

# STEP-BY-STEP GUIDE TO MUSHROOM PRODUCTION

## FERMENTED STRAW BAGS

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### Summary

This document outlines basic steps for the production of oyster mushrooms in bags of cold fermented straw.

### Materials

2 bales cereal straw (no hay)  
Jig saw  
IBC tank, clean  
Weight(s), such as big rocks/concrete blocks  
2 Plastic tarps, clean  
Feed bags. clean  
Water  
Oyster spawn, variety of choosing\*\*



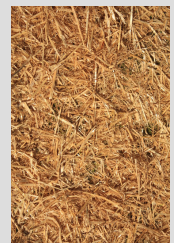
\*\*Varieties of oyster have different temperature range tolerances, so be careful to select a variety that will work well in the mushroom fruiting environment available on your farm.

### Steps

1. **BUILD FERMENTING CONTAINER.** Using a jig saw, cut out a square from the top portion of the IBC tank that is large enough to add and remove handfuls of straw. An IBC tank is large enough to ferment 2 bales of straw. Other containers can be used, as long as they are clean. It may be easiest to drain the straw after fermentation is the container is lined with a large plastic bag.

2. **PLACE FERMENTING CHAMBER IN SUN.** For fermentation to happen, filled container needs to be warm. Place in sun, if possible.

3. **CUT STRAW INTO 1 to 3-INCH SECTIONS.** Using a lawn mower or blender, cut straw into smaller 1- to 3-inch sections. Mushroom mycelium will colonize smaller sections of straw faster and straw will be easier to manage.



4. **ADD STRAW AND WATER TO IBC TOTE.** Add straw to IBC tank and fill tank with cold, clean water. Place weight(s) on top of the straw to keep it submerged. During this submersion process the anaerobic microorganisms live and grow while all the aerobic



### Steps (cont'd)

(oxygen loving) microorganisms die. When the water is removed after a week, the anaerobic bacteria die as soon as they are out in the open, leaving “clean” straw to use for inoculation.

**5. COVER FERMENTING CONTAINER AND WAIT TWO WEEKS.** Cover open top of container with plastic tarp or lid. Allow to sit, undisturbed for 2 weeks. If you're in a warm environment, it'll go a lot quicker than if you're in cold environment.

**6. STRAIN WATER OUT OF FERMENTED STRAW.** After two weeks straw should be fermented, with only anaerobic bacteria remaining. To check, the water should be discolored and stinky. Remove and strain fermented straw and place on a clean plastic tarp. If a plastic bag was used inside the fermenting container, twist the top of the bag, poke holes in it, and let the water drain out.

**7. STIR MUSHROOM SPAWN INTO FERMENTED STRAW.** On the large plastic tarp, stir in 1-2 bags of oyster spawn (typically purchased in sawdust or spent grain).

**8. ADD INOCULATED STRAW TO CLEAN FEED BAGS.** Add inoculated straw to clean feed bags and tie shut.

### **9. PLACE BAGS IN A VENTILATED SHED OR OTHER PROTECTED**

**DARK ENVIRONMENT.** Next to preparing the substrate via fermentation or pasteurization, this is the most important aspect of mushroom production. Mushrooms need about 80% shade and high humidity in order to fruit. We used a ventilated shed and modified hoop house with closed ends to house straw bags.

**10. HARVEST AFTER 3-4 WEEKS.** Approximately 3-4 weeks after inoculation the bags are colonized and the fruiting bodies develop. Harvest is simple, just pulling the mushrooms off the bag is enough.

**11. PREPARE BAGS FOR SECOND FLUSH.** After the first flush the bags are left to dry for a week. The bags are then soaked and the shed was flooded. The second flush usually happens with in 1- 2 weeks.

