden fees paid by all gardeners cover our large water bills and (smaller) administrative costs. Please make payment of your garden fees a priority each billing period. As a new gardener, you will pay for your garden bed at the time you sign up which will cover your fees until the beginning of the next billing cycle. If you haven't already done so, please mail a check to the Community Gardens of Tucson at the address at the bottom of this page or visit our web site to pay by credit card, debit card or PayPal account.

We sincerely hope you enjoy your gardening experience and the larger gardening community.
Happy Gardening,

Your Board of Directors



Community Gardens of Tucson

Cultivating Community through Gardening

Garden Etiquette

- Items in the shed are available for everyone to use. Please do your part to help keep them clean and orderly. Please let your Site Coordinator know if there are additional items that would improve your experience. Donations are always welcome as well.
- All tools and supplies at the gardens are for use at the gardens only. Nothing should be removed from the site.
- Keeping the weeds in *and around* your plot under control is not only an aesthetic issue but a functional issue as well. Your weeds get into other people's plots. Spending a little time during each visit makes light work of weeding.
- Please communicate with your neighbors to make sure that your plot is not negatively impacting their space. For example, it is okay to build trellises and support structures, but not if you are blocking the sun from your neighbors plot. Be considerate. If you are having problems with a neighbor and are uncomfortable with confrontation your Site Coordinator can help.

Extra Produce?

- Some of our gardens have implemented “share flag” systems. If you know you will be away when produce is likely to ripen, put a “share flag” in your plot to invite your fellow gardeners to harvest.
- Even if you are not out of town it is common to have too much harvest. Give or trade with your fellow gardeners. Our first name is "Community" and what better way to get that feeling of community than to share your abundance with the other gardeners?
- Give some of your surplus to the very kind and generous property owners who let us garden on their land.
- Give some to your friends and neighbors and tell them a little about the Community Gardens of Tucson and how much you enjoy producing your own food. Perhaps they will want to get a plot in one of our gardens.
- Give some to a local charity such as the Community Food Bank or Iskashita Refugee Network.
- Sell some of your bounty at a Farmer's market.



Community Gardens of Tucson

Cultivating Community through Gardening

PREPARING YOUR PLOT

To till or not to till

Soil provides water and nutrients to your plants. A successful gardening experience is largely based on the quality of your soil. So, what is the best way to prepare your plot? It seems that humans love to till! They've been doing it since the dawn of agriculture. Only recently has the value of tilling been questioned. The psychological benefit that turning the soil provides (that hard won satisfaction of a clean slate for the next growing season) is clear. That is why we like to do it. In addition, tilling *aerates soil, chops weeds, and mixes in organic materials and fertilizers*. But is tilling necessary?

Your community garden plot was constructed by digging the native soil to an 18" depth and replacing it with rich, fluffy garden mix. **Aeration** is a primary goal of tilling. Because your plot is only three feet wide there is never a need to walk on it. This means that the soil should not get compacted. As a means of **weed control** tilling is less than optimal. Our most tenacious weed is Bermuda grass. Tilling Bermuda grass promotes its spread since each portion of the plant can create a brand new plant. Weed seeds are tilled right into the soil too. Weeds are better handled by pulling them manually (and keeping a layer of mulch on your soil surface will help your plants outcompete the weeds and keep the soil moist so that weeding is easier). Finally, because the majority of plants' feeder roots are in the surface level of the soil, tilling **organic materials and fertilizers** deeper into the soil is not necessarily useful. It often places nutrients beyond the reach of the plant roots. Soil amendments and fertilizers added to the top layer of your bed will make their way into the soil as moisture and gravity transfer them (like nature does it).

Take home message: Soil naturally develops a subsoil ecosystem that nurtures plant growth. Tilling disrupts that ecosystem. Although it may be a satisfying activity it is no longer thought to be essential to a healthy garden.

