



TOWER
GARDEN

BY JUICE PLUS+®

GROWING GUIDE: PEAS

Raw or cooked, peas add a sweet touch to all kinds of meals. They're delicious in potato salad, stir-fries, and curries, or just steamed and buttered with a little mint.

Peas are ideal for the beginning gardener because with just a bit of work, those tiny green spheres are yours for the picking. And because they can be harvested early in the season, they're a perfect crop to plant if you are eager to taste the fruits of your labor.

Growing peas 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 peas in a Tower Garden®. Read on to learn how to choose your pea varieties, sow seeds, transplant seedlings, pinch, fight pests, and know when to harvest.

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



THE ANATOMY OF A PEA PLANT

- **Vine stems:** The main stems of the plant
- **Petioles:** The mini-stems that attach the leaves to the vine stems
- **Flowers:** White or pale pink petals that appear near the intersection of the leaves and stems, from which the fruit will form once the flower has been pollinated
- **Peas:** The edible part of the plant, consisting of round edible seeds within a pod (also edible in some varieties)
- **Nodes:** The part of the stem where flowers and fruit appear
- **Internodal areas:** The vine stem between nodes (where you should prune, if needed)
- **Tendrils:** Thin, curly stems that grow from the intersections of vine stems and petioles that the plant uses to attach itself to surfaces
- **Leaves:** Pretty self-explanatory, right?



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
- **Plant Support Cage:** The ringed structure for providing extra support to certain plants



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...
- Five growing pots make a Tower Garden®...
- And the plant support cage surrounds the Tower Garden®!

BEFORE YOU PLANT: Choosing Your Varieties

There are three types of peas: English peas, snow peas (with flat, edible pods), and snap peas (with rounded pods, also edible).

English peas, also known as green or garden peas, produce sweet, round seeds inside the pods. Shelling this type of pea may be considered a labor of love, as you'll need to harvest and shell a big pile of pods to get your tasty reward. If you're looking for a wonderful side dish or an addition to any salad, this may be the pea for you.

Snap peas, sometimes called sugar snap peas, have a crunchy, sweet pod, and are delicious raw or lightly steamed. If you enjoy eating fresh peas but aren't crazy about the idea of picking and shelling, then snap peas may be your best bet. These are a perfect crop for any gardener who loves to sample directly from the vine. Bonus benefit: they're popular with kids too!

Snow peas also have edible pods and combine the best features of English and snap peas all rolled into one. Tender and crispy, with sweet, plump seeds, young snow peas are an excellent ingredient in any salad. They are also fantastic in stir-fries.

Peas also come in two different plant structures: vining (the most common) and bush. The vining varieties, which grow quite tall, need the scaffolding of a plant support cage, but bush varieties, which are more compact, don't.

BEFORE YOU PLANT: Deciding When to Plant

Peas are a cool-season crop with an optimal growing temperature of 50°–70° and can be one of the first plants you place in your Tower Garden®. They will grow well in the spring and fall, though they don't like summer heat at all.

Feel free to get a jump start on the season, sowing peas 6–8 weeks before the anticipated date of the last frost. Peas are hardy; they can stand up to a heavy frost and a light freeze.

The germination range for peas is 65°–70°, so you'll probably want to start them indoors. Most pea varieties will do poorly in the heat of summer, so remove your spring crop when production slows or stops completely. Depending on your locale, you might plant a second crop for a fall harvest.

How long until you can enjoy your first stir-fry? In general, peas take 2–3 weeks after germination (sprouting) before they are ready to transplant. They should be ready to harvest in another 6–8 weeks.

PLANTING: Seed Sowing and Germination

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

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: After 2–3 weeks, or when the plants have four true leaves, your seedlings should be ready to transplant into the Tower Garden®! This crop is able to tolerate a heavy frost and light freeze.

PLANTING: Transplanting into the Tower Garden®

You can transplant your seedlings into your Tower Garden® about 1 to 3 weeks after they germinate, when there are four true leaves on the plants. 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.

Tower Garden® Tip: Peas grow tall, so place your peas at the bottom of your Tower Garden® and work your way up, depending on how many levels you want to use.

Tower Garden® Tip: Install your plant support cage when you place your peas in your Tower. This will give the tendrils something to grasp onto as they grow. You can also weave a sturdy string onto the Tower to create more surfaces for the tendrils to climb, especially if you're growing the vining variety. There are bush varieties that don't require staking.

