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MICROGREENS:
HOW TO GROW THESE
TENDER AND FLAVORFUL
LEAFY VEGETABLES AT HOME:
Cheaply, Cleanly and Easily

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How to grow MICROGREENS at home: Cheaply, Cleanly and Easily

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all photos, including on cover, by M.M.Braunstein

Microgreens, the early stages of such greens as lettuce and broccoli, are even younger than mesclun salad greens. And while mescluns first appeared in produce stores in the 1980s, microgreens are even newer. Even the word itself is fresh, as the first use of the word **microgreens** was documented in 1998.

Microgreens start as sprouts and then keep on growing. Despite nutritional claims about microgreens boasted by food writers and microgreen growers, scant documentation exists about their nutritional benefits – that’s how new they are. Instead, data on the nutritional value of microgreens are often interpreted from the scientific studies that already exist about their sprout forebears. While their vitamin content and mineral availability very likely decline when compared to the powerhouse in sprouts, microgreens do excel in regard to their phyto-nutrients and chlorophyll.

Phyto-nutrients, especially rich among the family of such vegetables as broccoli, cabbage, kale, et al, promote health, prevent disease and can even help cure disease, notably cancers. Chlorophyll, the green in greens, is the one substance found outside the human body that chemically most closely resembles the he-

moglobin in blood inside our bodies. The developing chlorophyll is precisely what transforms barely palatable broccoli sprouts into tasty broccoli microgreens. You can never get your fill of chlorophyll.

Sprouts are footloose wanderers, while microgreens decide to put down some roots and settle down. Sprouts grow on thin air and thrive under the cover of darkness. Microgreens grow on soil and yearn for the light of day. Sprouts are very forgiving, but microgreens can be very demanding.

While home gardeners can grow microgreens on trays of soil and water them from above, our method described here ditches cumbersome trays that spill soil and drip water. Instead, here you use repurposed compact food containers that you place into pools of water every one or two days, so that water is absorbed from below.

This technique for home gardening is adapted from that employed by many commercial microgreen farmers who raise their crops in plastic containers that are manufactured specifically for growing seedlings. I owe my adaptation to Lauri Roberts of Farming Turtles (see Resources) who guided me on a tour of her indoor microgreens farm and showed me how to grow microgreens cheaply, cleanly and easily.

You will need:

- ▶ **CONTAINERS** – pint size or half-pint size;
- ▶ **SOIL** – preferably potting soil and seedling soil, but just one will do;
- ▶ **SEEDS** – preferably organically grown;
- ▶ **WATER, SUNLIGHT, WARMTH AND AIR** – the usual suspects.

THE CONTAINER

1) *Eat lots of small fruits:* blueberries, cherry tomatoes, fresh figs, etc. Such small fruits (tomatoes botanically are fruits, not veggies) usually are packaged in plastic pint (half kilo) containers. Raspberries and blackberries come packaged by the half-pint, which are half the depth but equally useful.

2) *Save the pint and half-pint plastic containers,* rather than recycle or (gasp!) discard them. You likely eat mostly or only whole foods, so you soon will accumulate an abundance of plastic containers. The crucial features of these containers are the vents on their bottoms and the lids on their tops. If necessary, rinse and dry them, then stack and store them.

Such plastic usually is recycle number 1 (PET or PETE), a polyethylene polymer predominantly used for water and beverage bottles, collectively called drink bottles. When heated or during prolonged storage, PET can migrate into its liquid contents. Hence the plastic taste of bottled water. At moderate room temperatures and for short durations, however, PET does not affect its solid contents. Hence blueberries and cherry tomatoes do not taste of plastic. Moist soil might be considered semi-liquid, in which case purists might wish to avoid use of plastic. While other containers with holes on their bottoms, for instance terracotta flower pots, are suitable, they obstruct your view of the wondrous rootlets, and they are heavy, bulky and costly. Plastic containers come to you for free and so are "good for nothing."

After multiple re-uses, the plastic does tend to fall apart, but you probably never will retain them that long. By attrition, you'll be starting anew with a fresh batch of containers every three or four cycles. That's because for every five or six containers that you grow, you might bestow one or two as gifts upon eager recipients.

3) *Cut off the lids of the plastic containers* and save half of those lids. As its blades will become dull, an old pair of scissors should be designated for this function.