Plot Preparation Process: No-Till

1. Remove Bermuda grass and other unwanted plants from your plot. The spading fork is a good tool for this (as described in the "till" section).
2. If you have a layer of mulch on your plot gently move it out of the way while you amend (if you plan to reuse your mulch).
3. Remember that the top 2-6 inches of your soil is an ecosystem of its own with **organic material** and microorganisms that will support whatever you plant in it. The idea is to leave this soil undisturbed and to add new organic material and fertilizer on top of it. Add about 2 inches of fresh organic material as a new top layer of your soil. This is about ¼ cubic yard if you are ordering in bulk (ask your site coordinator about a bulk compost order – far more economical than purchasing in bags) or about 7 cubic feet if purchased as a bagged product. If your soil level is lower than you want it to be adjust this amount accordingly.
4. Composts/manures are intended to improve a soil's tilth (ability to hold and release moisture, provide aeration, minimize impedance to seedling emergence). They provide some nutrient benefits (1-4% nitrogen by weight) but healthy plants and a good crop yield relies on the addition of **fertilizers** as well. Fertilizers should be added to the top layer of your compost and gently mixed/watered into the surface. See discussion of fertilizers below.



Community Gardens of Tucson

Cultivating Community through Gardening

Plot Preparation Process: Till

Make a date with your Site Coordinator to bring the rototiller to your garden.

1. Remove any weeds from your plot. Water the ground well the day before you want to dig and let it dry out overnight. If there is Bermuda grass (or other unwanted plants) use a spading fork. Push it far in to the ground, tip it back and gently shake the dirt off of the roots. The spading fork cuts up the roots less than a shovel will. Throw all of the Bermuda in the garbage – do not compost it. Do not till Bermuda grass. If you do, each chopped up piece will sprout a new grass plant.
2. The tiller works best in slightly damp soil, not totally dry and not muddy wet. There should be two water lines in your plot with valves at the supply end of each line. Make sure that these lines are out of the way before tilling. Attach a string at the ends of your plot to make a central line and travel up one side and down the other. Stay within 18” of the string on either side. This gives you a three foot wide plot. Do not widen your plot or it will not be watered efficiently. Be sure to remove rocks bigger than a small chicken’s egg. Those rocks are hard on the tiller. Till the soil to a depth of about six inches.
3. Spread the organic matter and fertilizer and rototill again, mixing these amendments as deeply as possible. Add about ¼ cubic yards of compost, or about 7 cubic feet if purchased as a bagged product. If soil is depleted add more accordingly. Fertilizer should be added at this time as well (see discussion below).
4. Rake the plot to flatten it and ensure good water distribution from the irrigation tubing, which you put back so the lines are parallel.

Fertilizers

Organic fertilizers are derived from natural sources while synthetic fertilizers are made in a laboratory. Both are soil amendments that guarantee a minimum percentage of nitrogen, phosphate, and potassium. Fertilizer application is generally calculated based on the amount of nitrogen to be added to your soil. There are reasons why you would want to adjust phosphate and potassium levels but these are beyond the scope of plot preparation.

For happy plants you will want to add about ¼ lb of nitrogen per 100 sqft of plot surface area (about 2.4 oz for a 60 sqft plot). The content of nitrogen in your fertilizing product differs depending on the source. For instance blood meal has about 12.5% nitrogen content, feather meal 15%, bat guano 8%, soybean meal 7% and worm castings about 1%. Synthetic fertilizers vary too. Ammonium sulphate has about 20% by weight. Once you have determined the percent nitrogen in the product you are using, divide the number of ounces that you want (2.4 oz for a 60 sq ft plot) by the percent in the product (remember that 1% = 0.01 when dividing) to get the amount of product you will need. For example, if you are using feather meal at 15% nitrogen, you will need one pound ($2.4\text{oz} / 0.15 = 16\text{ oz}$). If you are using soybean meal, which has 7% nitrogen content, to get 2.4 oz of nitrogen you’ll need to add ($2.4\text{ oz} / 0.07 = 34\text{ oz}$ or a little over 2lbs). Spread that amount on the surface of your plot. If you need help with your calculations please contact CGT admin. We’re happy to help. The following is a list of some good organic fertilizers: *alfalfa meal, cottonseed meal, soybean meal, corn gluten meal, kelp meal, blood meal, bone meal, feather meal, fish meal. Bat guano, fish emulsions, worm castings and composted chicken manure* are also great sources of organic fertilizer.



Community Gardens of Tucson

Cultivating Community through Gardening

Planting & Sowing Guidelines

Now that your soil is all prepared and well watered, what's next? You can either plant seedlings (transplants) or sow seeds. Before you do either of these things, be sure to consult the planting guide to make sure that you are considering the appropriate vegetables for the season.

