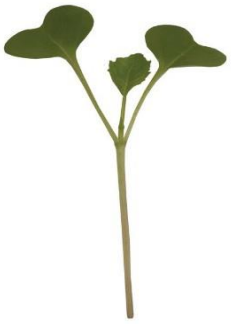
IMGA
INTERNATIONAL MICROGREENS GROWERS ASSOCIATION
Florida

LET'S LEARN ABOUT MICROGREENS

Grow kit

What are Microgreens?



Microgreens are simply common vegetable crops that you seed densely, and harvest soon after the seed grows to the first “true leaf”. Often used as a garnish in fine restaurants the nutritional value of these freshly sprouted plants is astonishing, and many people now grow them as a healthy boost to use in salads, on sandwiches, to juice or just eat on their own.

The flavors of various microgreens are unique to their mature counterpart. Carrot microgreens taste like carrots, beet microgreens like beets, radish microgreens like radish, and so forth. Herb microgreens are typically intensely flavored and can be used in cooking and as a garnish. It’s rather amazing.

Why Grow Microgreens?

Microgreens are one of the fastest to harvest, nutritious and fun crops you can grow. When you grow microgreens, you aren’t waiting for months for your first fruit. The fact is, many varieties of Microgreens mature in the first 8 to 15 days! No weeding or garden construction required.

How many times have you started seeds with great anticipation, watched them spring from the pot but then die or get infested with insects or disease before you even see the first bloom? Hey, it happens to everybody, but it kind of makes you feel like you have a black thumb.

Microgreens are different. Since you know you can grow to the sprout, and maybe further, microgreens reinforce your GREEN thumb and allow you the enchantment of watching the miracle of life as it unfolds before your eyes!

Many people grow microgreens for food and many grow them for profit. Microgreens are the number two cash crop in the United States. Prices for microgreens can be as much as ten dollars for a quantity of around 4 ounces! When considering the cost, it makes sense to grow your own! It also makes sense if you want to start a business with a fast turnover of crop, and good income potential.

Nutritional Information

Scientists from the University of Maryland were the first to study the nutritional value of microgreens. They were amazed to find that these young plants contained from 10 to 40% **more nutrition than the mature vegetable!** From Polyphenols, Folate, Vitamin C, E, K and B’s to minerals like zinc, microgreens rule on the nutritional scale. To read the abstract of this study, click here

What Microgreens Should You Grow?

We recommend starting with a known, easy to grow microgreen that will assure your success. As you get more involved in growing them and are ready to branch out into new varieties, you'll have a positive experience under your belt!

One of our favorite Micros to both grow and eat, is the mighty Radish! Radish microgreens have great spicy flavor and crunch and are available in different colors which makes them pretty on the plate or in salads. We love Red Rambo Radish. Red radish micros are loaded with folate, vitamin C, B6, niacin, and glucosinolate, a precursor to sulforaphane, a known anti-cancer agent. Some argue that radish microgreens have more anti-cancer properties than broccoli micros.

The image above shows Red Rambo Radish on Day 8. They are ready to eat!

Radish is certainly not the only easy microgreen crop. We've listed the easiest to grow and some more advanced choices. If you need help, you can always call us for more info.

Easy Microgreen Crops

- All Radish Varieties
- Collards
- Broccoli
- Mustards
- Cabbages
- Sunflower
- Pea Shoots
- Wheat Grass

Advanced Microgreen Crops

- Cilantro
- Basil
- Chives
- Swiss chard
- Beets
- Sorrel

It's a good Addiction…

Growing microgreens can be downright addictive and as your confidence rises, you'll probably be up to try some different crops. One variety that kids often enjoy is popcorn microgreens! They are grown almost completely in the dark and eaten as a pale yellow shoot. And yes… they taste like popcorn!

Experiment with new varieties, perfect the growing of the varieties you grow and love every minute of watching the miracle of the seed!

How to Grow Microgreens

SUPPLIES TO HAVE ON HAND

To grow microgreens you'll need a few inexpensive supplies, some of which you may have lying around the house:

- Containers to grow in
- Colander to rinse seeds
- Bowl to soak seeds (if required)
- Bath Puff (you can make soaking bags from them)
- Growing Media-this can be soil based or mats
- Spray Bottle for misting seeds
- Hydrogen Peroxide (3% from the drugstore is fine)
- Bleach
- Humidity dome
- Blackout area for seed germination
- Seeds

Growing Containers

You can grow microgreens in almost any shallow container. Most professionals grow in standard 10x20 inch nursery travs. But if these are too large for your home grow, there are other options.

For simplification we will use the 10x20 trays as an example. You'll want to use a "tray in tray" nested approach. One tray will have holes for drainage and the other will not.

The container without holes will provide moisture to your growing media and the microgreens themselves. Once you are past the misting phase for the seeds, you'll be primarily bottom watering by adding water to the bottom tray-enough for the roots but not so much as to over saturate the growing media, which can cause the seedlings to rot or the tray to get mold.

