

Managing Crowded Woodlots through Shiitake Mushroom Production was a success. Through careful selection of small hardwoods, undesirable for timber production, I was able to improve the vigor and appearance of the woodlot, and produce a food product for profit.

My Shiitake mushroom operation is a continuing project, increasing in size and objective. The aid of the Northeast Region Sustainable Agriculture Research and Education Program made it possible for me to begin. I visited other producers and exchanged technical information and records, experimented with value-added products, educated myself by attending an FDA/USDA GMP school, and promoted Shiitake at a fair and festival. Recently, I gave tours of my unique farm in the woods to a newspaper staff writer, students and other people interested in raising Shiitake. Regretfully, this is the end of this project for the Northeast Region Sustainable Agriculture Research and Education Program, but it's just the beginning of alternative farming for me.

The project began with assessing an area of woods. It had water available from both a pond and spring. The trees in this particular area were damaged from a past timber harvest and years of storms and neglect. Underbrush deterred good air flow. I identified and tagged trees to thin out, mostly spindly oaks, few hickory and dogwood. Shiitake favor oak, but the availability of the other species made them good candidates to try. The underbrush was piled, clearing an area to stack the logs once they were inoculated with spawn. This made a noticeable difference in air movement through the woodlot.

The selected trees were cut into 4' logs and hauled to the garage where my friend and I inoculated them with Shiitake spawn of various strains and suppliers, keeping records for comparisons. The logs were drilled in a diamond pattern and spawn, growing in a sawdust medium, was inserted into the 12mm wide holes. The inoculation site was sealed with styrofoam plugs and later wax, which I found to be more durable. I noticed the plugs were disappearing from the logs in the woods. After talking to the other growers I visited, I learned woodpeckers and squirrels found the plugs palatable.

Moisture content in the logs is a major concern. This I did not realize how critical it was until we went through the dry summer of 1993. After talking to other growers, I started watering. Soaking mature logs also induces mushroom production, the fruit. After trial and error, I was able to time harvests, and quantity.

I soon discovered marketing a speciality crop in a rural community was a challenge. Through some creative marketing, and assistance from The Center for Economic Options program director, Harvey Christie, I found an interest in this area for locally grown products. The West Virginia Dept. of Agriculture has a program to assist with and promote W.V. grown products.

They have marketing materials available for this purpose. I creatively named my Shiitake project "Mt. State Mushrooms".

Paul Gouland of Hardscrabble Inc. and I promoted Shiitake at the West Virginia State Fair in Fairlea, WV in August. I demonstrated the process and easibility of inoculating logs with Shiitake spawn, and promoted the mushrooms as a valuable food source. At an arts & crafts fair in October, I sold inoculated logs with instructions for care and harvest.

One of my goals of this project was to make a value-added product from Shiitake by canning or preserving them in a sauce. I followed up with this idea by contacting several people in the gourmet food industry, cannerys and commercial Shiitake growers. I also put a great deal of time into visiting other producers with similar interests. In April 1993, I attended an Acified Foods Good Manufacturing Practice (GMP) School in Raleigh, NC, sponsored by the FDA and USDA. It educated and qualified me to process acified foods, Shiitake falling under these guidlines. From what I learned at this school, and the people I discussed my idea of packaging these mushrooms this way, I had concluded that it was too costly to make such a product. Therefore, with the harvest of my first marketable Shiitake in April 1994, I began to sell them fresh and dried to local restaurants. I will play with the thought of a value-added product from Shiitake when funds and time allow. My marketing efforts have all been positive. In addition to the restaurants, I have contacted a wholesaler who expressed interest in my mushrooms, and logo, "Mt. State Mushrooms" as well.

I can Measure results with success. The woods look great, and the dollars generated from them can be returned to them to increase the size of my Shiitake farm, "Mt. State Mushrooms". My only regret was the inability to create a Shiitake canned for the gourmet industry; however, I'm currently exploring a dried soup mix utilizing Shiitake as it's main ingredient.

The time I spent visiting other producers and exchanging ideas and records, has been invaluable. I found that knowledge of Shiitake mushroom production was limited from the local Agriculture Extension Service and University people. I has to find answers to questions from the network of people I had met.

