



TOWER
GARDEN

BY JUICE PLUS+®

GROWING GUIDE: CHIVES

Chives are the smallest and mildest member of the onion family and have been used as a seasoning for nearly 5,000 years. They're native to Asia, and it's thought that the Chinese were the first to use them in cooking. When the colonists came to America, chives were one of the plants they brought with them to their new land.

Fresh or dried chives are the perfect topping for a baked potato, and they also go well in soups or mixed into cream cheese and spread on a bagel. You can even sprinkle them on top of a salad for extra zest!

Growing chives in a Tower Garden® is even easier than growing them in the ground. No kneeling, no bending, no tilling, no dirt! Of course, there are some tips and tricks you should know about for growing healthy, productive chives in a Tower Garden®. Read on to learn how to choose your chive varieties, sow seeds, transplant seedlings, pinch your plants, fight pests, and know when to harvest.

Get ready...get set...grow!



THE ANATOMY OF A CHIVE PLANT

- **Leaves:** The green, edible part of the plant
- **Bulbs:** The rounded, underground storage part of the plant

THE ANATOMY OF A TOWER GARDEN®

- **Rockwool Cubes:** The growing medium used to sow seeds
- **Net Pot:** The container used to plant seedlings
- **Growing Pot:** One of several interconnecting sections of the Tower Garden®
- **Plant Port:** The openings in the Tower Garden® where the plants go

In a nutshell:

- The seed goes into the rock fiber starter plug...
- The rock fiber starter plug with the seedling goes into the net pot...
- The net pot goes into the plant site...
- There are four plant sites in a growing pot...
- And five growing pots make a Tower Garden®!



BEFORE YOU PLANT: Choosing Your Varieties

There are two primary types of chives.

Common chives, also known as onion chives, are the familiar chives cooks and gardeners know. The flowers of the common chive look like spiky little purple balls and are also edible.

- **Fine leaf** chives are thinner, smaller, and a good choice for fresh use.
- **Purly** chives have thicker leaves and are a little more productive.
- **Staro** chive is a large, thick-leafed variety that's better for freezing or drying.

Chinese or Oriental chives are a flat-leafed variety with a mild garlicky taste, and are readily available as seeds and sometimes plants. This variety has fragrant white flowers, which bloom later in the season. These chives tend to regenerate more quickly after harvest and are more productive than common chives, so if you want a constant supply of chives, this might be the type for you! Plus, unlike regular chives, Chinese chives do not tend to suffer from tip die-back after harvesting.

- **Nira** chives are big, bulky plants that grow upright for ease of harvesting.
- **Garlic chives** have attractive, edible flowers that bloom in midsummer and make a great addition to bouquets.

Tower Garden® Tip: All chives thrive in full sun, but they will tolerate light shade. Six to 8 hours of direct light is optimal.

BEFORE YOU PLANT: Deciding When to Plant

Chives are great for all seasons! But they're particularly suited for spring and fall.

Common chives will start to produce flower stalks in temperatures above 80°, which will cut back on the development of leaves for harvest. The plants tend to grow best at temperatures of 65°–70°, while growth slows and dormancy begins to set in under 50°. Garlic chives tend to multiply faster and produce well under winter conditions, but will go dormant in temperatures below 40°.

A perennial cool-season herb, chives are hardy to frost and go dormant during the winter months, but then reappear in the spring with a nice new flush of growth. In the Tower Garden®, you can treat chives as an annual crop and remove them from the system seasonally.

Chives are best sown 4–6 weeks before your average last frost date, but don't worry about a late frost... it won't hurt them a bit.

PLANTING: Seed Sowing and Germination

Your Tower Garden® Kit comes with everything you need to get started growing chives.

Remember: the germination range for chives is 60°–70°.

Step 1: Locate the slab of Rockwool cubes and place in the seed starter tray.

Step 2: Thoroughly wet the Rockwool cubes by completely submerging the slab for 30 minutes in Tower Tonic nutrient solution. (Please reference the Tower Garden® Instruction Manual for more information.) This will stabilize the pH of your cubes. After 30 minutes, thoroughly flush cubes with fresh water.

Important: Because the Rockwool repels water, you can't get away with just spraying it. You really need to soak it!

Step 3: Drain all excess water from the seed starter tray.

Step 4: Sow 4 seeds per cube.

Step 5: Lightly cover the seeds in the cube with coarse vermiculite, which will help retain the right amount of moisture, and gently sprinkle a little water over each hole to wet the vermiculite.

Step 6: After seeding, put a little water into the bottom of the container. If possible, use filtered water without chlorine. Do not close the lid.

Step 7: Place seed starter tray outside in semi-shade (a bench or table will do nicely) until the seeds have germinated. Always keep about 1/8"–1/4" of fresh water in the bottom of the tray.

Step 8: Once the seeds have germinated (about 7–14 days), IMMEDIATELY place outside in full sun for 7–14 days to increase their hardiness.

Step 9: Make sure your sprouted seeds have 1/4" of fresh water in the bottom of the tray each morning so your seedlings won't dry out during the day. Add Tower Garden® fertilizer solution every other morning in place of fresh water.

Step 10: Seven to 14 days after germination, your seedlings should be ready to transplant into the Tower Garden®! This crop is frost-hardy, but it's better to transplant after the fear of frost has passed as cooler temperatures slow its growth.

PLANTING: Transplanting Into the Tower Garden®

Generally, you can transplant your seedlings into your Tower Garden® about 1–3 weeks after they germinate. The exact time frame depends on the date of the last frost in your area. You'll know your plants are ready when they have a good root system growing from the rock fiber starter plugs.

