

# Mycoterra farm makes the most of the gourmet fungi niche

BY VIJEE VENKATRAMAN

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“The lion’s mane does not like to be dripped on,” Julia Coffey informs me, “so it sits on the top shelf of this greenhouse.” The founder of Mycoterra Farm, a leading small-scale, year-round mushroom farm in Massachusetts, knows exactly what makes her edible fungi tick. When she first started bringing her quaintly named native mushrooms to farmers markets, people didn’t exactly line up to buy them. She had to work to build a following.

Coffey also took her mushrooms to restaurants for chefs to sample. One early taker was Dolly Bourommavong, chef de cuisine at Metropolis Café in Boston. To her, the shredded lion’s mane, which look like albino broccoli heads, resembled crabmeat, so she used them to create vegetarian crab cakes. Now she is experimenting with other varieties of mushrooms.

“I’ve been using Mycoterra mushrooms for about three years now,” she says. “They have such great flavor. It is consistent. And it’s local. Can’t beat that.”

Thanks to endorsements from discerning clients like Bourommavong, the owners of Mycoterra Farm are now expanding their business—moving their farm from their home in Westhampton to a 21,000-square-foot building on five acres in Deerfield.

Coffey started Mycoterra Farm in 2011, growing oyster mushrooms in the basement of her rented house in the woodlands of Westhampton, the town where she was born and raised. The farmers markets in nearby Northampton and Williamsburg had other produce: fruits, vegetables, dairy products and meat. But there were no gourmet mushrooms; that niche was hers to fill.

She now owns the house she had rented. Her parents live next door, in the house where she grew up. She operates Mycoterra with her boyfriend, Chris Haskell. Ila, their toddler, ambles around the wooded lot barefoot. “She loves her winter boots but it is hard to get her to keep sandals or sneakers on,” the mom-farmer says. Like the little girl, their business is all set to grow.

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Mycoterra, which sells mushrooms direct to customers at farmers markets and delivers to restaurants, also offers mushroom club cards and is seeking additional distribution channels. “Mushrooms are delicate,” Coffey explains. “They don’t travel well.” And most varieties taste best when they make it from farm to table within a short period of time.

Mushrooms’ short shelf life is one key reason Mycoterra implemented its mushroom club card. Customers can pick up the cards at farmers markets and redeem them at will. The farm used to run a mushroom CSA but, Coffey says, “People would sometimes forget to pick up and the produce would go to waste.” Some large farms buy Mycoterra mushrooms in bulk to offer them as a special treat to customers.

In addition to local distributors, Coffey is looking for a tie-in in with outfits like Blue Apron or Purple Carrot, which send customers boxes filled with high-quality ingredients to cook fresh meals. “That can be an interesting way to expose people to cooking with different varieties of mushrooms,” she says. Her preference is to work with a business that has a local hub that will get the products into the hands of the consumer within a couple of days, so they will be as close to peak freshness as possible.

The primary varieties Mycoterra offers year-round are: shiitake, various kinds of oyster (pearl, pink, king and blue) and, yes, lion’s mane. The farm also cultivates a number of exotic varieties on a more seasonal basis: nameko, enokitake, turkey tail and pioppino, to name a few. Coffey says they are working on making other varieties available, but it can take a while to hone a technique for any given species.

## **GROWING MUSHROOMS INDOORS**

Growing exotic mushrooms indoors is not a new phenomenon in the United States. Jim Angelucci, the general manager of Phillips Mushroom Farms in Pennsylvania, says theirs was the first company in the country to start growing shiitake mushrooms year-round in a controlled environment back in 1979. Chefs were instrumental in making gourmet mushrooms part of the American cuisine, and people saw mushrooms as a healthier substitute to meat, he adds. Specialty mushrooms are still only a small subset of the overall market for mushrooms, Angelucci says, but the demand for all sorts of organically grown varieties remains high.

With its planned expansion, Mycoterra will apply for organic certification. “We already grow our mushrooms in small batches on hardwood sawdust and straw, following organic practices,” says Coffey. “No pesticides, no bactericides, no nothing.” The hardwood sawdust comes from Bannish Lumber Mills in the Berkshires; the straw is from Slow Tractor Farm, which grows unsprayed grains for Valley Malt in Hadley.

Most mushrooms that the farm cultivates thrive on sterilized hardwood sawdust. Oyster mushrooms, which can handle the presence of other organisms and actually benefit from them, also do well in long thin bags, or “logs,” of pasteurized straw.

Both straw and sawdust are rapidly colonized by the mycelium—the vegetative stage of the mushroom lifecycle, typically made up of threadlike filaments. Though often white, the mycelium of each species is unique. Some are dense and tenacious; others can be diffuse and delicate.

The grower can harvest the fruits of the mycelium, or mushrooms, throughout the year. “The cultures we work with have mostly been purchased from suppliers or traded from other growers,” says Coffey, who has successfully cloned some tissue cultures herself.

The mycelium, which starts off in a petri dish, grows exponentially within a short time, and the spawn will see a series of transplants. First it is put in jars, and later, bags of grain.

