

**Tennessee Master Gardener Search for Excellence  
2014 Application**

**APPLICATION DEADLINE IS OCTOBER 31, 2014**

**NAME OF PROJECT:** Shiitake Mushroom Workshop

**NAME OF MG GROUP:** Sequatchie Valley Master Gardeners

**COUNTY(IES):** Bledsoe and Sequatchie

**MASTER GARDENER CONTACT:**

**NAME** John P. Formby

**EMAIL** [atinjohn@msn.com](mailto:atinjohn@msn.com)

**MASTER GARDENER COORDINATOR/EXTENSION STAFF:**

**NAME** Sheldon Barker

**TITLE** Director and Agent, UT Extension, Sequatchie County

**EMAIL** [sdbarker@utk.edu](mailto:sdbarker@utk.edu)

**PHONE** 423-949-2611

**CATEGORY---MUST SELECT AND SUBMIT IN ONLY ONE CATEGORY**

- Youth
- Demonstration Garden
- Workshop or Presentation
- Community Service
- Innovative Project
- Research
- Special Needs Audience

**COMMENCEMENT DATE OF PROJECT** October 2012

**LIST THE NAMES OF MASTER GARDENERS DIRECTLY INVOLVED IN THIS PROJECT.**  
 Do not include their roles or any other individuals in this listing. (*Place the cursor in the box to type a name.*) You may attach an additional page if necessary.

**Project Leaders' Names:**

<b>Ken Lee</b>	<b>Linda Barker</b>	<b>Jerry Powell</b>	<b>Sammye Finley</b>
<b>Pamela Curry</b>	<b>Doug Stafford</b>	<b>Sylvia Powell</b>	<b>Art Slack</b>
<b>John Formby</b>	<b>Nita Formby</b>	<b>Nancy Sears</b>	<b>Norm Murduck</b>
<b>Peggy Uhey</b>	<b>Doug Stafford</b>		

**Number of Master Gardeners participating:** 24

Place your cursor in the box and type. The box will expand.

**DESCRIPTION OF PROJECT** (include name, location, target audience, goals, and partnerships) 500 words or less.

**The project's official name is *The Shiitake Mushroom Workshop* and is often referred to simply as the Shiitake Workshop. The program is conducted in February or early March and rotates annually between two small towns, Dunlap and Pikeville, located 19 miles apart in the Sequatchie Valley surrounded by the mountains of the Cumberland Plateau. The first Shiitake Workshop was conducted in Dunlap in February 2013 and the second was held in Pikeville in March 2014.**

**The target audience is gardeners and members of the general public who may have an interest in cultivating and growing shiitake mushrooms on freshly cut hardwood logs. Initially we anticipated participation by folks from Bledsoe and Sequatchie counties where newspaper stories, community announcements and posters all invited participation to the workshop. However, by word of mouth the news spread and the first two workshops had participants from seven counties and from as far away as Knoxville and Chattanooga.**

**Shiitake mushrooms are quite expensive if purchased in super markets or online. Fortunately, hardwood forests are abundant in and around the Sequatchie Valley region and cultivating shiitakes is a natural gardening activity that can produce mushrooms for up to 5 or 6 years if the logs have been properly prepared. Growing shiitakes is easy, but it is essential that mushroom gardeners know exactly what needs to be done, and when and how to do it.**

**The goal of the workshop is to educate participants concerning all aspects of shiitake mushrooms. This includes:**

- which hardwood trees are best
- when to down the trees
- how and when to harvest logs
- how to drill the logs
- how to inject shiitake spawn
- how to apply hot wax to protect the spawn
- where to obtain shiitake spawn and other supplies for use in inoculating logs

- how to care for the shiitake logs during the long incubation period
- when to look for evidence that the logs are beginning to fruit
- how to speed up and increase production of shiitakes
- what to do when fruiting begins
- when and how to harvest shiitakes
- how to store shiitakes, including drying and rehydration
- the health and economic benefits of growing and consuming shiitakes
- recipes for preparing shiitakes

Each workshop utilizes recently harvested white oak logs and a team of Sequatchie Valley Master Gardeners (hereafter *SVMGs*) demonstrates how to drill them, inject spawn and apply wax to cover each of the drill holes. Detailed handouts are distributed to workshop participants containing information on all topics listed above and more. A moderator using a voice amplifier describes in detail exactly what needs to be done and exactly how to do it in order to successfully cultivate shiitakes. The moderator also discusses harvesting and storing mushrooms and summarizes the economic and health benefits from growing and eating shiitakes.

*SVMGs* saw no need and did not seek to form partnerships to begin or continue to offer Shiitake Mushroom Workshops.

