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Coveted, French, and Now in Tennessee

By MOLLY O'NEILL

CHUCKEY, Tenn.

THE town of Chuckey is located on the upside of the Nolichucky River valley in an eastern jut of [Tennessee](#) about 20 miles from the crest of the Blue Ridge Mountains and the North Carolina border. The East Tennessee and Virginia Railroad used to stop in the town to pick up grain and tobacco, but the red brick station, built in 1906, is long since abandoned. Many of the farms have given way to middle income housing and the workers among the town's 800 or so residents tend to punch the clock at the Wal-Mart Distribution Center or in factories that make gift wrap, automotive parts or lawnmowers.

Chuckey is not the sort of place one expects to find the holy grail of the food loving world. But on the edge of town, perched on a south-facing slope overlooking the birthplace of Davy Crockett, an orchard of 350 hazelnut trees has begun to sprout Périgord truffles, the fragrant black fungi that can send epicures, as well as routing pigs and dogs, into fits of frenzied greed.

The truffles from Chuckey are not the first American-grown Périgord truffles. They are, however, the first American grown black truffles to excite some of the country's top chefs, like [Daniel Boulud](#), Thomas Keller, John Fler and Jonathan Waxman.

Although unexpected, the Tennessee truffles were not unplanned. Tom Michaels, a 59-year-old plant pathologist, pianist and Scrabble tournament competitor, sprouted the hazelnut trees from seeds. He inoculated their roots with *Tuber melanosporum*, the Périgord truffle, before setting them in his backyard seven years ago.

He resisted dreams of a truffle bonanza as assiduously as he limed his soil and trimmed his trees. Dr. Michaels had, after all, grown up on a mushroom farm west of Chicago and had written his thesis on the difficulty of the in-vitro cultivation and growth of *T. melanosporum*.

He knew that millions of dollars have been lost since the 1970s in the attempt to cultivate truffles in the United States. Some of the failures were spectacular. One multimillion dollar orchard in Hext, Tex., is now being managed as a game preserve.

When, on the morning of Jan. 3, he noticed patches of the tawny Tennessee soil bubbling up like blistered asphalt in his orchard, however, Dr. Michaels lost his circumspection. "I was jumping around yelling 'Eureka!' " he said. And that was before he saw the size of the bulbs, before he felt them and smelled them and tasted them, before one of his truffles had found its way into the chef Daniel Boulud's kitchen in Manhattan, before the chef had confirmed the grower's suspicion.

“This is it,” Mr. Boulud said. “The first time in America. This Tennessee truffle is the real thing.”

Only then did Dr. Michaels realize that up to 150 pounds of world class truffles could be ripening in the ground behind his modest three-bedroom ranch, and that he had neither dog nor pig to sniff them out before they withered and disappeared.

“Growing truffles is not like growing tomatoes,” he said. “You don’t just plant them one day and know that a certain number of days later they will fruit.”

In fact, to grow truffles is to govern an intricate culture of plant and fungus life, as well as environmental conditions, not all of which are known and most of which are hidden underground.

Tending a truffle orchard is as much of an art as it is a science and it is, most of all, an act of faith — it typically takes 6 to 12 years for the fungi to form truffles in the earth. Mystery and scarcity are part of the truffle’s allure.

According to James M. Trappe, a professor emeritus of mycology at [Oregon State University](#) and the co-author of the forthcoming “Trees, Truffles and Beasts: How Forests Function” (Rutgers University Press), there are about 60 species of true truffles, the subterranean fungi that attach to a plant’s roots and issue long tendrils that gather nutrition for the plant and use the carbohydrates that the plant returns to eventually form the “fruit” we call truffles — but only a dozen are prized in the kitchen.

Most fungi sprout a stem and cap that contain reproductive spores. The truffle does not. The truffle is a “sack of spores,” explained Dr. Trappe, and while other mushrooms need nothing but a rustling wind to loosen and spread their seed, the subterranean bulb needs to be digested and excreted by an animal. In order to attract rodents and marsupials, the truffle, like a tiny underground perfume factory, produces up to 50 different chemicals that combine to create a scent powerful enough to penetrate up to three feet of earth.

“Some smell like cheese, some like garlic, some like fruit, some like sewer gas,” Dr. Trappe said. The aroma of *T. melanosporum*, generally a mixture of musk and fruit and forest floor, and the earthy, garlicky *Tuber magnatum*, or Italian white truffle, are the most prized.

The Burgundy truffle, which thrives in a cooler climate and is currently being tested by Johann Brunn at the [University of Missouri](#), and the white Oregon truffle also have a pronounced aroma. The summer truffle and the pecan truffle from the American South are milder.

Truffles occur naturally, but the most prized ones have been disappearing since the late 19th century. By all accounts, current Périgord truffle production is only about 5 percent of what it was back then. Until recently, they resisted all attempts at controlled cultivation.

French scientists, Dr. Trappe said, patented a technique for inoculating the roots of traditional host trees — the hazelnut and three different varieties of oak — with truffle spores. The result was seedlings that could be planted in any hospitable soil. In the late 1970s, orchards were planted in northern California, and in 1980, Franklin Garland, a greenhouse owner from Hillsborough, N.C., bought some of the French-inoculated trees and planted them outside his hometown.

Meanwhile, at Oregon State University, Tom Michaels was completing his doctorate, running field trials of truffle cultivation research. Dr. Michaels worked in mushroom research for six years before starting his own button mushroom farm. He sold it in 1992 to follow his wife, a physician, to Tennessee, where she had accepted a position. He had intended to be Mr. Mom, he said, but his plans changed after he drove across the mountains to North Carolina's Piedmont district to visit Mr. Garland.

"He only had a couple truffles," Dr. Michaels said. "He had significant 'brûlé,' — the circle of burned vegetation around the base of trees that is the classic signature of the presence of the truffle fungus. "As soon as I saw that, my truffle light went on."

His doctoral research had demonstrated that truffles prefer warm, dry summers; cool, wet winters; and alkaline soil like that of eastern Tennessee. He knew that *T. melanosporum*'s natural enemies are the dozens of other fungi eager to colonize the roots of hazelnut or oak trees. The limestone soil in his backyard, he figured, was similar to the soil of the Périgord region, to which *T. melanosporum* — but not necessarily its competitors — had, over millennia, adapted. After several years of experimenting with different ground covers and fertilizers, he put in his first orchard in 2000. By this January, when his first crop appeared, Dr. Michaels had three separate plots of land with about 2,500 trees in cultivation.

Dr. Michaels is the first domestic truffle farmer to produce commercial quantities of truffles of a quality that commands top dollar (\$50 an ounce, \$800 a pound). But he is not the only one panning for black gold. There are, said Charles K. Lefevre, the owner of New World Truffieres in Eugene, Ore., about 300 promising orchards on American soil. "The same sort of people you find growing grapes in California are starting to plant truffle orchards," said Dr. Lefevre, whose company last year supplied about 13,000 inoculated trees to about 50 hopeful growers.

In Hillsborough, Mr. Garland's nursery, Garland Truffles, supplies a similar quantity of inoculated trees. With a \$235,000 grant from the North Carolina Tobacco Trust Fund, which supports research that may benefit former tobacco farmers, Mr. Garland has also supplied 45 of those farmers with trees. If even a small number of these orchards succeed, truffles will be more plentiful and their prices may begin to drop.

But while the science of truffle cultivation has improved, the secret of coaxing Périgord truffles from the earth remains tucked in an unlikely corner.

"Take a right at the House of Hidden Treasures," Dr. Michaels instructs visitors to Chuckey, "then follow that road past some mobile homes. I'm the last driveway on the right."

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