Seedlings/transplants

If you have purchased plants or started them in pots at home, you can bring them to the garden and plant them directly in your bed. You need to consider the final size of the plant before you start digging holes. For example, if you have a 6 pack of broccoli, you can plant all 6 of them in a straight line along your drip tape about 12" apart, or you could plant 3 of them along each of your drip tapes, or you could plant 2 of them along each of your drip tapes and the remaining 2 in the middle between the drip tape. If you place your plants between the drip tapes, you might need to water the plants in the middle by hand until the roots get established enough to reach the moist areas closer to the drip tapes.

Seeds

Different vegetables require different spacing. Sow seeds to a depth recommended on the seed packet. In general this is about as deep as the length of the seed. Do not rigidly follow the recommendations for spacing on the packet. These recommendations are typically based on climates that have lots of moisture and where light is a limiting factor. In our desert environment you can space plants more tightly – they will have plenty of sunlight and tight spacing will allow them to shade the soil causing reduced moisture loss.

You can sow seeds at least four different ways.

1. **One Seed per Hole Method:** Use your finger to make a hole and then drop in a seed. This technique is the way to do squash and cucumbers and big plants like that. The planting depth is on the seed packet. A good rule of thumb is to make the hole for the seed 3 times deeper than the seed diameter.
2. **Rake Method:** A rather slow way to plant seeds is to use the tines of a rake to make spaced holes. Use the distance between the tines to start a second and third, and a fourth row so you finish with an even checkerboard of holes. Patiently drop a seed into each hole. Then use the back of the rake to scrape soil over the sowed rows.
3. **Field Planting:** This technique produces a lot of micro-greens that can be harvested and eaten while you're thinning the bed. Some vegetables that you might want to grow this way are lettuce, radishes, broccoli, cauliflower, cabbage, carrots and beets. First use a rake to make the soil flat and smooth. Spread the seeds evenly over a section of the garden bed. Now brush your hand over the entire area gently. This works the seeds down in to the soil. Be sure to plan your garden so that you don't run out of space. Water well but don't flood since too much water will cause the seeds to move around. You will need to keep the area between the drip tapes moist by watering by hand so that you get even germination across your entire plot. You can stop watering by hand once the roots reach the moist areas.
4. **Paper Towel Method:** This approach is great when you're planting with children and you'll waste fewer seeds and do less thinning since you will space the seeds appropriately. First you



Community Gardens of Tucson

Cultivating Community through Gardening

will need to get a paper towel and Elmer's School Glue or make a thin paste with flour and water. Read the seed package to find the recommended spacing. Put small glue dots on the paper towel at the recommended spacing in both directions. Keep doing it until you have covered the entire paper towel. Now, put your paper towel in a tray and dump a package of seeds on it. Shake it around so that each glue dot gets seeds stuck to it. Lift the paper towel out of the tray and shake off the excess seeds. The paper towel is ready to be planted in your garden. Set the paper towel on the soil surface and sprinkle enough soil on top to bury the seeds to the recommended depth. What happens to the glue and paper towel? They are both biodegradable and will disintegrate. When the seeds come up there will probably be a couple at each glue dot so you will need to thin them a little so that there is only 1 at each location. You will need to keep the area between the drip tapes moist by watering by hand so that you get even germination across your entire plot. You can stop watering by hand once the roots reach down into the moist areas.

General Note about Watering Seedlings: You'll need to hand water these seeds daily for a week or so, until their roots can reach the available water supplies. After that, the drip system will be adequate. Always remember that germinating seedlings are tender and they haven't attached themselves firmly in the soil, so be careful when you water them by hand. Turn the spray end of your garden hose upwards so the water falls in a gentle shower like rain. Don't open the faucet fully or you may blast the seedlings out of the soil.

Onion Planting Guidelines

Baby onion plants are called slips. Baby onion bulbs are called sets. We recommend planting slips as the sets have been disappointing - they usually flower instead of making a nice big onion bulb. Get onion slips in January and plant them very promptly. The longer they sit around, the longer it takes them to develop and the smaller the final onion bulb. To plant onion slips, you need to first decide if you are going to let them all develop into big onions that can be stored for many months, or if you are going to harvest some of them as green onions that need to be refrigerated and eaten within a week or two. If you want to harvest some as the season progresses, you can plant them more closely. If you want to have storage onions, they should be planted 6" apart. Plant them about 6 inches deep - just enough to keep them from falling over.