After the spawn colonizes or “runs through” the grain, it is placed in sterilized sawdust. Finally, the spawn is used to inoculate bags of sawdust that have been supplemented with gypsum and millet bran.

The crew loads the sealed bags on a golf cart and brings them into a large greenhouse, where they are left to incubate for anywhere from a few weeks to a few months, depending on the variety of mushroom. The water content in each bag is enough to sustain the mycelium through incubation. When the staff are not working in this area, lights are off. In this dark and quiet, the mycelium colonizes the substrate just as it would work its way through a log in the woods. At the end of this process, the contents of each bag transform into a unified mass, or block. The team moves the blocks to the grow room, where the mushrooms finally make their appearance.

Mycoterra has developed different strategies for successful cultivation of different species. For instance, the bags holding shiitake mushrooms are kept in a

cooler to create the semblance of frost. Then the bags are soaked with water—the equivalent of spring showers—which encourages them to yield fruit.

On the farm, mushrooms are plentiful year-round, but they grow faster in the summer thanks to the heat and light. While harvesting, the crew starts at one corner of the greenhouse and works methodically down the aisles, picking all the mature mushrooms in a couple of hours. “In summer, after we have harvested the entire greenhouse and are back to the starting point, sometimes we see that clusters of mushrooms that were immature are now harvest-ready,” says Coffey.

Cultivating mushrooms is not just a science; intuition plays a huge part. There’s an art to knowing the optimal time for pulling blocks to go from incubation to the grow room, says Coffey. “The care the blocks receive in first few days in the grow room can really affect yields. It is important to keep the blocks really wet, yet it is possible to over water, so it helps if you can read them to know when to back off watering.”

Occasionally, Mycoterra farmers forage the much-sought-after chicken of the woods variety, but may soon be able to grow it indoors. “Their mycelium tends to get airborne like a mold and contaminate other species you are trying to grow,” says Coffey. But these mushrooms can be grown in a place exclusively dedicated to them. Once they’ve moved their operations to the larger facility, they plan to use the basement lab, where the business started, to grow the chicken of the woods.

### **GREATER EFFICIENCY, NOVEL PRODUCTS**

Mycoterra’s new home is a former equestrian facility on mostly open pasture, with close to an acre of wooded land. The bigger space will allow the farm to use mechanization and make the operation more efficient.

The biggest motivation for buying the new space, Coffey says, was that it could accommodate a commercial autoclave, an industrial version of the pressure cooker. This is a key piece of equipment because the medium on which the spawn grows has to be sterilized as the first step to eliminate competing microbes. The autoclave is about the size of two minivans and weighs 13,000 pounds. So the Mycoterra staff will be able to sterilize nearly 20 times the number of bags they do now with their 10 pressure cookers.

That's a lot of sawdust for the small team to handle. Apart from Coffey and Haskell, there are two full-time and three part-time employees. The crew now mixes and bags sawdust by hand. This means carrying sawdust in buckets, mixing it with bran and gypsum using rakes and shovels, watering with a hose, mixing some more and filling bags with gallon pitchers. It takes about two hours to do 80 bags and it involves heavy lifting, bending, squatting and many repetitive movements.

With labor-saving devices, all this is set to change. A "mixer," which does the mixing, and the "bagger," which automatically measures the right amount of substrate for each bag, will allow one person to load the sawdust into bags using a tractor. Overall, by bringing down labor costs—a big part of the production cost—the new efficiencies promise to bring down the unit price of the gourmet mushrooms for customers.

"Right now we produce about 500 pounds of mushrooms a week. Once we're up and running, we'll be able to produce 1,500–2,000 pounds a week," says Coffey. This means she can also make more of her mushroom products: skin care products with shiitake mushrooms including soap, lotion, skin toner and bug spray. Research on the skin care benefits of shiitake reveals that their antioxidant properties work on the outside as well as inside our bodies, she says. To Coffey, another exciting aspect of growth is the greater number of exhausted mushroom-growing blocks that will be left at the end of the process. There are creative ways of using this substrate to enrich garden soil, she says. Mycoterra sells grow-at-home mushroom kits—essentially a bag of shiitake mycelium growing on sawdust and bran—so DIY enthusiasts may be familiar with the concept of exhausted blocks. They may have placed the worn-out blocks outdoors or buried them in hardwood dust to coax out another crop of mushrooms.

At Mycoterra Farm, once the mycelium has begun decomposing the sawdust substrate, the crew chips up the used block, mixes in miscellaneous garden waste and composts the lot into mulch-like matter. But unlike mulch, this organic matter can hold nutrients in a bio-available way, so it could be used to help amend soil.

"From compacted gravelly loam—of our gravel bank—it has made a light spongy soil in our garden. Now, the plants, annuals and perennials establish more easily and appear to be disease-resistant," says Coffey.

With the landscaping product, which is still being conceived, Mycoterra Farm could also help enrich garden soil in New England. That would not be a bad bonus from a farm that itself is based on two age-old agricultural and forestry byproducts: straw and sawdust.