



How do your mushrooms grow?

New Brunswick forester dabbles in non-timber forest products

by **George Fullerton**

In his day job, Jamie Floyd is a forester handling management planning, harvest and silviculture, and other land management services for woodlot owners associated with the Southern New Brunswick Wood Co-operative Ltd (SNB). But his spare time is also occupied with forestry-related projects, including production of Shitake mushrooms.

Growing Shitake and other species of mushrooms on logs in forest conditions is an age-old tradition in Asia. Mushroom cultivation in semi-wild conditions is a relatively new phenomenon in eastern North America.

“I had read about Shitake mushrooms and thought I would like to see what I could produce,” said Floyd. “The premium log for Shitake growing is oak, but oak is not terribly plentiful in my area, so sourcing logs was one of the first hurdles.”

Shitake mushrooms are produced by the same natural process we see every day in the forest when a fungus or mushroom appears on a fallen tree, a stump, or the forest floor. But the Shitake grower inoculates a log with a specific mycelium (the part of the fungus that absorbs nutrients) that will

eventually form the fruiting bodies we know as Shitake mushrooms.

“The logs have to be handled a lot, so four- or five-inch-diameter logs about four feet long are a nice size to handle. I know a woodlot owner on Washademoak Lake who was doing a thinning and was getting some low-grade, small diameter Red oak, so I made a deal to get some logs from him.”

Red oak is the preferred tree species for Shitake production because it has a tight bark that stays on the log long after the tree has been cut. The tight bark resists invasion by naturally occurring fungi.

Floyd’s logs were cut in winter when the tree was dormant. Inoculating logs freshly harvested from actively growing trees is not effective because living tree cells fight off the invading fungal material.

Shitake mycelium plugs are inserted in three-eighth-inch holes drilled in the logs. “I sourced my Shitake spawn from a supplier in Ontario, drilled, and inserted the Shitake plugs, and then piled the logs under the shade of some hardwoods in my backyard,” Floyd said. “The Shitake mycelium grows, feeding off the wood cells throughout the log. The following spring, I started the mushroom production process.”

To get the mycelium to produce a mushroom, the logs have to be shocked. Floyd explained that the mycelium produces mushrooms when stressed.

“The most common method to shock the logs is to submerge them in water,” he said. “I have a four-foot-square fish-shipping container I fill partly with water, and I throw the inoculated logs in. The recommended dunking period is 11 hours, and I found out the hard way that sticking pretty close to that target is important. I left one batch of logs in for 24 hours, and it killed the mycelium, and of course the logs did not produce any mushrooms. The literature also explains that throwing the logs in, crashing into each other, helps amplify the shocking process. There’s no need to be gentle.”

Following the 11-hour soak, Floyd stands the logs against the dunking tank in the shade of the back deck of his house and waits a week to see the mushrooms appear. In 10 to 14 days, mushrooms are three to four inches in diameter.

“Previously, we had stood the logs on end in the shade of mature trees, against a horizontal rail, but we found that slugs like Shitake pretty good too,” he said. “Since it is so wet this year and the slug population

is incredible, we found that standing the logs on drainage stone helped a lot. We also use a commercial slug repellent to keep the slugs away.”

Once the logs have produced a crop of mushrooms, they need to rest for six to eight weeks before they can be shocked for another production cycle. Even with the rest period, Floyd figures on three, possibly four, batches of mushrooms from the logs through the summer growing season.

“I have had two productive years from my first logs, and I think their production is winding down. I might get three productive years from some, but they all make firewood at the end. It seems that the larger logs will last longer, since they offer a greater volume of food for the mycelium.”

TRYING NEW THINGS

Floyd added that because he has trouble getting oak, he has also tried Ironwood and beech logs, which also have tight bark. “I have produced mushrooms from maple and Yellow birch. Our spawn supplier sells a spawn specifically for maple, so we want

to try that and see how the results compare with oak. I have inoculated a batch of logs with Oyster mushroom, and next year we will see how they do.”

Meanwhile, Floyd’s three years of effort are beginning to pay off. “We really like Shitake,” he said. “We eat the mushrooms fresh. We eat them in soup and lots of other ways. The flesh is firm, and it has a slight nutty flavor. Our favorite cooking method is simply sautéing Shitake in butter. Very delicious!”

“We shared some of our first production with some friends, and a number of them have started their own small-scale production. Everyone seems to have a little different experience, and we all seem to learn or experience something different and we are all learning from each other.”

Floyd said he plans to build up production and try selling Shitake at the local farmers’ market. “It is fragile food with a short shelf life, but I think we can develop a small local market for fresh Shitake.”

(George Fullerton lives in Long Reach, N.B.)



Jamie Floyd carries logs from storage, which have had Shitake mycelium plugs inserted into them, to the shock tank.

(George Fullerton photos)



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Following the shocking period, the logs are stood on end in the shade and mushrooms appear in about one week. In 10 to 14 days, the mushrooms are three to four inches in diameter.

Just ducky!

The Southern New Brunswick Wood Co-operative Ltd. (SNB) has been in business more than 30 years, primarily providing wood-marketing and silviculture services to woodlot owners. This year SNB has taken a step off that traditional path with a wildlife habitat project that will include forest-stand improvements, some tree planting, and installation of Wood duck nesting boxes on five woodlots in southern New Brunswick that border on wetlands.

Jamie Floyd led the initiative by making an application to Wildlife Habitat Canada, which will provide \$5,000 to help cover woodlot-owner costs for the habitat improvement work.

“The fieldwork will begin with a simple thinning to clear the understory competition and release any naturally occurring mast-producing tree species like oak,” Floyd said. “The second step will be to plant mast-producing wetland species like Red oak, Bur oak, and butternut. Because seedlings are subject to browsing by wildlife, we are placing fencing on some of the planted seedlings to see if the protection is beneficial.

“The final phase will install the Wood duck nesting boxes, which we will probably do after freeze up, when it will be easier to cross the wetland.”

Floyd said woodlot owners have responded favorably to the habitat project. “For a brand-new project, we have had pretty good response for the work. We are also pretty confident that as the word gets out there, lots of woodlot owners will come forward looking for ways they can improve duck or other wildlife habitat quality on their woodlots.”

“With this unprecedented downturn in our forest industries, our organization is looking at different business opportunities and alternative services we can provide to woodland owners,” said Pam Folkins, general manager of SNB.

The Wood duck project is just one diversification idea. Folkins said SNB recently contracted with the town of Rothesay, N.B., to develop a natural area with walking trails and interpretive signs. “We are seeing an increasing demand from woodlot owners for development projects that fall outside the traditional wood-fiber harvest and silviculture activities.” GF