Growing Media

There are many choices for growing media (what you will actually sow your seeds on)and for every media, you'll find lovers and haters of the type. For every person that "swears by" a particular media. There will be folks who will say it doesn't work for this seed or that seed. The thing to remember here is

Mother Nature, is your partner and she wants *her* seeds to grow.. no matter what they are growing in! Let's discuss a few popular choices.

SOILS

The soil growers swear by it. They say their microgreens taste better, are stronger and grow faster. Any soil-based system can work but, they aren't very clean. When you think about how rich organic soils are made, do you really want that splashing up onto your food when you water? I don't like biting down on dirt, but soils are suitable for some of the larger microgreens and nutritional shoots like pea. Some people will say you should ONLY grow certain varieties in soil. Don't believe that!

Soiless Blends

Soil-less blends are products that look kind of like soil such as peat moss, coco coir, and blends of those items with perlite or other additives. These products provide the young seedling structure to hold on to and can be used with bottom and top watering techniques. In production environments, growers say they provide friction to the seed as it emerges, saying that it helps "de hull" the seed casing from the sprouting microgreen. These soil-less blends hold moisture well and are somewhat forgiving if a day of watering is skipped.

GROW MATS AND GROW PADS

There are several types of grow mats and pads available. These pads are convenient because they are precut, and you just wet them and lay them in the tray and sow your seeds directly on top of the pad.

There are natural pads made from coconut fiber, jute fiber, hemp fiber, even bamboo fiber. All of these will grow microgreens because again, mother nature is there to make sure those seeds sprout! There are also pads

made from manmade materials that are popular for growing microgreens.The advantage of using a pad system is cleanliness. There are no loose particles to splash up onto your microgreens when you water. Plus, roots readily penetrate these pads and when you tilt the tray, you do not loose any media or seeds once established.

Finally, the natural fiber mats are compostable with other garden waste.

Where to Grow?

Growing can be done right on the kitchen counter, on a patio or porch if weather permits, in closets or basements with supplemental lighting. You can even grow at the office, on counters, desks and in breakrooms. If there's a will there's a way! If you are starting out and a home grower, your kitchen is probably your best bet. You can keep an eye on things and you'll enjoy watching the stages of growing microgreens. If you don't have room on your counter, there are smaller inexpensive racks that are perfect for the home grower. Lighting can be provided by supplemental means if you don't have a sunny spot.

These rolling lightweight carts let you chase the sun, or slide trays into a closet for blackout periods. They are very affordable and even come with the grow trays.

Some get so excited about farming micrgreens they build grow racks in closets or in spare rooms, basements etc. You can grow a lot of microgreens on a five shelf 4 ft wide, by 2-foot-deep wire rack.

People have started businesses with such racks. It easily accommodates 4 10x20 trays per shelf. That's 20 trays per rack, with going prices of microgreens from around 20 to 35 dollars per tray.. that can supplement an income if you have the customers!

Below is a spicy micro cabbage mix under lights on a wire rack described above. The wire racks allow easy light installation, and can accommodate automated watering, fans and more. They also allow for air circulation, which is important during the growing cycle.

Let's Grow

Are you ready to start growing? We're going to start our first grow using a growing pad, specifically the MicroPro Jute Seed Pad. We will also be using radish seeds for the first crop.

Sanitize Your Trays

Use a dilute bleach solution and make sure they are clean clean clean. Make sure no old vegetation or dirt is stuck to them.

Wet the Pad

Warm water helps the pad get wet the first time, soak it, squeeze it, rinse it, making sure it is moist through and through. It will turn darker all over once saturated. Put hydrogen peroxide, full strength, in a squirt bottle and spray it thoroughly on both sides. You can even soak the pad in H202 (Hydrogen peroxide). Lift the pad and let excess run off, then place in your tray.

Seed Your Tray

Rinse seeds thoroughly before seeding. Some seeds require soaking which we will discuss a little later, but radish does not need a presoak. Seed your tray heavily. Do not be skimpy! You want your seeds in a single layer so that they almost touch each other. It doesn't have to be perfect and it wont be, but you want good coverage.

Mist Heavily with Hydrogen Peroxide

Mist the seeds heavily with the H2O2. This assures that any mold spores will be killed before germination. When the seeds are all glistening with moisture, and the pad is nice and moist, cover with a 3rd tray and put in a dark place. Mist thoroughly, twice daily **with water**, for 2 to 3 days, leaving the seeds in the dark. Pour off excess in the bottom tray and replace with fresh water daily. Use water in the sprayer for misting unless you are fighting mold. If you see mold use H2O2.

Let there be light

By **day three**, they should look something like this:

In this example we used RED RAMBO Radish and it's color is showing. You'll see little tails on each seed and root hairs.

It's time! They can now be placed in a sunny spot or brightly lit area. The MicroFarm is perfect to provide light for a single tray. If you are growing several trays at a time you can set up racks and use t-5 fluorescents or LED's. If you are in a sunny area they can be in direct sun. No matter what lighting you use, take care

that they **do not dry out**. On day 3 and 4 you'll want to be very attentive and keep spraying the sprouts with water, as needed.