4) *Place two containers together,* one inside the other, to provide a rigid structure. This rigidity ensures the soil will not shift (meaning the fragile rootlets will anchor) and protects the rootlets from being crushed where they congregate at the container bottom.

THE SOIL

1) *Procure fertile soil.* Either potting soil or seedling mix will provide ample nourishment for microgreens. Potting soil works well, but seedling mix may produce the same results in slightly less time. Adding boosts, such as liquid kelp, mineral dust or backyard compost, is optional. If you add compost from outdoors, be certain it is fully decomposed. Even so, you might introduce into your kitchen many tiny crawling critters that can dwell in it. Such risk is avoided with the use of commercial potting soil or seedling mix. The more fertile the soil, the shorter the growing time. More importantly, well-nourished greens may better nourish you too. If you intend to purchase soil by the bale, be aware that seedling mixes are sold in such quantity only during the spring "growing" season, so plan accordingly.



2) *Prepare your soil.* Remove any undesirable fibrous objects (UFOs), such as leaves or twigs. Before placing the soil into the pint or half-pint containers, place it into a bucket and stir water into the soil, fully moistening it.

3) *Fill the doubled-up containers with moistened soil,* right up to the brim. You might consider filling the bottom half of the containers with potting soil, and the top half with seedling

mix. In time, you should experiment growing with all potting soil, with all seedling mix, with different layers or proportions of both, and with different sources of either. But for a start, seedling mix is recommended.

THE SEEDS

Any veggie that grows into sprouts in jars will continue to grow into microgreens on soil. Beans, however, as microgreens generally turn bitter. Grains as microgreens grow equally well on open trays of soil. So here we shall confine our discussion to the botanical classification strictly named seeds.

1) *Purchase seeds in small quantities,* enough to last you only one year. For current listings of mail order sources of seeds, see the Resources section at the end of this article. More varieties of organically grown seeds are available now than compared to just a few years ago, so organic is certainly preferred.

2) *Choose seed varieties wisely.* If you grow broccoli, you don't need to grow any of the other family of Brassicas, such as cauliflower or kale or cabbage, because as microgreens, they are so similar. For guidance on what varieties grow easiest and taste best, visit Farming Turtles' Web page (see Resources). Farming Turtles sells microgreens, not seeds, so offers and depicts only what its customers like best. For reasons unknown, broccoli is noticeably absent from its Web page. Among the Brassicas, broccoli grows quickly, tastes mildest, and its seeds are the most widely available. Thus broccoli is recommended for beginners. The one Brassica that stands out from the others is radish, and that, too, is easy to grow. Among seeds other than Brassicas that are good for beginners are beet, cress, lettuce and basil. Without dispute, basil tastes best.

3) *Store remaining seeds in glass jars,* and in darkness. If you can spare the room in your fridge, refrigerate them, especially during the hot summer months.

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4) Lay the seeds upon the soil evenly and sparsely, allowing ample "breathing" room between seeds. Some can touch each other, but none should lay one atop another, which only wastes seeds. Press them firmly into the soil, but do not cover them with soil, otherwise a week later the succulent leaves may be encrusted with dry earth.

The smaller the seed, the greater the quantity of seeds that fit into a given volume, so the smaller the measurement of seeds needed to cover the area of the pint container. A general rule for seeds the size of broccoli is 2 teaspoons (10 mL) of seeds per pint (half kilo) container.

THE WATER

Avoid using chlorinated tap water. But if you lack other sources, then allow the tap water to stand in an open container for 24 hours, during which time the chlorine will evaporate. Chlorine's volatility accounts for the strong chlorine smell in the enclosures around indoor swimming pools. Alternatively, certain water filters work well. But even if

you resort to chlorinated water, your microgreens will thrive.

1) *Spray the seeds with water.* The spray atop the seeds adds to the moisture they soak up from the soil beneath them. A fine mister is best, but any spray bottle or spray nozzle will do. A recycled spray container from a non-toxic household cleaner works fine, if fully rinsed of residue. Taste the spray, to know for sure. Between crops, dismantle the spray container and allow it to dry out, else mold or bacteria can grow inside.

2) *Cover the container with its snap-on lid.* To retain moisture, cut a piece of undyed cotton cloth to fit into the container atop the seeds. For your first several crops, you likely will want to view the miracle of germination unfolding, so dispense with the cloth.

