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Itsy Bitsy Greens microgreens ready for harvest.

Itsy Bitsy Greens Pack Potent Punch

Washington Couple Prove Microgreens Present Profit Potential

BY LAUREN TURNER

On less than half an acre, Michael Douglas and his wife, Astrid Raffinpeyloz, operate Itsy Bitsy Greens, an organic/biodynamic microgreens farm in Sequim, Washington, that generates about half of their modest, but ample, annual income.

Michael grows the microgreens full-time. Astrid works full-time in a managerial capacity at Volunteer Hospice of Clallam County, which she says fulfills her heart mission, and she helps Michael part-time with the microgreens business. She works mostly from home, which allows her the flexibility to help as needed.

Microgreens are vegetables, greens mostly, harvested when they are 10 to 20 days old. They are cut above the root around the time the first true leaf appears (the cotyledon stage), when the plant has all the nutrients it needs for future growth. At this stage, plants are still benefiting from the seeds' energy and are nutrient-dense.

The greens can be eaten in salads, in sandwiches or wraps, on pizza, stir-fried, added to soups, or just alone as a snack – your imagination is the only limit, and, as their tagline says, a little goes a long way.

People choose different microgreens for their unique flavors as well as for specific nutrients. Varieties of greens add interest to dishes, with pleasing colors like red or purple amaranth or beets, the interesting shape of arugula, or cress' spicy bite, in addition to concentrating nutrients.

Once a biodynamic farmer in central, and later, northern California, Michael previously experimented with microgreens as a sideline to his farm. He and Astrid grew and sold microgreens in different locations in California for many years. They have been eating their own for as long as they have grown them and enjoy sharing this healthy food.

When Michael retired and he and Astrid moved to their current small residence, he soon began exploring ways to remain productive. He missed farming, and though it was a huge adjustment to give up his preferred method of growing directly in acres of ground, microgreens offered the opportunity to produce a crop on very little land. He and Astrid now farm using two greenhouses, some space in their garage and even in their house. They also have a small compost pile and a soil-recycling bin. The infrastructure occupies about half their property.

Their soil is rich compost they make themselves by recycling the dirt and roots from the flats after the greens are harvested, using worm composting and some tried and true biodynamic growing principles. They use biodynamic preparations in the soil and plant according to a biodynamic calendar.

Depending on the season, they primarily grow sunflowers, peas, kale, broccoli, collards, arugula, mizuna, tatsoi, several mustards, two radishes, beets and amaranth. They also grow some wheatgrass.

When they had more land, they used to produce their own seeds. Now they purchase seeds from reliable organic seed companies, locally as much as possible.

They aim to be as sustainable as possible, repurposing, recycling and reusing as much as they can. Much of the material they used to build their infrastructure is repurposed used material from local businesses in the community. They built their hoop-house greenhouses using PVC pipe wrapped in greenhouse-grade polyethylene. They have three, two of which are devoted to growing microgreens. The third is mostly for their personal garden, but is also used for overflow microgreens as needed. One is insulated with a double-poly layer; the others are cold frame.

A valuable resource that has served their needs is a local nonprofit recycling merchant named Around Again. There they found reclaimed wood pallets for building their benches and shelves and sourced a refrigerator and freezers for germination cabinets. They invested most in their bench top, which they made with pond liner material. It is easy to keep very clean and protects benches from moisture damage.

Lights mounted under the bottom of the benches provide a protected growing area. Michael and Astrid also crafted a lighted heated area in the garage for winter growing. Four plastic shelves for the area, about the size of the "Gorilla" shelves sold in Costco, are adapted to hang lights. The shelves are insulated with Styrofoam, old quilts and space blankets. Space blankets are the innermost insulating layer; they reflect light and protect the quilts from moisture. Lights are fluorescent on these shelves. Portable

Itsy Bitsy Greens grows a variety of colorful and flavorful options.

oil heaters are placed near the shelves. Curtains of quilt/space blanket slide open and closed at the front of the enclosure to control temperature and moisture levels within.

They first considered using the whole garage for growing, but need a multipurpose space. The space is used year-round, for space in the summer, light and heat in winter.