If you're using a Submersible Heater and a frost blanket, you can start transplanting three weeks before the suggested planting date. Just make sure you heat the water in the Tower Tonic reservoir to a minimum of 70° until daytime temperatures rise to that level.

Step 1: Gently separate the plugs in the Rockwool slab. Do your best to break as few roots as possible.

Step 2: Your assembled Tower Garden® should already have a net pot in each planting port. Place each cube with its newly planted seedling into one of these net pots. Guide any hanging roots from the net pot into the growing pot.

Step 3: Be SURE the bottom of the plug is securely against the bottom of the net pot. This aligns the plant for optimal irrigation inside the Tower Garden® and keeps it from getting too dry.

MAINTAINING PLANT HEALTH: How to Keep Your Plants Happy

Tower Gardens are wonderfully free of some of the bothers of traditional gardening: there's no weeding, tilling, kneeling, or getting dirty! Just a few basic maintenance steps will keep your plants healthy and happy.

Maintain Tower Tonic Levels

Because your Tower Garden® doesn't use any dirt, your plants are totally dependent on Tower Tonic to get their nutritional needs met. (Kind of like a baby and a bottle.)

- Maintain the recommended Tower Tonic levels at all times to allow your plants maximum uptake of the nutrients they need to grow.
- With a "young" Tower Garden®, check the Tower Tonic levels twice a week to learn how quickly your plants are utilizing the tonic solution. Later, as your plants grow larger and the roots have reached the reservoir, you'll probably need to refill the tonic solution every 2–3 days.

Avoid Plant Stress

It's well documented that healthy plants are less desirable to insects! A plant that is stressed in some way — whether from lack of water or nutrients, or from heat, wind or cold stress — becomes an easy target for pests and disease.

Dehydration, starvation, heat, wind, and cold can all cause a plant to wilt. Therefore, the number-one rule for keeping plants healthy is to prevent wilting!

- Always maintain a cool temperature within the reservoir. Tower Tonic should never feel warmer than the temperature of your skin.
- On a very windy or extremely hot day, turn the irrigation timer to run constantly for the most stressful hours of the day. Just remember to turn the timer back to its normal cycling times!

Tower Garden® Tip: If your Tower Garden® has to be partly shaded due to your surroundings, it is better to have afternoon shade, when the day is the hottest!

Keep It Clean

When it comes to your Tower Garden®, clean is good. You don't have to pass the white-glove test, but keeping your Tower Garden® debris-free discourages plant pathogens.

- Keep your Tower Garden® in as clean an area as possible.
- Remove most mature, yellowing or brittle leaves from the base of the plant.
- Keep loose plant debris and insect debris clear from the top of the reservoir tank, and place the compost of discarded plant clippings well away from your actively growing Tower Garden®.

MAINTAINING PLANT HEALTH: Managing Pests

Unlike most crops, chives are vulnerable to only a few insects, and little to no diseases. In fact, chives are known to repel many harmful insects and attract helpful ones, such as bees. Some gardeners even plant chives to protect their other crops! However, the presence of pests will vary by region and time of year. Fortunately, growing plants off the ground in a Tower Garden® is one of the best ways to avoid pests! Here are the most common pests affecting chives:



Aphids

Aphids are small, soft-bodied insects that are most commonly green and black in color, but may also be gray, brown, pink, red, yellow, or lavender. They tend to feed on tender, young growth, causing it to appear puckered or deformed. Though they are visible to the naked eye, they also leave behind an excretion known as honeydew, which is another method of identification.

What to do if you have them: There are numerous methods of aphid control, including botanical sprays such as insecticidal soap, pyrethrum, rotenone and horticultural oils. Beneficial insects such as ladybugs will also help to eradicate the pest.



Thrips

Visible to the naked eye, adult thrips are small, pale-yellow insects (occasionally black) with elongated bodies and fringed wings. They tend to hide in the centers of flowers and scatter when the bloom is disturbed. Thrips are sap-sucking insects whose feeding injury appears as coarse stippling on the leaf surface. Large populations of thrips cause serious plant injury, which results in a silvery or scratchy appearance on leaf surfaces.

What to do if you have them: You can control thrips by using botanical sprays such as insecticidal soap, neem oil, pyrethrum, rotenone and horticultural oil sprays.

MAINTAINING PLANT HEALTH: Managing Disease

Chives are rarely affected by common plant diseases, making them a perfect beginner's crop!

For more info:

For additional information on how to handle crop pests, consult your local office of the Cooperative Extension System, a nationwide, governmental educational network that provides free useful information on agricultural practices.

<http://www.csrees.usda.gov/Extension/>

HARVESTING

Your chives are ready to pick! Keep these things in mind when harvesting:

- You can harvest chive leaves once your established plants are 6" tall.
- To harvest, use scissors to simply cut the leaves, leaving 2" of plant material.
- Don't cut all the leaves of a clump of plants off at one time: stick to no more than half. This allows that same clump of plants to be cut over and over again throughout the growing season.
- Before the plants flower, harvest from the outside edges of the clumps.
- Cut your chive plants regularly to encourage new bulblets to develop and to prevent leaves from becoming tough and flowers from forming.
- You can dry them, but chives are most flavorful when used fresh.
- Extra chives? Freeze them for later. Simply chop up washed leaves into small pieces and freeze them in plastic containers.
- Garlic chives regenerate faster than common chives after harvesting and are better able to withstand multiple harvests and hard cutbacks. You'll want to harvest these plants every 3–8 weeks, depending on the time of year.