



**GROW WHAT YOU EAT!**

## **Garlic For Days! with Victory Gardens**

### **Principles of Organic Growing**

Organic growing is all about working holistically within ecosystems, maintaining the health of the planet. Organic growing aims to be a sustainable and regenerative system that benefits the land it farms, enriching the soil instead of depleting it. Using methods like crop rotation, composting, cover cropping, and more, organic gardening keeps your garden and the planet healthy and happy. Growing organically is especially important for root crops like garlic because these vegetables absorb more pesticides. Chemicals sprayed on plants to keep away pests and weeds stay on in the vegetable to be eventually eaten by us and all of the beneficial critters and insects which we want around!

### **Where We Live**

We live in region 7 / 8. This number provides a guide which determines what plants, shrubs, and trees can grow here. 0 is the harshest region, 9 is the most mild. When deciding what to grow in the garden, you can use this region number as a guide. Garlic is an excellent veggie for the West coast, since our climate is ideal for over-winter gardening.

### **What is Garlic**

Garlic is a southern European perennial herb that dies back to the ground each year, but the bulbs are harvested. It will tolerate cool temperate climates, making it an ideal crop for the West coast.

### **Origins of Medicinal Garlic Usage**

Garlic has been used for medicinal purposes for over two thousand years. In ancient times, garlic was used throughout the Mediterranean world to strengthen and fortify labourers, and Olympian athletes apparently ate garlic to enhance their performance. In India, garlic was being used for the treatment of infections, drawing on its antibacterial, antifungal and antiviral properties. In Renaissance England, garlic was used to fight tooth-ache, constipation, and the plague.

### **Modern Medicinal Use of Garlic**

Today, eating garlic has been scientifically recognized to lower cholesterol, fortify the immune systems, and lower blood pressure. Applying garlic to a cold-sore will get rid of it easier, and garlic will effectively get rid of athlete's foot. Garlic's antibacterial, antifungal, and antiviral properties are its most defining features.

### **Why Grow Garlic**

Garlic is a delicious veggie that's used in countless cuisines and cultures. In addition to its culinary uses, this superfood has a whole range of health benefits. Packed with antioxidants, garlic provides an awesome boost to your immune system, and is great at preventing and treating colds. This powerhouse vegetable has anti-

## **What Conditions Does Garlic Prefer?**

Garlic needs plenty of sun and well-drained, compost enriched soil. The soil should have a pH between 6.0 and 7.0. Keep it well weeded, as it doesn't like any competition. Garlic is a rather hardy vegetable, with certain some varieties better suited for colder winters. It can tolerate the cold and frost well, with proper mulching.

## **Where to Plant Garlic in a Crop Rotation Cycle**

While the topic of crop rotation deserves its own workshop, it is worth mentioning here to ensure you produce a healthy garlic crop. Generally speaking, crop rotation is a biological method of pest and disease control which utilizes a four-year rotation to maximize the health and production of our crops. In addition, crop rotation ensures that nutrients are made available to the plants which consume them, ie: We plant a crop which is nitrogen hungry first, and follow with a crop which has lower nitrogen requirements and higher phosphorus requirements.

Garlic is part of the Allium family, along with onion, leeks, shallots and chives. Everything in this family is a fairly heavy feeder that prefers compost rich or manured soil (note, when using manure ALWAYS ensure it is very well rotted/composted). For this reason, garlic follows plantings of potatoes or tomatoes (members of the solanaceae or nightshade family) nicely, as they require the most nutrient rich soil. Avoid planting allium in the same location for 4 years, as a variety of pests and disease may be still be present. Four years is considered to be an adequate amount of time for the pest or soil to rebound from any allium pest/disease. A couple of pests and diseases to watch out for are: grasshopper, grubs, rust and fungal diseases. Garlic problems are mostly fungal, as little bacteria can live close to garlic. Fungal disease can be avoided by soaking garlic over-night before planting in a solution of one gallon of water, one tablespoon each of baking soda and liquid seaweed.

## **Companion Planting with Garlic**

Companion planting certain vegetables can enhance the veggies' taste and growth, as well as act as a natural pest control. Garlic can be companion with tomatoes, peppers, eggplant, peppers, cabbage, potatoes, broccoli, cauliflower, kale, kohlrabi, and carrots. Avoid companion planting garlic with beans and peas, as alliums stunt the growth of these two vegetables.

## **Where to Buy Garlic**

Garlic can be found at most nurseries, seed suppliers, and organic farmers, but the true beauty of garlic is that you really only need to buy it once. In an optimal situation, you find access to a strong and healthy cultivar, which you are able to plant a lot of. If your crop is successful and you're able to determine roughly how much garlic you consume annually, you may be able to split your crop and save your own seed for the Fall planting. At the Victory Gardens headquarters, we've been growing from the same seed for four years and now grow enough to sustain our annual garlic needs.