Germinating cabinets are made from a reclaimed refrigerator and freezers. They used one upright freezer and one chest freezer standing on end. Heating is achieved inside from a single incandescent light bulb, which provides more even heat than from heating mats, and is also more economical to run. A fan and a hole cut in the side of the appliances vents the cabinets to keep air moving.

Another sizeable investment was flats for planting. They had some old flats from prior farming, but they were wooden, built from recycled flats, heavy and cumbersome. They wanted flats to stack during germination without pressing together, and they needed lighter weight flats since the operation requires a lot of moving the flats around from planting, to germinating, to growing stations and to and from a watering station. They found a wholesale source of plastic flats with a lip for stacking and a fine grid bottom, which were expensive, but rarely need replacing.

Michael and Astrid heat their home with a wood pellet stove, and Michael makes liners for the planting flats with handmade perforated plastic sheets he cuts from empty wood pellet bags.

SOIL MATTERS

Once the infrastructure was in place, Michael and Astrid turned their attention to the soil – the heart of the matter – that turned out to be the most challenging part of getting started. They bought a good grade potting soil of peat moss and perlite, but got poor results at first – low volume and quality.

They came across Earth CPR Supplies, a local company selling organic farm and garden supplies, and formed a relationship with the owners, Len and Wanda. After consulting Len and Wanda, Michael added good quality worm castings from cow manure to his soil. He replaced perlite with pumice, which has an electrical charge that is more beneficial to the soil composition than perlite, and he added humates. Humates are highly compressed natural organic humus mined from the remains of ancient forests, which existed millions of years ago in various locations throughout the world. Michael uses Alaska humate, which consists of pure forest humus derived from naturally decomposed forest debris that has slowly matured by long winters and short intense summers in Alaska. Humates provide a concentrated source of naturally occurring humus to the soil. They contain an abundance of diverse soil microorganisms and help restore the natural balance of nutrients for optimal plant growth. They increase the humus content of soil, improving soil structure and water retention.

Michael added biochar, which, among other benefits, helps plants

Michael Douglas and his wife, Astrid Raffinpeyloz, operate Itsy Bitsy Greens in Sequim, Washington.

take up soil nutrients efficiently, and he uses a mineral mixture, Solu-PLKS, that stimulates bacterial growth in the soil.

Michael composts the soil and roots in his planting flats, recycling it in later plantings. Because he and Astrid started the business in the winter, they need heat to accelerate the decomposition process, to get compost more quickly. After harvesting the greens, Michael places the recycled soil in perforated plastic bags on top of his garden compost pile, which generates heat, and he covers them at night to retain the heat. He uses that method until warm weather.

The first time Michael planted in the recycled soil he noticed a difference and says, "The soil came to life." He noted that once you start composting and recycling, bacterial soil life perpetuates itself and keeps improving. The quality of soil is enhanced over time, and additives are rarely needed.

Michael started a recycling bin just for the microgreens. Sides are built from upturned flats of wheatgrass, which take a long time to break down. Inside that wall, recycled flats of soil, roots and stem stubble are placed to decompose. He turns the pile periodically to bring more decomposed material to the surface and then moves completely decomposed/recycled soil to the other end of the area to be sifted and used for planting. Maintaining soil health is the most time-consuming part of the operation.

BIODYNAMIC GROWING

Michael next decided to add biodynamic preparations to the mix. These are ingredients made from fermented manure, minerals and specific herbs that, according to the Biodynamic Association, are used to help restore and harmonize the vital life forces of the farm and to enhance the nutrition, quality and flavor of the plants being grown.

Biodynamic farmers strive to create a diverse, balanced farm ecosystem that generates health and fertility as much as possible from within the farm itself, integrating processes of both plant and animal life.

"Biodynamics sees the farm as a living entity," said Michael.

He has studied and practiced biodynamic agriculture his entire life, but found it hard to envision applying it to the greenhouse environment. He eventually worked out how it fit.

He uses Pfeiffer compost starter, from the Josephine Porter Institute, a nonprofit national producer and distributer of biodynamic preparations. Pfeiffer compost starter has all the biodynamic preparations combined in a mix that is added to water and used as a spray and is conducive to the small operation.

Michael applies the mixture once or twice per year to composting material. He made his own worm castings with cow manure and added classic preparations and let it sit, separately, as a place to keep the classic preparations. He adds small amounts periodically to the recycled flats bin. Once the recycled material is ready for use he brings the soil to the planting table in one of the greenhouses.