**DESCRIBE THE PLANNING AND IMPLEMENTATION OF THE PROJECT.** 500 words or less.

Five *SVMGs* from the 2007 training class attended a half day shiitake workshop in Marion County in February 2008 and learned the basics of growing shiitakes. Later, extensive online review of university based research led to enhanced understanding of shiitake cultivation. The information available from Auburn and Kentucky University Extensions were especially helpful and became the source material for most of the Handouts prepared for our Shiitake Workshops. To review these materials see:

- <http://www.aces.edu/pubs/docs/U/UNP-0027/UNP-0027.pdf>
- <http://www.ca.uky.edu/agc/pubs/for77.pdf>
- <http://www.ca.uky.edu/agc/pubs/for/for81/for81.pdf>

In the spring of 2009 three of those *SVMGs* joined forces and inoculated 12 logs for their personal use and some of these logs are still producing shiitakes 5½ years later. In fact, mushrooms from these logs were harvested in the last week of October 2014.

Success in growing shiitakes led to the idea of an annual workshop, which was approved as a *SVMG* project in the fall of 2012. A small planning group was appointed and a February date was set for the first workshop. The Committee's plan for the 2013 workshop was then devised and implemented. However, for the reasons that will become clear that plan was significantly revised for the 2014 workshop.

The planning group decided that the first workshop would be in Dunlap at the Sequatchie County Fairgrounds and would be free and open to the general public with onsite registration. Further, participants who wanted an inoculated shiitake log to take home would need to register in advance online and pay \$5 when checking in at the registration desk (maximum one log per registration). Further, the event would be held outside with backup plans for

inclement weather.

Newspaper stories, community announcements and posters promoting the event were successful beyond anyone's wildest dream. As one *SVMG* put it, "the event went viral". Huge numbers of people showed up and our registrars were swamped with long lines. A total of 58 individuals registered, but significant numbers were deterred from registering by the long lines. Many additional handouts were prepared and an excellent sound system allowed us to effectively communicate our message. The crowd was divided into three groups that rotated among work stations manned by experienced MGs to see and learn how to *drill the logs, inject spawn* and *wax the drill holes*.

The unexpected number of 2013 attendees led us to revise the 2014 workshop held in Pikeville. The second Workshop was limited to the first 30 paid attendees registering in advance at one of the two County Extension offices. Three levels of registration and fees were offered:

- \$5, attend and learn, but no shiitake log,
- \$8, attend, learn, inject and wax your own log that was pre-drilled by *SVMGs*, and
- \$10, attend, learn and take home an inoculated log without doing any work

All participants wanted a shiitake log and the group was divided 60:40 between the \$10 and \$8 registrations.

In a retrospective review, *SVMGs* agreed that the 2014 workshop format created a better learning environment compared to 2013.

## **HOW HAS THE PROJECT BEEN FUNDED AND HOW HAVE THOSE FUNDS BEEN SPENT? 500 Words or less.**

The project has been funded by the fees charged to participants and Master Gardeners for shiitake mushroom logs and by in-kind donations of white oak trees and equipment by Master Gardeners. In 2013 the fee was \$5 for a log 40" in length and averaging 6" in diameter (range 4" to 8"). For gardeners that wanted a shiitake log, the \$5 fee was a great bargain. For example, commercial vendors at [Amazon.com](http://Amazon.com) sell 9" to 10" length shiitake logs for \$35, which includes shipping. In 2014 the fees for workshop participants were \$10 for a completely inoculated log (no work required), \$8 for a pre drilled log that the gardener, working under the supervision of Master Gardeners, inoculates by injecting sawdust spawn into drill holes and applies melted cheese wax to protect the spawn. The \$5 fee for logs inoculated for Master Gardener's personal use was continued in 2014.

We note that the length of the logs was reduced from 40" to 30" (25%) in 2014. This was done in response to feedback from shiitake mushroom gardeners from the 2013 Workshop. A number suggested a lighter log. 40" is the industry standard, but the logs have to be moved around. During the long incubation period the logs are outside in the shade so that they receive rainfall and must be watered during dry periods (the rule is if your garden needs water, your shiitake logs need water). However, when the logs begin to fruit the quality of the mushrooms is significantly enhanced by moving them inside and protecting them from rain. A lighter log is much easier to move around.

Details concerning the revenues and cash expenditures are summarized below.