3) *At least once a day, lift the lid and spray.* If you're not using a top cloth, you'll need to lift the lid and spray at least twice daily. Be aware that the holes in the lid provide ventilation.

Ventilation assures against mold, but also allows evaporation. If the seeds look dry, then they are dry, so spray away.

4) *Remove the lid altogether,* when the sprouts reach the height of the lid. In warm temperatures, broccoli hits the ceiling upon the second day, while slower grower basil will do so on the third or fourth day. Your mileage will vary.

5) *Daily water by placing the container into a pool of water.* Fill a basin or bowl with water approximately to half the height of the pint container. Keep the bowl in your kitchen sink, and place the container of microgreens into the bowl. Allow it to sit there for half a minute to a minute, until the soil has become thoroughly moistened. Remove the container, set it at a slight angle inside the sink, and allow it to drain for a minute or more. Replenish the water in the bowl as needed, usually after every second container. Watering a tray of six containers as pictured in the photos takes five minutes, in between

BASIL MICROGREENS

The microgreens depicted here were grown under ideal conditions:

Soil – fertile potting soil on bottom half, soft seedling soil on top half.

Seeds – highly viable organic seeds from a crop harvested the previous year.

Water – moistened only with good-tasting well water (Planet Earth milk!).

Sunlight – a half day of direct sunlight through window screen rather than glass.

Warmth – long daylight hours and the warmth of mid-summer.

Air – fresh air oxygenated by the forest and meadow of a nature preserve.

Basil depicted reached peak in seven days. But your own mileage will vary and, during cold short days of winter, can more than double.



Day 1



Day 2



Day 3



Day 4



Day 5



Day 6

which you can tend to other matters in the kitchen.

Herein rests the asset of the vent holes in the bottom of the plastic container. And here, too, is the advantage of this method over the use of messy and cumbersome cafeteria trays. For many years, I grew broccoli and an array of other microgreens on soil on cafeteria trays, so I speak from experience. The tray method is perfect for watering from above such microgreens as wheatgrass and sunflower greens, but none others. (Incidentally, buckwheat greens, also called buckwheat lettuce, are unfit for human consumption (see Resources). Because the microgreens are so densely packed, when watered from above their stems can trap water, which can cause the stems to rot. Watered from below, the stems will not trap water and will not rot.

You can add liquid kelp or other nutritional boosts to the bowl of water. If you so choose, do this on the first day of such soaking. Once you've completed a daily cycle of soaking, some soil will remain behind in the bowl of water, especially for the first few days before rootlets have entwined themselves into the soil. Such accumulations of soil after many cycles of watering risk clogging the drain of your sink, so toss the remaining water outdoors, or filter it before pouring it down the drain.

THE SUNLIGHT, WARMTH & AIR

Sunlight both direct and unfiltered through glass is the ideal toward which to aspire. Full-spectrum grow lights are worthy substitutes, but second best. If your window sills allow only indirect sunlight, that will suffice. You simply will need more days to grow your greens, and your greens will grow longer stems in an effort to

reach for the sun. Leaves generally taste sweet, but stems usually taste tart. Thus the goal is to grow leaves, not stems. If to follow the sunlight you must move your microgreens from window to window, then try your best to do so. And provide them also with the darkness of night.

Warmth is critical. During the cold days and short daylight hours of winter, some greens such as broccoli that take five days to grow in summer can require two weeks to grow in winter. Some, basil for instance, will not grow at all. You can encourage basil to germinate by using a seedling heating mat or a heated cabinet, but once off the mat or out of the cabinet basil will dig in its heels and refuse to budge an inch.

Air is something we all take for granted. Be assured that even if you cannot provide your greens with the fresh air that they need, nevertheless they will oxygenate and clean the air that you deserve.

THE HARVEST

You can taste test and harvest your crop any day along the way, but best to do so before the second set of leaves emerges at the top. Cress grows as a cluster of leaves, but on most varieties the second set is a pair of leaves, just like the first pair. The first set is called the cotyledons; the second set the true leaves. If you delay your harvest until after the second set has grown, your crop will be larger and taller, but may also turn tart and fibrous. As with great works of art, the artist must know not only how to begin, but also when to stop.

