

# The Natural Farmer

## The Woods at Honey Hollow Farm - Spring 2002 Special Supplement on AgroForestry

by Jack Kittredge

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The Schoharie River Valley area southwest of Albany contains some of the best farmland in New York. Back when the Taconic range was as high as the Himalayas, geologists say, there was a delta in the Catskills and the Schoharie Valley was a sea bed. Alluvial deposits over countless ages left what is now a topsoil many feet thick, in which fossils are often found.

This productive valley land supported early Dutch planters with their manor houses and large plantations. A system of tenant farming, derived from Europe, supplied the necessary labor. It lasted until the middle of the 19th century, when several small depressions squeezed a generation of farmers into the locally famous rent wars. Bands of armed farmers, unable to pay their rent, would rally to prevent the sheriff from carrying out evictions when the alarm was raised by the call of tin horns. Finally the patroonship system of land-holding was abolished in favor of free-holds, and history turned its attention elsewhere.

The hills which frame the river valley climb steeply up. On their flanks is no alluvial topsoil, but glacial till. At 1400 feet, on Michael Hoffman's farm, a seasonal stream has turned up so many cobblestones they call it Cobblekill. Also on his farm is a hollow where one of the first commercial honeybee operations in the country existed. Thus the name, Honey Hollow Farm.

The farm is Michael and Linda's livelihood, except for a disability payment he receives. During the winter they work on the post and beam house they have been building for five years. Surrounding the house are patios and walkways of field stone that have taken hundreds of hours to haul from the garden and lay in place in beds of sand.



photo by Jack Kittredge

**NOFA/NY certified farmer Michael Hoffman stands in his woods where he raises shiitake mushrooms on oak logs. After being innoculated for a year and a half, the logs are soaked in the stock tank behind Hoffman to bring on a flush of fruiting.**

Michael admits it's slow going, but points out the one advantage of this pace: "We've done this without going into debt! We don't have a mortgage. We figure each month if we can afford something — like a bathroom door. I don't want to take out a big loan, and I don't want to get that big. I don't want to be a business, with employees. I'm a nature guy."

Born in Orange, New Jersey, Michael moved as a child a few miles out to what was then rural country, where he explored a lot in woods and nature. He became a welder, but after being disabled was attracted to this part of New York by the low price of land. He bought 110 acres, mostly wooded, and began raising the things he liked: vegetables, chickens, flowers, mushrooms, ginseng, herbs. The pair sell their produce at the Green Market in Union Square every Monday. They leave at 3 in the morning and get back late at night. It an excellent market, Hoffman says, and well worth maintaining. Growers can get into other Green Markets pretty easily, but Union Square has a waiting list. Being certified organic helps them significantly, especially when some big grower brings in tons of tomatoes long before they are ripe in the hill country. Sometimes, Hoffman says, he is lucky to get tomatoes before the frost hits.

During spring the land stays wet and cold, then in the summer there is often drought. The soil is a clay humus with a Ph of about 5 or 6 on which Michael battles to keep up with liming. While there is no bedrock on the farm, he says with a sigh that there are plenty of pieces of ledge and boulders he spends half a day digging around to get a chain in place to pull.

"I've been trying to increase the area under production," he says. "We maybe have a couple of acres so far. This was all hayfield and I think I'm working on seeds that have been here since the ice age. You have to smother quack grass for years. I put black plastic down to kill the sod, but the quack grass keeps coming back! I love leaves — we use tons of leaves from the town. We'll put down leaves a couple of feet deep, trying to kill the quack grass. It finally makes it through, though. That's one thing I know how to grow!"

Weeds, however, are not the worst of Hoffman's problems. Living surrounded by thousands of acres of forest, the returning deer population is a constant challenge. He has put a high fence around his entire garden and keeps purebred dogs there to chase away invaders. While that is pretty effective for the does when they have fawns with them, at other times the deer seem to get in and out before the dogs can reach them. Michael is also concerned about what the deer are doing to the oaks, ginseng, wasabi and other plantings he has made in his extensive woods.

Hoffman has been planting Ginseng in his woods for the past 10 years or so. It used to grow wild throughout the area, but its value as an ingredient in oriental medicine became so high that in the 1890s the wild ginseng beds were obliterated. Whole towns would turn out to dig the plants up.