Producing microgreens is labor-intensive, particularly during warm weather when the plants reach the cotyledon stage quickly. The labor is very hands-on, which Michael likes – carrying, lifting and walking. He likes the intimate relationship with his product, his relationship with the land – to him his flats are the land – and growing with a small footprint. He said he would have to change the process to make it the sole source of their income, but it could be done, likely with some sacrifice of the intimacy in this particular relationship.

Michael and Astrid plant according to the Stella Natura biodynamic planting calendar. The calendar considers the effects on plants of the phase of the moon, alignment of the planets, sun and position of the stars, always with an eye to the weather. The calendar charts most favorable and unfavorable planting days, and they use the calendar mostly to avoid unfavorable days. Other factors are more critical to those who grow plants to maturity.

Michael places a perforated liner into a flat, ensures the moisture content of the soil is right for germination and then hand sifts soil into the flat. He levels the soil with a tile trowel or with a wooden tool he made for the purpose, that fits the inside dimensions of the flat perfectly. He then presses the bottom of another flat gently into the top of the soil to compress it slightly, lifts that flat off and then hand broadcasts carefully weighed seeds onto the soil surface. He covers the seed lightly with soil and covers the flat with a plastic sheet.

He stacks flats prepared in this manner, covering the surface of the top flat, and sets the flats in a thermostatically controlled, ventilated germination cabinet for one to three days, depending on the seed. After germination, the flats are moved to greenhouses in summer, or to shelves under lights in winter.

Flats of microgreens receive some top watering at first, to settle the seedlings. Then they are moved to a watering station – a flat container bigger than the flats – for bottom watering and then returned to the benches. Top watering is convenient but better used in summer, when damping off, a fungal disease that causes root rot, is less of a threat.

When soil health is optimum and seed is good quality, top watering does not encourage damping off, but Michael and Astrid have found that it is still best used only in summer, since the disease is most prevalent in the wet and cool conditions typical of their Pacific Northwest winter.

It is essential to keep moving flats around because light and heat are not necessarily evenly distributed throughout the shelves or even in the greenhouse. Daily handling of the flats enables Michael to monitor moisture, stage of growth and general health of the plants.

GOING TO MARKET

The microgreens are harvested at the emergence of first true leaf. Each Thursday Michael and Astrid cut whatever greens have reached that stage, by hand with scissors or a knife, just above the soil, leaving roots and stubble behind. They promptly package and refrigerate them, in sandwich bags with fold-over tops. Sunflower microgreens packages weigh 4 ounces; all other varieties are 2 ounces.

Astrid, who has a background in graphic design, designed and produces labels for the bags, and she designed their website, business cards and brochures. All but the sunflower labels have a blank space where she and Michael handwrite the name of the microgreens or microgreens mix. The blanks allow flexibility to label according to the week's particular orders, and wholesale customers have told them it gives a folksy feel to their product, which people enjoy.

They deliver weekly to their wholesale customers. Retail customers discovered them when they had a stand at the Sequim farmers' market for a couple of years and can now pick up at their front porch once a week, using either the honor system or prepaid orders for the month. Quantity varies according to demand, which fluctuates between winter and summer.

They sell only freshly cut microgreens and only locally, in two organic groceries, a couple of restaurants, a country store deli that adds their greens to sandwiches upon request and also from their front porch. They are an inspirational model of a small enterprise that generates substantial income while integrating personal values that benefit their local community and environment. Indeed, a little bit goes a long way.

NEED MORE INFORMATION? For more information about Itsy Bitsy Greens, visit *itsybitsygreens.com*.

Lauren Turner is a freelance writer, specializing in agricultural, environmental and community topics. She retired from a 30-year career with the U.S. Forest Service, where she worked as a wildlife biologist, ecosystem manager and District Ranger. An avid organic gardener, she lives in Sequim, Washington, with her husband and their three cats.

RESOURCES

Biodynamic Association: *biodynamics.com*

Josephine Porter Institute: *jpibiodynamics.org*

2018 North American Maria Thun Biodyanmic Calendar, *acresusa.com*; 800-355-5313

2018 Stella Natura Biodynamic Calendar, *acresusa.com*; 800-355-5313