PLANTING: Setting Up a Plant Support Cage

Plant peas in the bottom of the Tower. If you're planting bush peas, you probably don't need to use a plant support cage because of the compact nature of the plant. If you're planting vining peas though — the most common type — you definitely need to!

The best time to set up the plant support cage is immediately after you've transplanted your pea seedlings into your Tower Garden®. That way, as the plants mature, the cage gives them the support they need to grow naturally. Follow the directions that came with the plant support cage for assembly.

Peas are aggressive growers, so you want to make sure they don't take over the other crops on the Tower. As the tendrils grow, you can train them around the cage by gently taking the tendrils and wrapping onto the desired surface. They will quickly establish a hold. If you use a trellis, train the peas toward the trellis on the north side, so the growing vines don't block other crops from the sun.

Tower Garden® Tip: For branches that are heavily laden with fruit, use a pliable material (used pantyhose works great!) to gently tie them to the rungs of the plant support cage.

PRUNING: Is It Necessary?

Bush-type peas will branch and grow without needing to be pruned. You may occasionally have to move some of the branches so they stay on their side of the Tower. You might also want to cut a wild branch if needed.

Vining peas don't need to be pruned, other than to remove diseased or broken stems. Some people like to snap off smaller or misshapen blossoms, which are not as productive, so the plant can concentrate its energy on the healthier blossoms.

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

Like most crops, peas are vulnerable to pests. These 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 peas:



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.



Mexican Bean Beetles

Peas are a host plant for numerous beetles, which are major foliage feeders of the insect world. Brownish-yellow with 16 spots on their backs, Mexican bean beetles resemble ladybugs. They spend their entire life cycle on the plant, feeding on the undersides of the leaves, so they can easily go unnoticed until their populations increase.

What to do if you have them: There are numerous methods of Mexican bean beetle control. You can use botanical sprays such as pyrethrum, rotenone, and insecticidal soap. Pests may also be removed by hand and destroyed, but if you use this method, be sure to also remove any leaves that harbor eggs.

MAINTAINING PLANT HEALTH: Managing Disease

Not all plant problems are caused by pests; some are caused by disease. Here are the ones most likely to affect peas:



Fusarium

Fusarium is a vascular wilt caused by a fungus. Symptoms include wilted leaves, stunted plants and vertical brown stripes on the stem. These often appear late in the growing season and are first noticed on the older leaves. Disease progresses to the younger leaves, resulting in plant death. In some cases, only one branch or side of the plant demonstrates any symptoms.

What to do if you have it: The best defense against this disease is prevention: buy seed that has been tested for the presence of Fusarium wilt fungus, and choose resistant varieties if available. The biological fungicide Mycostop will control wilt caused by Fusarium and is appropriate for use on peas. If the disease persists, it's best to remove the entire plant.



Powdery Mildew

This is one of the most widespread and recognizable fungal diseases. Powdery mildew forms a white to grayish powdery growth, usually on the upper surfaces of leaves. Fungal spores are spread by wind and can survive the winter on nearby plants and plant debris. The warm days and cool nights of late summer create an ideal climate for spore growth and dispersal.

What to do if you have it: To control mildew, prune plants to improve air circulation and dispose of infected plants. To control minor infestations, pick off affected plant parts and dispose of them immediately. In the case of a larger outbreak, apply bicarbonate and copper sprays to prevent spread of the infection.



Mosaic Virus

Peas are susceptible to several viruses that are carried by aphids, a common pest of the crop. Infected plants exhibit yellow or white vein-flecking and blister-like formations along the veins. This virus can stunt the growth of the plant while producing deformed pods that tend to split open.

What to do if you have it: It's best to prevent the transmission of this disease in the first place. Make sure that aphid populations are monitored, and take insect control measures to keep the crop free of these pests. If plants become infected, remove immediately from the Tower since there is no treatment for a viral infection.

When to replace your plants: If a plant has become too diseased despite control efforts, replace with new plants.

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/qlinks/partners/state_partners.html

HARVESTING

You should expect to be harvesting your sweet green peas about 65–75 days after germination. Keep these things in mind when harvesting:

- All pea pods are firmly attached to the vine, so hold the vine in one hand and twist the pod off the vine with the other. This will protect the vine from injury that might reduce its productivity.
- Harvest often! Frequent harvesting will promote continued flowering and production.
- Pick English peas when they're firm but still succulent.
- Pick snap peas when the pods are crisp and round.
- Pick snow peas before the swelling seeds within the pod become too evident.