The seed pad needs to stay moist. Keep some water in the bottom tray, nest the trays and tilt back and forth allowing the water from the bottom to come up into the mat. **Pour off any extra** after the tilting. On day five, you will only bottom water. Tilt water as above.

By **Day 5** they should look like this. Don't be concerned by the appearance of root hairs. Root hairs are often mistaken as mold. If it's white and attached to the root, It is just your roots growing. You should have impressive root growth into the seed pad and through the tray with holes into the solid tray by now. At this point your job is to keep the roots moist but not wet. You can add water to the tray, tilt and swirl, and then just drain most of it off by tilting. Fresh water a couple of times a day will keep problems at bay. **You will not use misting from this point on..**

Harvest Day

You can harvest radish anytime from day 8 on. If you feel they need a little more time, keep them

Growing and just snip off what you need for your salad or your meal. This is about as fresh as you can get! Radish should be cut maybe an inch above the root system. Use sterilized scissors, a sharp knife and just grab em by the "hair" and cut..

Read on for a few tips on harvesting and Storing, Growing and…possible issues

Harvest and Storing Tips

IF YOU ARE HARVESTING THE ENTIRE TRAY…

DO NOT RINSE. KEEP YOUR MICROS AS DRY AS POSSIBLE. LINE ZIP LOCK BAGS WITH PAPER TOWELS, FOLDED AND PUT THE MICROGREENS IN BETWEEN AS A MOISTURE ABSORBER. WASH BEFORE EATING, IF DESIRED, NOT BEFORE STORING.

Harvest your microgreens when they are DRY. In other words, don't rinse right before or after harvest. You can always rinse them before eating, if you feel the need, but wet microgreens do NOT store well. Use a paper towel inside a storage bag and place your micros between the fold so the paper towels can absorb any excess moisture. Then place them in the refrigerator.

If you plan to only consume your microgreens live, cutting only to be used, be sure to sterilize scissors and or knives. A little rubbing alcohol or even hand sanitizer works fine. Also Wash your hands before handling so you do not introduce any nasties into your still growing greens.

Growing Tips

To Soak or not to Soak

Some microgreen varieties require a presoak, sometimes up to 8 10 or 24 hours. It is generally recommended to soak larger seeds like sunflower and pea for a period to soften the outer seed coat. Wheat grass seeds also need to soak. Also, for any seed that needs soaking, we recommend that you use hydrogen peroxide at full strength (drug store brands) for at least an hour before commencing the soak cycle. These seeds are often stored for a while and can have mold spores on them just waiting to turn into mold at the first sign of moisture. When you soak these seeds, you'll see the reaction of the h2o2 with the matter on the outside of the seed. Let them sit and soak, then rinse in a colander, and soak more in plain water.

When soaking pea, provide plenty of water as the pea will swell to 2 to 3 times it's size.

We suggest letting larger seeds sit, moist in the colander or bag, in a dark place and start germinating before you seed the trays. Be sure to rinse several times a day and avoid drying out. They will exhibit a little tail on each seed when ready to sow. We've had success with seeding immediately after the first soak *and* by letting them germinate. Feel free to experiment. Seed companies can be helpful in learning what works for specific varieties.

What about Nutrients?

Remember the Mother Nature thing?, Not only does she pack that seed with nutrition and energy, she makes sure there is enough to last until harvest. This means that fertilizer is really not needed. Some people do provide mild fertilization, but most crops truly do not need it. Micro greens that take a long time to harvest, like cilantro or sorrel, grow out for a longer period of time. Possibly a mild fertilizer may be beneficial in the later stages. Most varieties do not need it. Even pea shoots can sustain and grow just fine for an extended period with no ferts or nutrients.

Humidity Domes and Heat Mats

Humidity domes come in handy when low humidity rules your household. Very useful for germination stages, these domes keep your seeds from drying out between watering, during germination.

For 10x20 nursery trays, there are many humidity domes available. Some are vented too in case humidity inside the dome becomes excessive. In most cases, you'll only use a humidity dome during germination and perhaps through first few days of the growing cycle. You're trying to maintain the delicate balance between too much and too little moisture.

Heat mats will keep your seeds warm enough to germinate, if you are growing in a cooler spot like a basement. You simply place the mat beneath your tray and plug it in.

Resources and Supplies

Seed Suppliers:

When purchasing microgreens, be sure to buy Microgreen, non GMO seeds from quality suppliers in quantities suitable to seed your tray. Typical seed packets sold in big box stores will not have enough seeds to provide density for a real crop.

JohnnySeeds

An Employee owned company with great variety and good information on growing particular varieties. Their trials are “soil” based however, and their tutorials all involve soil. Just remember that any microgreen can be grown on seed pads.
Johnnyseeds.com

True Leaf Market

Good source for seeds. Less expensive than Johnny’s, packed well and quality seeds. Learn more about True Leaf here

The MicroFarm and Micro Trays Used for Microgreens. It’s perfect for countertop growing. Get it from any IMGA grower member .
Want more info on Microgreens? Sign up for our ongoing tutorials where we discuss specific growing techniques for various microgreen varieties. You’ll be an expert in no time!

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