Marketing demands for Shiitake aren't seasonal, even though the current production techniques are. My goal for the future along with utilizing Shiitake in a value-added product, is to extend the growing season of the logs by converting a structure into an environment favorable for Shiitake.

I would like to extend an invitation to anyone interested in this project to visit my farm in Greenbrier County, W.V., Innovative agriculture practices like Shiitake mushroom production benefit two fold. The environment is improved, not eroded, and a moddest profit, if not, satisfaction, can be made.

Pam Talley Project No. FNE93-32.

MANAGING CROWDED WOODLOTS THROUGH SHIITAKE MUSHROOM PRODUCTION.

Description of slides:

1. Woodlot prior to project. Note the thin and damaged trees.
2. Brush was piled and cleared.
3. Woodlot after trees thinned and brush cleared.
4. Logs cut into 4' lengths and hauled to the garage for inoculation.
5. Identified logs (note red ribbon) were inspected. Only healthy, live hardwoods were utilized.
6. In garage, logs were drilled and inoculated on this simple jig using sawhorses.
7. Kirk, my partner, drilling logs with a high-speed drill. A special Shiitake bit is used. It's made of hardened steel, 12mm wide and has a stop collar for uniform depth.
8. Logs returned to the woods, stacked in crib formation, and covered with burlap to hold in moisture during the "spawn run", or growing stage of the Shiitake. Pam pictured.
9. Shiitake during spawn run. Note the tag in the lower left bottom of the stack identifying strain and date. I later replaced these with individual aluminum tags. Because the logs are handled so much I needed a better way to I.D. them.
10. The black fungus growing on these logs was not Shiitake and caused alarm; however after Paul Gouland's visit to these woods, I was relieved. The Bulgaria fungus co-exist.
11. First visible signs of Shiitake in spawn run or growing stage is the checked white pattern on the ends of the logs.
12. Soaking mature logs ( when white mycilium is visible on a large percentage of the log) induces fruiting. The logs are stacked and leaned in a way so mushroom harvest is easy.
13. My first Shiitake harvest was one little mushroom, not much bigger than a coin. This was the result of stress from the dry summer of '93, not mushrooms induced from soaking.
14. But I was proud anyway!
15. Shiitake of better quality.

# NORTH CAROLINA STATE UNIVERSITY

**CERTIFIES THAT**

**PAM TALLEY**

Has successfully completed a course of instruction approved by the Commissioner of Food and Drugs to meet the requirements of 21 CFR Sections 108.25 (f) and 114.10 for Acidified Foods.



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Pam Talley

Project No. FNE93-32.

## MANAGING CROWDED WOODLOTS THROUGH SHIITAKE MUSHROOM PRODUCTION.

### Outline of Events:

October, 1992. Inoculated first logs for Shiitake mushroom production.

April, 1993. Attended Acidified Foods GMP School, Food Science Dept. North Carolina State Univ., Raleigh, NC.

May, 1993. Visited Long Ridge Farms, a Shiitake producer and spawn supplier, Ashville, NC.

June, 1993. Visited Mountain Oaks Shiitake, a local Shiitake producer, Beckly, WV.

July, 1993. Evaluated "spawn run". First visible Shiitake in logs in growing stage.

August, 1993. West Virginia State Fair, Fairlea, WV. Promoted Shiitake in display with Paul Gouland of Hardscrabble Inc., a Shiitake grower and spawn supplier. Paul was a guest at my house. During his week stay we had lengthy discussions about growing these mushrooms. Paul looked at my logs and offered advice and correction.

September, 1993. Harvested first mushroom.

October, 1993. Visited Tradition Farms in Little York, NJ. Owner and I discussed similarities in climate and our Shiitake operations. We often correspond records and results.

October, 1993. Arts & Craft Fair, Fairlea, WV. Sold mature inoculated logs with care and use instructions.

October, 1993. Identified more trees to cut for logs, began inoculation for the season.

April, 1994. Soaked mature logs to induce fruiting. Harvesting for local markets began.