A Step-By-Step Guide for Growing Microgreens at Home

A healthy lifestyle includes regular physical activity and a healthy diet.

Due to increasing costs, going to the grocery store can be more challenging, and many people have modified their grocery shopping habits by reducing the frequency with which they go grocery shopping, which may limit the opportunity to buy the most perishable greens.

Many are investing in a home garden to grow their own fresh vegetables while re-discovering the beneficial de-stress effects of gardening. If you do not have space for a garden, believe that you do not have a "green thumb," or are discouraged by your previous gardening experiences, do not despair! Microgreens may provide you with a new opportunity.

According to the Dietary Guidelines for Americans, the recommended amount of vegetables in a 2,000-calorie diet is 2½ cup-equivalents of vegetables per day. Vegetables are a rich source of many nutrients that are critical for our health, including dietary fiber, pro-vitamin A, vitamin C, vitamin K, vitamin E, vitamin B6, folate, thiamin, niacin, and choline, as well as essential minerals like potassium, iron, zinc, copper, magnesium, and manganese.

Microgreens are nutrient-dense tiny greens that may be grown in limited space, in a relatively short time, even on a windowsill or in your kitchen. Given their high nutritional value and the variety of species you can grow, microgreens can provide you with nutrient-dense greens and the de-stressing experience of working in your home garden.

What You Need to Grow Microgreens at Home

Microgreen production for self-consumption in a household does not require using any special tool, and besides the seeds, you should be able to find everything you need at home or in any household product store (Figure 1). If you plan to grow microgreens continuously for more efficient production, buying some growing trays and small tools specifically designed to produce microgreens might be convenient.

The basic items you need are:

- Seeds
- Drinking water
- Growing medium or mat
- Growing containers or trays
- A small kitchen scale or measuring cups
- A spray bottle and a pitcher
- A sharp knife or a pair of scissors

For some species that require to be pre-soaked, you may need a few cups for soaking the seeds in water and a small colander to rinse the seeds once or twice before germination. You need a clean surface or shelf to place the growing trays depending on where you plan to grow microgreens. While the natural sunlight available behind a window, on a balcony, or a small porch is generally enough to grow microgreens, it is possible to supplement the natural sunlight with a source of artificial lighting developed explicitly for plant growth. Moreover, some species may be grown in a dark environment and do not require any light from sowing until harvest.
A key element necessary to produce microgreens is the growing medium. The most popular media used are peat-based mixes, coconut coir, and mats constituted of natural (cotton, kenaf, hemp) or synthetic fibers (rockwool). The growing medium is important because the capacity to hold soil moisture and the frequency with which water should be applied depends on its properties and many other aspects, such as the availability of nutrients and the quality of the microgreens. The suggestion is to use what is readily available and relatively non-expensive, ensuring that it is environmentally sustainable, clean, and safe.

How to Grow Microgreens

Step 1. Calculate and measure the optimal amount of seeds needed for your trays

After selecting the species of microgreens you would like to grow and purchasing microgreen seeds, calculate the amount of seeds you need for your square, rectangular, or circular planting trays following the instructions provided here.

You can measure the number of seeds using a small scale that you may have in your kitchen, and once you measure the amount of seeds for a tray, you can measure the amount of seeds you need using measuring cups or spoons.

Step 2. Prepare your trays and growing media

Trays and or containers of different shapes and sizes may be used to plant microgreens. Since microgreens do not require a lot of medium to grow on, flat trays are generally preferred over regular nursery pots. While microgreen planting trays of different sizes may be purchased from different sources, recycling containers deriving from food packaging is also possible. The main recommendation is to make sure you are using material that is suitable for food production, that it's clean, and that the trays have drainage holes at the bottom. This will allow you to water the trays from the bottom without letting the water contact the greens, enabling the excess water to drain.
Step 3. Seed your trays

At this point, you can start seeding by evenly distributing the defined amount of microgreen seeds on the entire growing area of each tray. Most of the microgreen seeds do not require any treatment. However, for some species characterized by larger seeds or a hard seed shell, the germination process may accelerate if seeds are pre-soaked in water. Seeds can be soaked in water overnight for 8-12 hours. During this process, it is beneficial to rinse the seeds in running water a couple of times to wash the seeds and let them get some oxygen.

After distributing the seeds on the growing medium surface, it is not necessary, and it could be better not to cover the seeds with soil so that the sprouts remain clean. After seeding, it is enough to apply some water, occasionally using a spray bottle to keep the seed moist during germination. It is recommended to keep the seeds in a dark environment for a few days to facilitate the germination process and keep a good moisture level during the germination. This can be easily achieved by covering the microgreen trays with something that can block the sunlight.

For some species, like pea and sunflower, it is recommended to put some weight on the seeds during germination to keep the seeds in contact with the soil. In the case of sunflower and other species, maintaining the weight on top of the shoots during the germination process also facilitates the detachment of the seed hulls from the cotyledons.

Step 4. Microgreens growth and management

After the germination process is complete and seedlings reach a certain height, it is possible to uncover the trays and expose the sprouts to sunlight. In selecting a place to grow your microgreens, consider that, like any other plant, microgreens benefit from good exposure to sunlight; therefore, place them where you have more light. Usually, a window on the south side of the house or apartment will receive more sunlight than one exposed north. As the microgreens start growing, if the light is limited, you will see the shoots leaning toward the light. A good level of sunlight will ensure optimal growth and a higher accumulation of antioxidants is produced by plants, primarily in response to solar radiation.

At this point, besides the light, the only thing to do is to check that the seedlings have enough water. Water should be provided only if necessary, avoiding excess moisture and allowing drainage to prevent mold development. To limit the contact between water and the greens, it is recommended to water the trays from the bottom. Opening the window occasionally to enhance air circulation may also be beneficial to avoid excess moisture.
Step 5. Microgreens harvest

Depending on the species and the growing conditions, microgreens may be ready to harvest in a few days or a couple of weeks after germination is complete. Microgreens may be harvested using a clean, sharp knife or a pair of scissors right before being used for any preparation. Washing microgreens in fresh drinking water before consuming them is always recommended. However, be aware that microgreens plant tissues are very gentle, and their shelf life may be substantially reduced after washing. An alternative could be to bag and store microgreens at low temperatures and wash them right before they are used.

After harvesting your microgreens, if your growing medium is organic, you can compost it and wash and reuse your planting trays or containers.

Pea shoots – from seeding to harvest. Photos: Francesco Di Gioia, Penn State

Left: Day 1. Right: Day 2.

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Left: Day 9. Right: Day 9.- Harvest.

References

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