## **What Kinds of Garlic to Grow**

### ***Hardneck***

Hardneck garlic varieties are generally hardier than softneck varieties. They are the best option for northern gardeners. They are also the best option if you want to enjoy garlic scapes in early summer, since hardnecks are the only type that send up a strong central stalk in spring, which is the scape. Hardneck varieties tend to form fewer cloves per bulb than softneck varieties, but they also are usually a bit larger.

Within the hardneck family, there are nine varieties of garlics: Purple Stripe, Marbled Purple Stripe, Asiatic, Glazed Purple Stripe, Creole, Middle Eastern, Turban, Rocambole, and Porcelain. The Purple Stripe and Rocambole types are the hardiest, best for gardeners who live in the northeastern U.S. and Canada. Gardeners who live in mild climates will have good luck with Porcelain varieties.

### ***Softneck***

Softneck varieties are better for a more mild climate and usually produce small bulbs with more cloves than a hardneck. It is considered that softneck varieties store better, however we at Victory Gardens have never experienced storage issues with hardneck when cured properly. Some varieties of softneck garlic include Silverskin and Artichoke.

### **When to Plant Garlic**

Garlic can be planted at two times of the year, early spring and fall. Softneck garlics are far better suited for spring plantings, while hardneck garlics are typically planted with fall, although they will tolerate a spring planting. A spring planting will yield smaller bulbs as they don't have as much time to mature as the fall plantings, but for those of us who can't have enough garlic, planting at both times is not a bad idea. Spring plantings are done early – mid March and fall plantings can be done from the beginning of September – end of November. At Victory Gardens, we plant in the fall only, typically around the beginning of September through October to allow for maximum growth.

### **How to Prep the Soil**

As previously mentioned, garlic loves rich, well composted soil. At Victory Gardens, we use a mixture of compost, well rotted mushroom manure and our organic fertilizer. While the typical ratio of amending your soil for any given crop is 5% organic matter (compost, mushroom manure, etc) to the total mass of the soil you're working with, you could safely increase that to around 10%, but again, err on the side of caution with the animal manures as they can be very "hot" (too rich).

Garlic also prefers sandy soil, with really good drainage, so depending on what soil type you're starting with, be sure that the structure allows for water to move through freely! Clay based soil will prove to be a problem as they retain moisture and become easily compacted, making it difficult for root crops to fill out.

### **How to Plant Garlic**

When you buy garlic for the purpose of planting, it is typically sold by the bulb. To plant it, you separate the individual cloves and ensure that they look healthy. We plant with the skin still on the clove. You then plant each clove, with the pointed end up, deep enough to cover the clove with about 2" of earth. Some garlic growers like less soil on top of their cloves, but as a rule of thumb, we sow all seeds 4 times their size in depth, so we prefer a slightly deeper planting. Rows can be spaced tightly or with more space. The advantage to a tighter spacing is that you get more, small bulbs, producing a more pounds per sq foot than rows that are more widely spaced. Some growers prefer larger bulbs, so they will be likely to plant their rows between 6 - 8" apart. At Victory Gardens, we plant our rows approximately 4 - 6" apart as we're not always working with lots of space and we find that the bulb size is still impressive. It's also important to note that at Victory Gardens, we often stagger the rows to maximize the space so that they look something like this:

Garlic can be planted in both containers and straight in the ground. If you're planting in a container, be sure to supplement the soil with a compost "top-dress" , a 2" layer on the soil surface, a few times while the garlic is in the ground, to ensure that the soil retains enough nutrients. In containers, soil loses nutrients at a swifter speed due to drainage holes.

## **How to Prep for Winter**

Garlic needs to be mulched over the winter to ensure that the bulb is not harmed during the cold winter months. Mulch consists of anything organic that can break down and will not add harmful agents to the soil. Refrain from using leaves that have been sprayed with pesticides, or leaves from black walnut trees, which are toxic to other plants and animals. Suitable mulching materials include: straw, maple leaves, excess grass clippings, alfalfa, etc. Do not use fresh veggie scraps or manure.

Garlic does not like repeated freezing and thawing, but it also does not like too much excess moisture, so we avoid mulching too early while there is still a lot of rain (which the mulch can trap in), but not too late or the garlic cloves may be harmed. When the ground is frozen elsewhere, the mulch will keep the soil above the garlic permeable so that water can still get in and keep the temperatures stable enough to ensure a healthy crop.

Build up a layer of about 3 - 4" of mulch on top of the garlic bed. This will not only protect the crop, but over the course of the winter and into the early spring, the mulch will break down, adding essential organic matter – particularly nitrogen – to the soil. Mulch which has not decomposed by the estimated last frost date (end of March), should be removed, saved, stored, or composted as excess mulch will retain moisture and can increase the chances of fungal problems and potentially, pests.

## **Common Garlic Problems and Pests**

### ***White Rot***

A fungal disease, white rot loves all alliums. Yellowed, wilting leaves are a sign of white-rot-infected garlic, as are rotting roots. Underground, white rot develops mycelium and produces tiny, round, black sclerotia. White rot typically strikes from mid-season to harvest. Stay vigilant against white rot by being on the lookout for diseased plants, and pulling them out right away. Throw them in the garbage, not the compost!