Delegate a pair of sharp scissors to use solely for harvesting. Gather a handful of microgreens, and snip at the base of their stems. Be careful not to lift any soil along with greens,

so that you will have no need to rinse them. If you must refrigerate them, do not rinse them, and do protect them in a hard container, not a bag. But do not refrigerate basil, which under cool temperatures turns to mush. Ideally, you will eat your microgreens immediately upon harvest, and you will appreciate them just as they are unadorned by sauces or seasonings. No recipes are needed.

Despite potential obstacles, your labors surely will reap the reward of an abundance of excellence. You do not need a green thumb to achieve fruition. Even a pinky will suffice. But you do need patience and persistence. Tending to your microgreens will be a joy, not a chore. Grow them knowing that you are being good to them, and thank them knowing that they will be good for you. 🌱

Resources:

Farming Turtles guidance on what varieties grow easiest and taste best:

www.farmingturtles.com/pages/ourproducts.htm

For current listings of mail order sources of seeds, print out or download a seven-page PDF of Sources for Seeds at:

www.markbraunstein.org/growmicrogreens.htm

Are Buckwheat Greens Toxic? by Gilles Arbour, posted as a PDF at: www.markbraunstein.org/growmicrogreens.htm

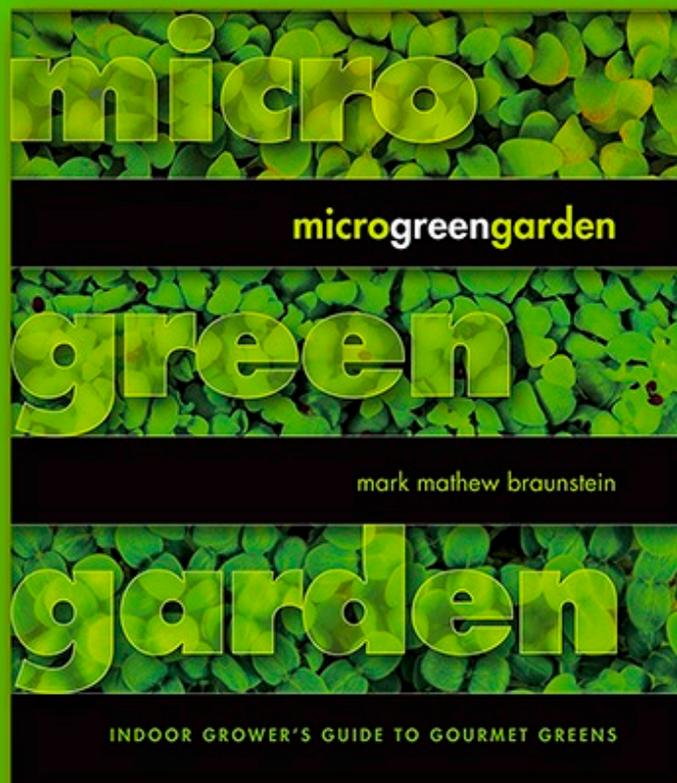
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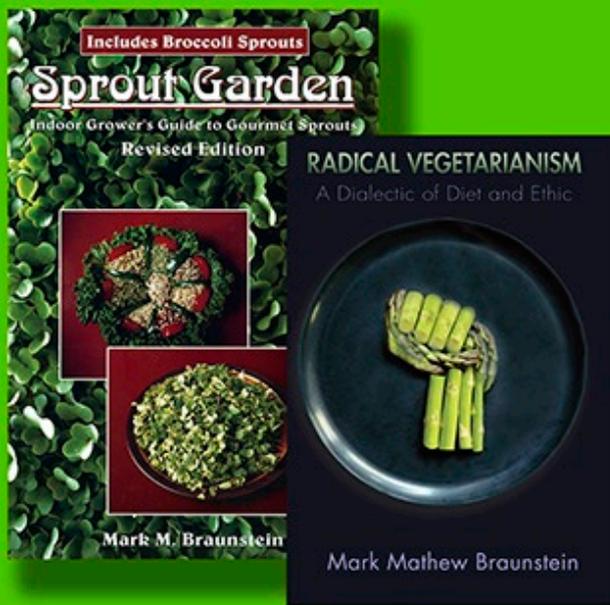
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