



Growing Microgreens for the Mississippi Gardener



Freshly harvested Swiss chard, broccoli, pac choy, and mustard microgreens make a colorful mix. (Gary R. Bachman)

Microgreens are a fun way to add variety to your daily meals. They are nutrient-dense and colorful. They have fresh flavors and a tender crunch. And they are easy to grow.



A wide variety of microgreens can be grown indoors under fluorescent lighting. (Gary R. Bachman)



Microgreens can be grown easily in front of a bright window. (Cindy Graf)



Newly germinated microgreens grow on a fiber hydroponic grow mat. (Gary R. Bachman)

What Are Microgreens?

Microgreens are young, immature, densely grown seedlings of selected vegetables and herbs. At harvest—ranging from 7 to 21 days after germination—microgreens are approximately 1 to 3 inches tall. At this stage, the harvested microgreens will consist of the stem, cotyledon, and developing true leaves, depending on the species grown.

Microgreens versus Sprouts

People sometimes confuse microgreens and sprouts. Sprouts are seeds that are germinated in a high-humidity system. The entire plants (leaves, stems, and roots) are harvested and consumed. Microgreens are seeds that are germinated in soilless media or on hydroponic mats. Only the stems and leaves are harvested for consumption.

Uses for Microgreens

Microgreens have a variety of uses. They can be used as “vegetable confetti,” adding flavor, texture, and color to evening meals. They can be added to salads (or be the salad themselves) and sandwiches. Or they can be used as a colorful garnish.

Nutrition Benefits of Microgreens

Microgreens are rich in phytonutrients. Research has shown that certain microgreen varieties can have high concentrations of vitamins C and E, beta-carotene, lutein, zeaxanthin, and violaxanthins. Red cabbage, cilantro, garnet amaranth, and radish microgreens are especially nutritious as compared to the fully grown vegetables (Xiao et al, 2012).

Vitamin C is an essential nutrient and an important antioxidant. The content of this nutrient is increased six times in red cabbage microgreens, more than 10 times in garnet amaranth microgreens, and more than one and a half times in radish microgreens. These levels are higher than those found in broccoli, which is recognized as an excellent source of vitamin C.

Beta-carotene, which is essential in protecting cell membranes, is increased three times in cilantro microgreens and more than 260 times in microgreens of red cabbage (compared to the fully grown varieties).

Lutein and zeaxanthin are carotenoids that impact eye health. Cilantro microgreens have five times higher concentrations than the mature plants. Vitamin E concentrations in red cabbage microgreens are 40 times higher than the fully grown plants.



Broccoli microgreens are grown in a repurposed clear plastic clam shell container. (Gary R. Bachman)



Microgreens are easy to grow in virtually any container like this plastic kitchen storage container. (Cindy Graf)



Cilantro and Ruby Red Swiss chard microgreens grow in small black plastic nursery containers. (Gary R. Bachman)

Growing Microgreens

Microgreens grow quickly with minimal garden effort. Grow them on the porch, in front of a window, or under lights.

There are a couple of different methods for growing microgreens for home use.

The first is using a hydroponic pad or mat that retains water. These can be used in either troughs or trays without holes. Sprinkle the microgreen seeds onto the pad and leave them to germinate. The roots will grow into the pad to absorb water. Monitor the moisture in the pad on a daily basis.

The second method is to grow the microgreens in a peat-based potting medium. This method is much easier for homeowners and is also the recommended method for gardeners with limited space for growing microgreens.

There are several options for using peat-based medium: place it directly into any container that does not have holes; put it directly into a standard 10-by-20-inch flat bedding tray without holes; put it in small pots without holes in the bedding tray; or put it in small plastic kitchen containers.

Whichever method you use, the microgreens will need to be watered. Bottom watering is effective, especially if you are growing them on the kitchen windowsill. When using grow mats, take care not to overwater or dislodge the germinating seeds from the mat.

Sprinkle the microgreen seeds evenly onto the moistened growing medium. The amount of seed varies by the microgreen variety and the stage of growth you want to harvest. Many varieties are only grown to the cotyledon stage and are sown thickly. Others are grown to the first true leaf stage and need more room. For example, the amount of red cabbage seed required for a 10-by-20-inch tray would be between 2 and 3 teaspoons. You would need 2 to 3 tablespoons of radish seeds for that size tray.

After sowing, cover the containers or trays with a clear dome or a paper towel to retain humidity until the seeds germinate. You can remove the cover after a few days.

Because you will need such a large amount of seed, buying seed packets from the local garden center is impractical. Seeds for microgreen use are readily available in bulk. A list of seed companies that supply microgreen seeds and supplies is at the end of this publication.

Be sure to get good-quality, fresh seed because even germination is very important. But even with high-quality seed, the germination times can be a little erratic. A technique called seed priming can be useful. Seed priming involves placing the seeds in an environment where the germination process is allowed to begin before planting. For example, gray sugar peas will germinate in waves over the course of 5 or 6 days. These are big seeds, and simply soaking the seeds overnight will even out their germination times.

For microgreen varieties that have small seeds, try this seed priming technique: In a container with a tight-fitting lid, place $\frac{1}{2}$ cup vermiculite, 2 tablespoons water, and the seed. Place in a warm location, such as the top of the refrigerator, and leave for a couple of days. After the radicle has begun to emerge, spread the vermiculite and seed mixture on the growing medium. This method works well for a 10-by-20-inch tray.



Microgreen Crop Species

Microgreens can be grouped by their rate of growth after sowing. Below are some varieties that are good choices to start out growing:

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| 7 to 10 days | <i>Pea shoots, radishes</i> |
| 10 to 15 days | <i>Mustard, kale, pac choi, red cabbage, kogane cabbage, purple kohlrabi, arugula</i> |
| 16 to 25 days | <i>Beets, red amaranth, carrots, scallions, chard, cilantro, basil</i> |

Harvesting microgreens is a one-cut process, so knowing the rate of growth is important. Succession planting will ensure a steady supply for your family to enjoy.

Microgreens are fragile, so use a sharp pair of scissors to harvest them. Simply grab a bunch and cut 1 to 2 inches down. Store the microgreens in a plastic storage bag or container in the refrigerator. As with any fresh vegetable, always wash microgreens before consuming them.

Watch the *Southern Gardening* television segment for tips and techniques on growing microgreens at www.youtube.com/watch?v=Y-xG2pHAXwA.

Sources of Materials and Seeds

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| Johnny's Selected Seeds | www.johnnyseeds.com |
| Living Whole Foods | www.growingmicrogreens.com |
| Kitazawa Seed Company | www.kitazawaseed.com |

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Microgreens should be purchased in bulk from established seed sources. (Gary R. Bachman)



These primed radish seeds display the emergence of the radicle prior to sowing. (Gary R. Bachman)



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