Michael has been helping it come back in by seeding likely areas. Unfortunately, most of his woods are pine and ginseng prefers hardwood. So he has also been liming his woods to raise the pH, putting down lots of oak leaves, and occasionally bringing in trace elements. The soil has a sandy base, however, which means it drains well — a necessity for ginseng to thrive.

Ginseng seed generally has to be stratified for a year and a half — go through two winters — before it will germinate. Hoffman used to buy stratified seed, but now just collects seed from his plants and spreads it around. It stratifies in the soil and then comes up.

"Seeds have their little strategies too," he says. "Some will come up the next year, some will wait 5 or 6 years. They'll stagger their timing, just in case."



photo by Jack Kittredge

**Ginseng, which once proliferated throughout these hills, practically disappeared by the 1890s because of over-harvesting. Hoffman's multi-year efforts to reestablish the species in his woods have paid off with the appearance of hundreds of plants like these. Although young, they appear to be thriving. The one in the center of this picture is at least three years old and had several seeds visible growing on a spike in the center of the three compound leaves.**

The plant will start out with just a single leaf the first year, the second it will have two leaves, and the third, three. The leaf is compound, with five sections which look as if they were each separate ones. When a plant is at least three years old, about June it will form a flower in the center of the plant. This becomes a red berry in the fall, with seeds in it. If you harvest it, you are supposed to wait until the seeds are ripe and then replant them.

Too much sunlight will burn ginseng — it will fade. You can't really tell how old ginseng is from looking at it.

Even a 50-year old plant wouldn't be much bigger than a 5 or 6 year old one — perhaps a couple of feet tall as opposed to 12 to 18 inches. The only real way to tell the plant's age is to carefully expose a portion of the root and count the bud scars which are formed each year by new growth.

Michael's steady work at seeding his land is showing fruit, with many young ginseng plants in beds throughout his woods, despite strong predation by deer. But it has not been easy.

"This was a lot of work, planting all this," he asserts. "I figure I'm up against deer, I'm up against 'shangers. I've found mice and voles really like ginseng, too. I was going to raise it in the field — put an arbor up, put kiwi over it and ginseng under it since it likes shade. That way I could protect it. But the rabbits killed the kiwi before it got going. It doesn't grow as fast as the catalogs say."

Another idea he tried to protect the ginseng was to grow in within a circle of logs. Since he was cutting and plugging large numbers of oak logs for shiitake production, Hoffman stacked them and made them into deer fencing. That has helped somewhat, with ginseng plants and young oaks (also favored by deer) making their comeback a little within the fencing.

The market for ginseng has been flooded with field-grown product recently. Since it is grown as a monoculture it has lots of problems with fungi and is thus heavily doused with fungicides. Field-grown ginseng used to command a hundred dollars a pound. Now it's more like \$20, Michael reports.

"You figure it has to grow at least 4 years," he says, "and that's not that much money. But in the field the roots can grow pretty big — like turnips. In Wisconsin, it's a big business. They bring in 2000 pounds per acre. They fumigate the soil — kill everything in it. So I take my own ginseng! With the wild plant you can get \$200 to \$2000 a pound for the roots. But I just sell ginseng to individuals."

Hoffman has a large mushroom operation in his woods as well. Most of the work goes into shiitakes, but he also cultures morels, chanterrels, mitakes and adankos. The shiitake and mitake varieties grow naturally on trees. To grow them for production, however, oak logs are cut to about 4 feet in length, then drilled with about 50 holes per log. Into these holes are inserted dowels which have had the appropriate fungus grown through them in sterile labs.

To create these dowels in the lab, he says, they cut a piece of mushroom, put it in a sterile flask full of agar, and grow it out. Then they break that up and put it in jars of boiled rye. Once the fungus has grown through the rye, they take jars of sterilized dowels, put the rye in them, and grow the mycelium through the dowels. Michael has tried to inoculate his own dowels, but has had only about a 10% success rate — he gets contamination from molds, penicillin, all kinds of other organisms.

Once he hammers dowels into the log, Hoffman seals the hole with wax. It then takes about a year and a half for the fungus to colonize the log. When it's ready he soaks the log for about a day to get a flush of fruiting bodies, and after a week or so they are ready to harvest. He says you can get maybe 5 pounds of mushrooms from a flush. Then you rest the log. How often a log will fruit depends on the strain of mushroom. Some fruit only once a year, some 4 or 5 times a year. If they fruit more often, they won't last as many years — eventually all varieties use up the nutrients in the log. Over the lifetime of a log you might get 40 or more pounds.

