



SEEDS

Socio-Economic & Environmental Development Solutions

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Garlic

I would generally try to plant garlic in mid-October in Canada, (April in Zambia). Some years it has been a little earlier and others a little later depending on weather conditions and our schedules. We have found that planting in April gives the garlic enough time to start establishing some roots. You can plant garlic in the rainy season but it's not recommended as the resulting garlic bulbs will not reach the size they would have if they were planted in the start of the dry season. They will still be tasty but they'll be smaller than they could have been.

You can also plant the bulbils (seed like things) from the garlic scapes if you'd like. Planting the bulbil will result in a small round single cloved garlic the following year. You can eat that small round garlic or if you replant it for the next season it will increase in size and after a couple years of doing so you will have normal sized garlic from it that has separate cloves.

Most of our seed garlic was purchased from a slightly warmer climate. It has been our observation that it even though a new variety will do well enough when introduced to our location that it seems to take three years of growing here before it really takes off and starts producing the really large bulbs. When we plant

our garlic we plant into a freshly tilled field. (hopefully on a dry day) We plant our garlic in rows. If you're planting a smaller normal garden sized quantity of garlic, you can plant them in beds rather than rows if you prefer. Garlic is also very well suited for growing in raised beds. The recommended spacing for intensive beds seems to be in 6 inches. The closer spacing in the bed also helps to keep the weeds at bay. Personally, we'd recommend going with an 8 inch spacing - you can read our reasoning for that down below. Now is a good time to mention the location of the garlic garden. Garlic likes to be planted in full sun so be sure to plant your garlic in the sunniest location that you have available.

When you're ready to plant your garlic you will need to separate the bulb into its individual cloves. As we've stated earlier, be sure to plant the biggest cloves from the biggest bulbs for larger bulbs at harvest time. It really makes a big difference. Ideally the cloves should be planted within 48 hours of being pulled apart to keep them from drying out. Take care when you separate the cloves and try to keep the protective hard skin around each of them intact so as to minimize the possibility of diseases. Be sure and take a good look at the cloves at this time and discard any that don't look right to you. There are a number of diseases that can affect garlic many of which can remain in the soil for years so it's not worth planting any suspicious looking seed garlic. Fortunately we've not had to deal with any diseases so we won't be addressing that issue here. We have however thrown out seed stock that we've purchased that didn't look quite right. It was most likely the right choice, it just wasn't worth the risk.

Cloves should always be planted with the pointy side up and the flatter side where the roots were attached, facing down. If a clove is planted upside down the shoot will right itself as it grows and you will end up with a misshapen bulb. Again, it will be edible but the bulbs won't look as nice as they could have. We plant our garlic so that the top of the cloves are about 2 inches below the top of the soil. If you're planting a large number of garlic bulbs you may want to invest in an auger for planting tulip bulbs that you can use with your cordless drill. They're readily

available at most garden centers and greenhouses. After the first year of planting on our hands and knees we can definitely recommend the drill method because you can stand up while drilling your planting holes. It also seems that by using the auger that it loosens up our heavy soil nicely and the roots and bulbs seem to be much larger than when we dug the holes by hand.

When you're just starting out with the auger and drill you can place a piece of tape on the auger bit to indicate the proper planting depth. By the time the tape wears off after you've made about a thousand holes, trust us, you'll get the hang of finding the right depth without it. You'll be able to drill perfect planting holes in your sleep!

Now, just in case you're curious about what happens if the cloves are planted too deep, we can tell you what we found during our 2007 harvest. A small section of one row of a variety had somehow been planted WAY too deep, the tops of the bulbs were at least 8 inches below the ground when we dug them! The leafy portion of the plants did not really look any different than the neighboring plants but the size of the bulbs was much smaller. The bulbs planted correctly were well over 2.5 inches in diameter and the ones planted too deep were about 1.5 inches. So, lesson learned in 2007: apparently planting garlic too deep reduces the bulb size.