2013			2014		
<b>Revenue</b>			<b>Revenue</b>		
1.	75 Shiitake Logs @ \$5	\$375.00	1.	39 Shiitake Logs: 18@ \$10 12@ \$8 9@ \$5	\$180.00 96.00 45.00
			2.	Cheese Wax	5.00
<b>Total</b>		<b>\$375.00</b>	<b>Total</b>		<b>\$324.00</b>
<b>Cash Expenditures</b>			<b>Cash Expenditures</b>		
1.	4 Kg Shiitake Spawn	\$76.00	1.	2 Kg Shiitake Spawn	\$38.00
2.	8 lb. Cheese Wax	25.60	2.	3 lb. Cheese Wax	9.60
3.	10 Wax Daubers	3.00	3.	3 7/16 Drill Bit Stops	7.50
4.	Shipping, Handling & Tax	33.37	4.	3 Spawn Inoculation Tools	81.00
			5.	12 Wax Daubers	3.60
			6.	Shipping, Handling & Tax	36.62
<b>Total</b>		<b>\$137.97</b>	<b>Total</b>		<b>\$176.32</b>
<b>Net Proceeds (Revenue – Cash Expenditures)</b>		<b>\$237.03</b>	<b>Net Proceeds (Revenue – Cash Expenditures)</b>		<b>\$149.68</b>

The net proceeds were added to *SVMG* treasury and will be used in support of projects with negative cash flows.

A word of caution and advice to MG groups that may consider presenting a Shiitake Workshop is in order. A lot of strenuous work by multiple MGs has to be done in a very short period of time to properly inoculate the logs. In-kind donations of logs and the loan and use of MG tools (drills, drill bits, heat guns, hot plates, tables and saw horses) are the keys to positive net proceeds. An assembly line method is the most efficient way to inoculate a large number of logs.

**DESCRIBE THE OUTCOMES OF THIS PROJECT. HOW HAS IT AUGMENTED LEARNING, INCREASED KNOWLEDGE OR CHANGED PRACTICES TO ENHANCE QUALITY OF LIFE? INCLUDE THE METHODS YOU USED TO MEASURE THE IMPACT OF THE PROJECT.** These impacts could be economical, educational, environmental, health or community based. 500 words or less.

Shiitake mushrooms are among the world's most healthy foods. In Asia Shiitakes have been used medicinally for thousands of years and are believed to promote health and long life. In recent years health researchers have shown that Shiitakes strengthen the immune system, have cardiovascular benefits and there is growing evidence they contain cancer fighting ingredients, especially in reducing prostate, breast, and colon cancer. In addition to the health benefits shiitakes are a great substitute for red meat, poultry and fish and are therefore highly prized by vegetarians. The downside is Shiitakes are expensive; fresh ones sell for \$80 per lb. in the orient. They are cheaper in the USA, but still pricey, \$20 per lb. online, 5 lb. minimum. Hardwood trees are abundant and logs are cheap in and around the Sequatchie Valley. It makes perfect economic sense to grow your own shiitakes. However, you must know how to do it! A vegetarian couple (both medical doctors) failed twice in their efforts to cultivate home grown shiitakes. After attending one of our workshops they inoculated a large number of logs

and are now happy shiitake gardeners. The logs produce over an extended period of years and they will have shiitakes for a long time.

A key step in the process of cultivating shiitakes involves properly preparing and inoculating the logs. The Workshops demonstrate the essential steps of drilling, injecting spawn and applying hot wax to recently harvested logs. In the 2014 Workshop attendees had the opportunity to participate in the inoculation by injecting spawn and applying cheese wax to their own logs. In the much larger 2013 Workshop, attendees observed *SVMGs* performing these key steps in the inoculation process.

In the first two Shiitake Mushroom Workshops more than 85 registered (more attended) and a team of *SVMGs* explained everything they needed to know and do to successfully grow shiitakes. The Sequatchie Valley region is sparsely populated, especially in Bledsoe and Sequatchie Counties where the *SVMG* group is located. Participants acquiring logs plus 20 Master Gardeners became new shiitake mushroom gardeners; this is a significant number given the small population base. We plan to expand this number in future years.

An evaluation instrument reveals that significant learning took place. Participants were asked to rate the Workshop using a 1 to 5 scale, where a score of “5” indicates strong agreement and the highest possible rating. A score of “3” indicates they neither agree nor disagree and a “1” signals strong disagreement. All respondents strongly agreed (average score = 5) that:

- The Workshop objectives were clear,
- The Workshop was a good way to acquire knowledge about Shiitake Mushrooms,
- The Workshop lived up to their expectations,
- The Pace of the Workshop was appropriate,
- The Workshop Team was well prepared, and
- They will use what they learned in the Workshop.

A number of participants offered specific comments:

- “Great information”,
- “Good information, answered all questions”,
- “Fantastic”,
- “Great job!”
- “Excellent and clear”,
- “Great Workshop”.