

FIELD
TESTED



Propagation Equipment and Shelving for Efficient Mushroom Production



Field Tested is a series of reports about farm tools that have been tested by Montana farmers to enhance their specialty crop production. The reports describe these farmers' findings to help others make informed decisions about their specialty crop businesses. Visit FarmLinkMontana.org/fieldtested to read more Field Tested reports. This project is administered by the Community Food & Agriculture Coalition with funding from the Montana Department of Agriculture Specialty Crop Block Grant Program.

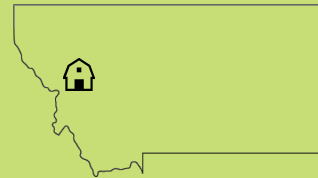
Mother Fungi | Missoula



William Gregg
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Mother Fungi Snapshot

Location: Missoula, MT
Operator: William Gregg
Acres: >1
Crops: Mushrooms



INTRODUCTION

William Gregg had been growing small-scale mushrooms for many years as a hobbyist. His production was limited by his 450 square foot growing space, access to high quality equipment, and capital. In 2018, Field Tested grant equipment was awarded to William from a prior awardee. Although he did not choose the equipment, he accepted the challenge as a method of building his business and ran some functionality experiments. He used the grant equipment to increase the variety and quantity of the mushrooms he grew. The materials also gave him the opportunity to experiment and grow his own substrate, a significant time savings. William was granted a second mini-grant in 2019 which was used to purchase 19 stainless steel carts to help him cover more

space and create efficiencies with his workforce in a larger production space. He purchased an additional 11 carts out of his own budget.

MOTHER FUNGI

Mother Fungi is a small-scale commercial mushroom farming operation located in Missoula, MT. Mother Fungi aims to bring the communities of Montana a sustainable and healthy choice when it comes to mushroom products. They cultivate seasonal indigenous and exotic mushrooms such as Pearl Oyster, Pink Oyster, Golden Oyster, Phoenix Oyster, Grey Dove Oyster, Blue Oyster, Shiitake, Lions Mane, Bears Head, and Freckled Chestnut.



William's continues to serve more direct, wholesale, restaurant and CSA markets as he has grown. By early 2020, he had outgrown his space on Front Street and transitioned to a new business name, Mother Fungi (from Front Street Fungi), and moved to a 9,000 square foot commercial warehouse. The equipment awarded to Gregg helped his small operation in its expansion phase by allowing him to sterilize a greater quantity of substrate and liquid media, provided some equipment to help construct two fruiting rooms, and overall, helped his efficiency in processes. Before the equipment grant, he used straw as a substrate medium. He now utilizes sawdust/soybean hulls which are more expensive, but the difference in mediums allows him to produce a larger volume and greater variety of mushrooms per week with less labor.

PURCHASES

Pressure Cooker

Access to two additional pressure cookers, one large pressure cooker to sterilize substrate and one small pressure cooker to sterilize liquid media, allowed Gregg to increase the rate in which he produced substrate blocks for the fruiting room and petri dishes filled with sterilized Agar to expand mycelial cultures. Prior to the grant, he had one large pressure cooker that he ran for 12 hours every work day which was dedicated to substrate production. Having access to another allowed him to double the rate of production and reduce the amount of labor on substrate production.

Equipment Purchased

- Pressure Cooker
- Laminar Flow Cabinet
- Stainless Steel Carts

Laminar Flow Cabinet

William needed to have two to four laminar flow cabinets to work efficiently and not spend tedious amounts of time in the laboratory (he previously had just one). Laminar flow cabinets are designed to create aseptic conditions for the farmer to work in. When inoculating spawn or substrate, the mushroom farmer must work in aseptic conditions due to the threat of bacteria and contaminants having the opportunity to outcompete the mycelium being utilized to inoculate the spawn or substrate.

Stainless Steel Carts

Without the carts, William or one of his employees would have to carry every single one of the substrate blocks to various rooms. In his larger space, he has been making strides to make sure the job is as efficient as possible and the carts help him to utilize his vast amount of vertical space. The carts allow himself and employees to move 100 lbs of block at a time, without touching anything.

IMPACTS: FARM ENHANCEMENT

William Gregg was able to grow his niche mushroom operation and produce a greater amount of high quality mushrooms to meet the area's booming demand for local products by being creative and making strategic purchases that could help him meet the needs of the market. He has also thought about expanding into the Spokane market and also focusing more on medicinal mushrooms.

Pounds of Mushrooms Grown Before Equipment Grants	Pounds of Mushrooms Grown in 2018	Pounds of Mushrooms Grown in 2020
5-25 pounds	70-100 pounds	500+ pounds

Mushrooms Grown Before Equipment Grants	Mushrooms Grown After Equipment Grant
White Elm, Pearl, Pink, and Golden Oyster	8 varieties of Oysters, Lions Mane, Shiitake, Chestnut, Maitake, and Nameko



Left: An example of a “Gourmet Mix 10lb Case” for one of William’s direct sale restaurant clients. Middle: Pink Oyster Mushrooms - grown utilizing vertical farming techniques and sawdust grow bags. Right: Blue Oyster Mushrooms.

Markets Sold at before Equipment Grants	Markets Sold to in 2018	Market Sold to in 2020
1 Farmers Market	Multiple Farmers Markets (winter and summer), a CSA, Direct to Restaurants, Wholesale, and Grocery Stores.	Because of Covid-19 William sold through Farm Stands and delivered. Initially many of the restaurants sales that are usually pre-sold were canceled, so he had to be creative about what to do with his mushroom crop.

William in Summer 2020 showing his new space on Futurity Drive and one of the main ways he uses the stainless steel carts.



Additional Resources

Montana Department of Agriculture Specialty Crop Block Grant Program: The purpose of this program is solely to enhance the competitiveness of specialty crops in Montana. Visit their website to find funding opportunities and more information. Search [Montana SCBG](#).

Field Tested Reports and Videos: Find more reports about other projects and see videos of tools in action at the [Field Tested webpage, under Resources on FarmLinkMontana.org](#)

Farm Link Montana: A project of the Community Food and Agriculture Coalition to connect Montana's beginning farmers and ranchers with the tools they need to succeed:
farmlinkmontana.org