We space our garlic at least 8 inches apart in the rows. Once the garlic is in the hole, it's time to cover the planted cloves with soil. Be very careful not to knock over your cloves that you made sure were upright when you stuck them in the hole. We learned that one the hard way the first year and had a lot of really goofy looking garlic as the result that year! We use metal stakes with printed UV resistant plant labels on them but you can also use a garden marker or china marker or whatever method works best for you. Be sure whatever you mark them with will withstand the weather. We used permanent markers one year just to find out that permanent wasn't really all that permanent outside. That was a sad year, we had lots of pretty garlic that we couldn't use for planting the next year because we didn't know what it was. It sure was tasty though! We also make a

quick map of our field and list what variety is planted where because every so often a plant marker seems to wander away over the winter. We also have learned from experience not to plant all of one variety in the same area of the field. We lost much of the garlic that had been planted in that area that year and unfortunately it was one of our favorite varieties that suffered the biggest loss. After the cloves have been covered with soil and the varieties marked, we then cover them with about 4 to 6 inches of straw to protect them over the winter in case of any sudden temperature drops. Be sure to use straw that is free of weeds and seeds to save yourself some extra weeding the following summer. We'd also like to mention here, don't use hay for mulch. We made that mistake one year and as it turns out, hay contains so many weed seeds that you'll be camped out in the garlic patch all summer trying to pull weeds that are sprouting faster than you can pull them. Hay is not the same as straw for mulch! If your garden is smaller and you don't have access to straw, you can also use leaves to cover your garlic. We have a couple friends who use leaves and it seems to work just as well as the straw works for us.

Here's a nice shot of Mike covering the field with straw. Doesn't he look happy that the hard work is almost done and he can spend his winter watching football?

The Growing Season (also know as the weeding season)

Garlic does not care for dry soil conditions so depending on your soil type you may need to provide irrigation. We are fortunate that our soil has maintained a good moisture level for our garlic without any supplemental watering on our part so far. It seems that our thick clay like soil helps to hold the moisture near the roots. We also leave the straw on our field throughout the growing season (sometimes we pull it slightly away from the new shoots as they emerge but it's not really necessary) as this also helps to keep the soil moist. The most critical time for irrigation is from late May through early July when the bulbs are forming. Lack of adequate water during this time may result in

smaller bulb sizes. Be sure to stop watering two weeks prior to harvest to avoid diseases and keep bulb wrappers from staining or in our case - to ensure you can get them dug out of the field without getting stuck in the mud. This is very important and cannot be stressed enough: **garlic does not like weeds!** We don't use any type of chemical weed control on our garlic as we prefer to grow chemical free garlic since we do actually plan on eating it. All of our weed control methods have been mechanical and at times quite challenging. So, if you can help it at all, keep your garlic well weeded. We have found that keeping the layer of straw mulch on the field helps with controlling the weeds quite a bit too. As it turns out the garlic shoots are quite strong and have no problem whatsoever poking up through the straw in the spring and we've never had a problem with any bulbs staying too moist and rotting. As they grow, the hardneck varieties will begin to form scapes with bulbils. It is thought that the formation of scapes can reduce the yield of your garlic because the plant is using energy to form the bulbils that could have gone into the formation of the garlic bulb instead. The reduction is said to be most pronounced in less fertile soil and less of an issue in well fertilized soil rich in organic matter. If you're going to remove your scapes the best time to do it is when you observe them just starting to curl. To remove them you just snap or cut them off. Scapes can be used in any number of recipes and are also good in salads so if you remove your scapes be sure to save a few for eating. (scapes can also be dehydrated for later use) If you do leave the scapes on and they form bulbils, the bulbils are also edible and are nice added to a salad, stir fry, soup, or wherever you'd like to add a little fresh garlic flavor. We generally try to remove our scapes but at times our schedule has been too hectic to get it done or we've missed a few here and there as we did remove them. From what we've observed, it really hasn't made much of a difference in our bulb size. We're really hoping that's a sign that we have rich fertile soil.

Garlic requires vernalization (exposed to cold) before or after

planting. Cold temperatures stimulate garlic to sprout and develop a bulb. Research has shown that you will get bigger garlic bulbs in Southern areas after cold exposure. For best results, the garlic should be at 40-50°F for 6-8 weeks during the winter to stimulate bulb formation.

When you buy bulbs from a Northern grower, often the bulbs have received some cold treatment already (it gets pretty chilly in the garlic barn at night). If you live in a really warm region where winter temperatures stay above 40-45°F you should inquire how much cold treatment your seed garlic has received. If needed, supplement it with a little time in the refrigerator. Ideally, serious commercial growers would want to store the seed garlic in a cold room at 50°F and 55-65% humidity.

For home growers several extension sites recommended refrigerating cloves for 2- 6 weeks before planting. Only try this if you live someplace where winter temperatures won't get at or below 40-45°F for 6-8 weeks. To check out your average winter temperatures go to an internet weather service like msn weather and click on averages. There will be a chart showing the average highs and lows for a year in your area. Remember that soil temperatures will likely be a bit lower than air temperatures. You can also ask your local extension agent about your average winter temperatures and soil temperatures.