Bugs are a big problem with commercial mushrooms, and so most growers spray a lot. Hoffman shakes bugs out of his, but also relies on the fact that in the wild there are lots of natural predators, so the bugs population doesn't go wild like in a commercial monocropping situation.

He also collects wild mushrooms, just for the spores. "Most mushrooms grow only on specific trees or specific soil profiles," he explains. "If I see one I like, I take it and soak it in water with some sugar. Then I'll spread it back wherever I want to inoculate. If it's a good area for them, you'll get more then. They have even inoculated soil in California with spores of truffles from Tuscany. They're hoping to develop a truffle industry there."

"I've never really studied mushrooms," he continues, "but I've observed them over the years. The morel is the favorite of a lot of people. They grow in dirt. The mistake have to have one end of the log buried in the ground to season — to get moisture. They fruit in September. The adanko don't require soaking. They seem to do better with spring rains, growing in the cold, with low humidity. They're much meatier and more flavorful. I've inoculated some beds of chanterel — a little yellow mushroom. A lot of country people are suspicious of many mushrooms, but they'll eat puffballs because they're identifiable. That's the one that looks like a soccer ball, then turns brown and explodes into spores."

The economics of mushroom production and marketing, however, aren't good, he says. He does better with vegetables. Hoffman sells his mushrooms fresh, at the Green Market. Bacteria can break them down quickly, but if they are refrigerated they'll keep well. He had to write up his own certification plan for NOFA-NY. Just being an organic grower wasn't good enough. He had to have a plan for the whole process — the dowels, the wax.

Michael has also put in a few wasabi plants in his woods. It's in the mustard family. It grows in shade and from the root is made a hot sauce, sort of like horseradish, which is very popular in Japanese cooking. At the moment this is just an experiment to see if it will grow well on his farm. But he has a number of ethnic buyers at the Green Market, including a number of Japanese.

Ostrich ferns grow very well in these woods, and one can harvest fiddleheads, which are the budding new fern fronds, from them in the spring. Hoffman harvests a number in May and takes them to the Green Market as one of his first offerings each year.

A tour through his woods with Michael is fascinating as he points out other plants he is watching. He established watercress in a streambed and is seeing if it will thrive (it seems to be surviving, but it will take longer to see). He planted black locust for fence posts and rails. When it's green, he says, it is great to work with. But you can bend a lot of nails trying to drive them into seasoned black locust!

He points out wild ramps, similar to garlic, and witch hazel, which flowers in the fall and sets seed in the next year. The lotion is made from its twigs. I sampled the root of toothwort, which has a mildly numbing effect of one's gums and is recommended in cases of toothache. Hoffman would like to get into growing more herbs, and would also like to grow and sell orchids. He gets excited about those plants: "Ninety percent of orchids grow in trees. They get most of the nutrition they need right on the surface of the tree. Whatever washes out of the cracks and the bark. Life is amazing. It's a miracle. All life is intelligence. Take orchids, now. Plants don't have eyes but there is an orchid that imitates, both visually and with odors, pheromones, a female wasp. It gets a male wasp to mate with it and it picks up pollen. The next time the wasp mates with an orchid it pollinates that one. Is that just trial and error? The orchid just came out looking and smelling like a female wasp? There's an intelligence there. Things and how they react are so complex. We have no idea what's going on. Our five senses only detect a little bit of what is going on.

"I'd like to grow lady's slippers, too," he continues. "They're expensive if you look in the catalogs, but they're gorgeous. They grow them in sterile lab conditions in flasks on agar. I've seen some beds of yellow ones in the wild, and then gone back later and they were all gone. I have a feeling somebody is supplying the catalog houses that way! Yellows are easy to grow, but the pink ones are virtually impossible! You have to have a very specific ecology. Orchids are great. They all propagate with microscopic dust."

Hoffman thinks he could sell herbs or orchids by mail order. But he is worried that there may be too much competition to be successful. "It takes a while to sell these items," he cautions. "You have to develop a clientele that knows what you have. If you are interested in how to grow these plants, you'll pick it up! You read things, talk to people. You learn by trying it out. I've always enjoyed the challenge."



photo by Jack Kittredge

**Ostrich ferns, which bud forth early each spring as fiddleheads, also do well for Hoffman. He harvests a few from each plant for aficionados to enjoy sautéed in oil.**