### ***Grasshoppers***

Floating row covers are your best bet in keeping grasshoppers away from your garlic crop. Some growers will catch grasshoppers by hand, early in the morning when they're drowsy, but this is time-costly and takes effort.

Note that we have never had an issue with grasshoppers in our gardens, in fact, in many urban environments, grasshoppers are not commonly found, so don't be overly concerned about this as an issue.

### ***Rust***

Rust is a fungal disease that manifests as white and yellowish-orange flecks on the stalk of the garlic plant. Rust can slow bulb development and eventually kill a plant if it strikes early enough in the season. If you spot the beginnings of rust on a plant, cut the leaves off as soon as possible. Dispose of them in the trash – not the compost! – and disinfect your shears.

Rust does not appear to affect the bulb if it occurs later in the season, and once the bulb is dried and cured, feel free to plant the cloves from infected plants as it's not observed to persist in your garden this way. Crop rotation and adequate drainage will be an excellent way to reduce rust problems.

## **Early and Mid Season Care**

Your garlic crop will thank you for a few feeds early and mid-season. At Victory Gardens, in the early spring, we apply a thin layer of well rotted compost (high in Nitrogen) to our garlic bed once the shoots have formed and we want to encourage leaf, which Nitrogen is essential for. Mid season, around May, we water with a liquid kelp or other organic fertilizer for bulb development and growth.

## **When to Harvest**

Typically, a fall garlic planting is harvested in July, depending on the weather. There are two signifiers to determine when your garlic is ready for harvest:

1. You'll see the plant stalk start to yellow and die off
2. The scapes – the flower stalks which emerge from the centre of the plant that resemble a wet paint-brush or arrowhead – that started off twisted and curly will begin to straighten.

## **Garlic Scapes**

It's said that garlic really has two harvests – the scape and the bulb. Garlic scapes are an edible treat that arrive before your garlic bulb harvest. Scapes are harvested when tender and curled, before they mature and become too fibrous. Besides culinary reasons, scapes are harvested at this point in the growing season so the plant's hormones can focus on the maturation of the bulb and not the flower stalk which, if given license, will flower and produce tiny garlic bulbils (seed). It's not advantageous to plant out bulbils instead of garlic cloves, as the size of the clove determines the size and quality of future harvests. It's advised to leave one scape on the plant to use as a signifier for the bulb harvest date.

We harvest garlic scapes when they are curled and resemble a wet paint brush.

## **A Quick Note on Harvesting Your Garlic**

When harvesting your garlic, be careful not to tear the stalk from the bulb, as it makes curing and storage far easier. Garlic braiding, anyone?

## **How to Prep for Storage**

After harvesting your garlic, you need to prep the bulbs for storage.

1. Remove excess earth from the roots and bulb, being careful not to damage the skin.
2. Remove any small pieces of skin that are caked in earth or look unhealthy (wet, splotchy, etc.) Be careful not to remove too much skin, as this is the protective layer that insulates the inner cloves from moisture and damage during storage.
3. Cut off the roots, which hold moisture, being careful not to cut into the bulb itself.
4. Curing time! Garlic needs to be fully dried out before storing. To cure, hang garlic in bundles of five to ten, using twine or string, in a dry, dark, and well-ventilated location. Underneath a porch, or in a shed should do nicely. Be sure to stagger bulbs so they are not directly touching, so as to avoid disease and to promote air circulation.

Ventilation is vital to ensuring that the garlic can adequately dry. A dark location is important as some varieties are light sensitive, and can become burned and/or damaged in the curing process.

Curing can take up to five weeks, depending on conditions. When the garlic is fully cured, the stalks will be completely dried out and colourless. The exterior skin will be dry and almost flaking off. The garlic will feel lighter and as if it has no moisture left.

4. Lastly, storage. There are numerous ways to store your cured garlic. Some people store just the bulbs, while others keep the stalks and make braids. The only non-negotiable is that the garlic is stored in cool, dry, and dark conditions.

### **Seed Saving**

This is the best part about growing garlic: self sufficiency! This can take a few years, as you typically start small and expand slowly. The more you save, the more you grow, the more you eat, and so on. If you plant twenty cloves, next year you could plant a hundred. Each clove produces a bulb which will, in turn, produce multiple cloves. For a family of two that consumes garlic regularly (two to three times a week), 150 to 200 planted cloves should be enough for both seed saving and year-long consumption.

From your harvest, choose your best bulbs for saving. These will be the largest and healthiest bulbs. We separate our planting bulbs from our consumption bulbs prior to curing in order to stay organized. Once they've been cured, separate each planting bulb into individual cloves. Again, choose the best cloves for planting. Any discarded cloves can be set on the counter for cooking.

### **References:**

Linda Gilkeson: Year Around Harvest

Steve Solomon: Gardening West of the Cascades