CAUTION: Garlic can rot or mold if it is kept too moist so make sure to keep your cloves or bulbs dry in the refrigerator

(check on them often and never store in plastic or airtight containers). Don't freeze the garlic; put it in the warmer part of the refrigerator. We have never used this technique but some Southern extension services and growers recommend it. We would love to hear about your experiences with vernalization via refrigerator.

General Southern Growing Tips: Planting: Lucky Southern growers can plant up until December. Most commercial garlic growers try to get their garlic in by October or November since the longer winter results in bigger bulbs. The garlic will come up and grow during the winter. Southerners will be able to harvest their garlic a month or more before Northern growers! Plant cloves 4-6 inches deep and make sure to place the top upward. The top of the clove is the pointed end, and if it is not facing up the bulbs will be deformed. For pictures of proper planting technique see our [how to grow organic garlic page](#). Some Southern garlic sites recommend planting only 2 inches deep but in our experience deeper planting results in much larger bulbs. The soil will be much cooler further down in the ground. Cooler soil helps prevent bulbs from maturing too soon. Garlic cloves should be spaced 4-8 inches apart. We space ours 6 inches apart in the row; with rows 8 inches apart.

Soil: Garlic needs loose well drained soil with lots of organic matter. It can rot in poorly drained heavy soil.

Mulching: Unless your soils are very wet, mulch with straw or compost to keep the ground cold longer. Hot soil forces the garlic to mature faster and results in smaller bulbs.

If your soils are soggy or underwater most of the year, garlic will do much better in raised beds.

Weeding: Garlic competes poorly with weeds. Too many weeds = very small garlic. Weeds can be a challenge when growing without herbicides. [See here for tips on how to control weeds naturally](#). Mulching helps control weeds. Training your children to weed when they are young can also reduce the weed problem! Just make sure they can tell garlic plants from weeds before you turn them loose with the hoe.

Other Pests (Voles, Gophers and Mice): Voles, gophers and mice will eat garlic under the ground! This can result in ragged stands of garlic in the spring or even no garlic coming up at all. If you have a large vole, gopher or mouse population you may need to control it. This can be done using traps or a few motivated cats. Our cats, Baby and Hissy, work hard to keep our garlic field clear of any vermin.

Scaping: Garlic produces false seedheads or scapes before it starts to bulb. Scapes can be left on or removed. Removing scapes may result in bigger garlic bulbs since the plant then devotes all its energy to the bulb. Many people consider scapes a delicacy and they can be eaten. Scapes have a mild garlic flavor. **Harvest:** Garlic will stop growing and mature when the soil temperature reaches 90 F. If you have a really hot, early summer the garlic will be ready to harvest sooner (and will have smaller bulbs). Harvest softneck garlic when the lower few leaves are starting to turn brown.



To left: Jane harvests a softneck garlic variety, Thermadrome. Note that only the bottom 2-3 leaves are brown and that some plants are starting to fall over. For more pictures of garlic ready to harvest see [Garlic Questions](#).

When harvesting, carefully dig plants. Garlic plants can even be pulled if the soil is loose enough. Usually we shovel near the plant to loosen the dirt and than carefully pull. Remove loose soil from bulbs and roots but leave the stalks on. If you live in a high humidity area, trim off the dirty roots leaving about 1/4 inch roots on the bulb. Excess wet roots can prevent

drying or cause rot. Removing the excess root and dirt will help prevent mold or rot on the garlic bulb. Handle bulbs carefully to avoid bruising your crop. Garlic is delicate.

IMPORTANT: Garlic can sunburn. When harvesting garlic bulbs make sure to take them out of the sunlight and put in a shaded area. **Curing:** Curing garlic will take 4-6 weeks. Bulbs and stalks can be hung or placed on racks in a shady cooler area. Spread bulbs out so that they can dry. Make sure there is air movement around the bulbs. This is especially necessary in hot humid climates to prevent the garlic from rotting. Try to dry the garlic fairly quickly. Big bulbs need extra care and Thermadrome and other softnecks can be picky about curing! You may need to cut off the roots from big juicy softneck bulbs (roots absorb moisture from the air). Several times we have had to cut off the stalks from Thermadrome because it was not curing fast enough.

Curing removes the green garlic taste and adds a more complex flavor to the bulb. When garlic is dried it can be removed from the stalk, roots trimmed to about 1/4 inch and the bulb cleaned carefully by removing the dirt on the outer wrapper.