Mulch A thick layer of mulch around your plants and over the entire bed will enhance the growing conditions for garden plants while reducing time spent weeding and watering. Mulch helps retain water and inhibits the growth of unwanted plants. Mulch can be any organic material that will shade the soil - straw, leaves, shredded cardboard etc. Discuss with your site coordinator if a bulk order of mulch (a bale of hay for instance) might be appropriate for your garden to share. Fertilizers can be added on top of your mulch layer and will make its way down into the soil. Watering the fertilizer down can facilitate this process.



Community Gardens of Tucson

Cultivating Community through Gardening

Irrigation Repair Guidelines

Each gardener is expected to know the following things (ask your site coordinator for instructions):

- How to fix T-tape leaks and to replace T-tape (be sure to save all of the connectors and fittings). Replace the entire T-tape when there are more than 3 repairs.
- How to turn off the water in case of emergency.
- The site coordinator's phone number.
- The emergency irrigation repair person's phone number (in case the site coordinator is not available).

Each site coordinator (or designee) is responsible for the following:

- Teach gardeners how to fix T-tape leaks and replace T-tape.
- Teach gardeners how to turn off the water in case of emergency.
- Know how to operate and program the water timers (for mornings in winter, set to come on later after frozen lines have time to thaw).
- Occasionally verify that the irrigation system is properly shut off (and back on) after a rain.
- Know how to fix basic header line leaks (be sure to save all of the connectors and fittings).
- Know the emergency irrigation repair person's phone number.
- Make sure that the homeowner has the site coordinator's and emergency irrigation repair person's phone numbers.

General Notes about Irrigation Repair:

T-tape is the black perforated tubing that waters your plot. If your T-tape has had more than 3 repairs, you need to replace it. If you don't know how to replace it, ask your Site Coordinator. Even little leaks can be a big problem, affecting irrigation in the entire garden. In order to easily test your T-tape for leaks, use the irrigation testing tool at most of the gardens. This tool is a filter and pressure regulator assembly with hose adapters on the ends. To test a row in the garden, attach the garden hose to the testing tool (blue end) and attach the other end of the tool (white end) to the end of your garden row by unscrewing the cap on the flushing connector at the end of the row. Be sure to pay attention to the flow arrows on the assembly. You want the water to flow from the garden hose through the tester assembly and into the irrigation lines. Turn on the water at the hose spigot and check your lines. When you are done, be sure to put the tester away and screw the cap on to the flushing connector.

Header line leaks: Cut out the damaged area and put on a solid splicer (not the ones with nuts). It should slide on to the tubing at least 1/2". Do a pull test.

T-tape leaks: Cut out the damaged area making sure that the ends are nice and square. Back the nuts on the splicer all the way in. Slide the T-tape all the way on so you can't see the cut end. Hold the T-tape on while you tighten the nut. Tighten with both hands. Do a pull test.

T-tape valves: Putting the T-tape on a valve is the same as the splicer above except that there is only 1 nut.



Community Gardens of Tucson

Cultivating Community through Gardening

Composting Guidelines

There are several composting bins at the garden. To speed the composting process, several different ingredients (green, brown, manure) are layered in the bins. In general it is easiest to let the composting manager load the bins. Follow these guidelines:

- Chop up your plants before you put them in the composters. Chop into pieces no longer than 4". If you don't immediately have time to chop them up, put them in the green cages until you have time but remember that it is easier to chop fresh green material than partially dried material.
- You should never put these things in the compost bin: trash (paper, plastic, metal, etc.), dairy (cheese, milk, yogurt, etc.), meat (blood, bones, etc.), dog, cat, or pig poop (or other non-vegetarian animal waste), oils (olive oil, canola oil, mayonnaise, etc.), desserts (cakes, cookies, etc.).
- Smelly and disgusting things (like table scraps and eggs) probably shouldn't be composted at the community gardens but if you want to do this, you should put them directly in the composters not the "to be shredded" piles.
- Things with hard skins (all citrus and probably most squash, for example) will only compost if the skins are damaged. Cut these items in half before putting them directly in the composters, not the "to be shredded" piles.
- Never put weeds with flowers or seeds or Bermuda grass in to either the composters or the "to be shredded" piles. We cannot be sure that all of our compost will get hot enough to kill the seeds and the grass.

