



GROWING SHIITAKE MUSHROOMS IN MANITOBA

Observations from Manitoba Natural Resources' mushroom fruiting trials

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Mushrooms on log with individual mushroom inset

Shiitake mushrooms, a long time culinary favourite in the orient, are rapidly gaining popularity in North American cooking. The more expensive Shiitake's have a stronger flavor and are "meatier" in texture than the button mushrooms commonly used by western cultures. Because of these qualities, a smaller amount of Shiitake mushrooms are required per serving.

For woodlot owners in Manitoba, growing Shiitake mushrooms presents an opportunity for economic diversification. The Japanese word *Shiitake* essentially means *wood*; as Shiitake mushrooms use wood as their growing medium. Shiitake mushrooms grow best in oak, including the small diameter White (Burr) Oak found in Manitoba. Large branches from harvested trees or small diameter trees from a thinning operation can be used to cultivate mushrooms.

Small diameter logs - 8 to 20 centimetres diameter, 1.25 metres long are generally used. While the size of the log is only limited by the strength of your back (they all have to be handled manually to prevent the bark from breaking), we have found the larger logs from older trees generally have thicker bark and take longer to produce mushrooms.

The logs must be in good shape (i.e. from living trees or branches) and cut before buds open in the spring. Logs are drilled in a diamond pattern and filled with spore impregnated hardwood dowels or sawdust. The holes are then sealed with wax to prevent drying. The holes are drilled 15 to 20 cm apart along the length of the log and approximately 5 cm apart around the log, offset to increase the diamond pattern. The spore moves more easily up and down the log than across the grain. Wood dowels are easier to use, but are more expensive.

After inoculation, the logs are placed in a well-shaded area in the woodlot as they must maintain a minimum of 30% moisture. One method that experts from other parts of the world recommend to help retain moisture is stacking logs in a shaded, wind protected area during the spawn run. Suggested

stacking styles vary, and can be adjusted to suit your locality and conditions, but our woodlot experiences suggest that stacking seems to have little effect on production provided the moisture levels are maintained.



In our field trials, all sites produced mushrooms despite ranging from very wet (at the edge of a tamarack swamp) to dry and windy (on an oak ridge). The two wettest sites have produced the earliest and most abundantly.

There are many strains of Shiitake Mushroom spore available and selection depends upon your intent. The mushroom may be grown in greenhouses or naturally in the woodlot. There are spring and fall fruiting, and summer fruiting. Some may be forced fruited by soaking the logs in cold water, some in warm water and others do not respond well to force fruiting.

Woodlot trials to grow the mushrooms in Manitoba were started in March of 1992, using two strains, Wide Range 46¹ (WR 46) and Cold Weather 25TM (CW 25). Wide Range 46 responds to cold water soaking and, under natural conditions, fruits spring and fall. Cold weather 25 responds to warm water soaking and is supposed to fruit in spring; however, our trials fruited only in summer. WR 46 took approximately 12 months to fruit and CW 25 took approximately 25 months.

In 1994, two additional strains, WestwindTM (WW) and V3TM were used. Although information on WW suggested a very fast spawn run (6 months to fruiting) the MNR test spawn only produced fruit at one site during the same season. All other sites with WW and V3 did not fruit until the following spring. All strains are continuing to produce fruit and the life fruiting expectancy for the logs is estimated to be 6 to 8 years.

All logs and mushroom strains can be manipulated in the woodlot to produce more, faster and fruit longer by using irrigation, shade cloths, fruiting blankets, etc.

Recommended Reading:

Growing Shiitake Mushrooms in a Continental Climate, M & J. Krawczyk, Field and Forest Products Inc., N 3296 Kozuzek Road, Peshtigo, Wisc. U.S.A. 54152

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