Machine Shredding Guidelines

Most of the time, it should be easy enough to chop plant material with a machete. When the volume gets to be too much, here are some guidelines about shredding using an electric or gasoline chipper / shredder:

- Avoid getting dirt into the shredder as dirt will clog it and it will also create a cloud of dirt unpopular with neighbors and the shredder operator. Shake off the plant roots thoroughly before putting them in the pile.
- Really large things (like squash) will not go through the shredder and it is no fun for the shredder operator to try to break them up while he is trying to shred. These should not be put in the "to be shredded" pile and should either be thrown out or broken up and put directly in the composters.
- The shredder clogs when it gets slimy partially decomposed material. It is best to either shred freshly pulled green material or dry material. If the green material is left in a heap and for some reason gets compacted, it turns into a slimy mess that can't be shredded until it dries up.
- Some items must be shredded when they are green and some must be shredded after they dry. Knowing which is which comes with experience. Some things turn in to ropes after they have dried and could pull a distracted shredder operator's hand into the shredder.



Community Gardens of Tucson

Cultivating Community through Gardening

Garden Supplies

<p>Supplies for Basic Plot Preparation (Organic) This is just a starting list, there can be many additions based on what you would like to add. Be careful about your ingredients though, the soil here is different than it is in other parts of the country.</p> <ul style="list-style-type: none"> •Composted Organic Steer Manure •Blood Meal or other high nitrogen organic fertilizer like cottonseed meal, fish fertilizers, composted manures bat, rabbit, chicken • Bone Meal or Rock Phosphate 	<p>Supplies for Basic Plot Preparation (Standard) These items have been used to improve our soils and successfully grow plants for many years. Many gardeners prefer organic alternatives which work as well and reduce the carbon footprint of synthetic fertilizers.</p> <ul style="list-style-type: none"> •Composted Steer Manure •Ammonium Phosphate or Triple Super Phosphate 0-45-0 •Soil Sulfur
<p>Additional Supplies</p> <ul style="list-style-type: none"> - Mac's Magic Mix for use on plants that are already growing. Apply it as lightly as one teaspoon per plant, and not to seeds. - Organic Additives (Guano, Worm castings, etc.) - Ammonium nitrate or urea - Lined paper and some clear plastic paper covers. The covers will protect your plot "map" for this season and the lined paper will be for your notes on what, when, where, and which seeds/plants you purchased and used. This makes it easier to recall what you planted and adjust accordingly next year 	
<p>Retail Locations</p> <p>Arbico Organics (pest controls & more) Civano Nursery Fiesta Growers Plants (www.fiestagrowers.com) Green Things (10% discount for CGT gardeners) Harlow Gardens Home Depot or Lowe's Mac's Magic Mix (check availability 298-2822) Magic Garden Nursery Mesquite Valley Growers Native Seed/SEARCH Seeds Rillito Nursery</p>	<p>Seed Sources</p> <p>Baker Creek Heirloom Seeds www.RareSeeds.com Bountiful Gardens www.BountifulGardens.org Burpee www.Burpee.com Dixondale Farms www.dixondalefarms.com John Scheepers Kitchen Garden Seeds www.KitchenGardenSeeds.com Johnny's Selected Seeds www.JohnnySeeds.com Kitazawa Seed Company www.kitazawaseed.com Native Seed/SEARCH www.Nativeseeds.org Peaceful Valley Farm & Garden Supply www.GrowOrganic.com Seed Savers Exchange www.SeedSavers.org Seeds of Change www.SeedsofChange.com Southern Exposure Seed Exchange www.SouthernExposure.com Territorial Seed Company www.TerritorialSeed.com The Cook's Garden www.CooksGarden.com Totally Tomatoes www.TotallyTomato.com Vermont Bean Seed Company www.VermontBean.com Victory Seed Company www.VictorySeeds.com Wood Prairie Farm www.WoodPraire.com</p>