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CULTURE:

Use sawdust spawn to grow oyster mushrooms on logs, stumps, pillars (also called totems), beds, or containers. Growing on logs, pillars, or containers are all common methods for commercial production. Stumps and beds are well suited to using otherwise marginal space. Pillars and beds are good beginner methods because they need no special equipment.

Mushrooms require ample moisture. Choose a location for your production that is easy to access, monitor, and is at least partially shaded year-round. Easy access to a water source may also be beneficial. Please note that mushroom production in different climates may require altered practices, some options for which are detailed below.

SPAWN STORAGE:

Remove spawn bags from shipping box promptly. Untuck bags to expose the filter patch and increase air flow. If mushroom fruiting bodies have already developed on the filter patch, carefully remove them without causing damage to the filter and bag. Mushroom growth begins from mycelium (a vegetative structure made up of whitish fibers). In sawdust spawn bags, this can appear as a fuzzy growth resembling mold, but not to worry; it is healthy growth. If spawn needs to be stored prior to inoculation, refrigerate for up to 6 months, but fresh spawn will have the best chance of success. Do not open the bag prior to the day of inoculation as it will significantly heighten the risk of contamination.

DAYS TO MATURITY:

Oysters are fast colonizers: logs, stumps, and pillars may begin fruiting in 6–12 months; containers can begin fruiting in as little as 10 days to 3 weeks; beds inoculated in the spring may fruit in 2–4 months. Time to fruiting is always subject to variable environmental conditions, substrate type, mushroom species, and the ratio of spawn to substrate. Fruiting happens only once mycelium has fully established (colonized) in substrate. In mushroom production on logs, smaller logs take less time to fully colonize than large logs, and stumps may take longer.

SUBSTRATE SELECTION:

Oysters are particularly vigorous and have a wide range of possible substrates for growing in containers or beds, although straw is preferred. Other options include sawdust, wood chips, agricultural waste and more. See our [Substrate Compatibility Chart](#) for more information. Fresher substrate carries a lower risk of contamination (pests, and other fungi) than substrate allowed to age.

TREE SELECTION FOR LOGS, STUMPS, OR PILLARS:

Some tree species are better suited to certain mushroom strains. Oysters will do best on aspen, cottonwood, tuliptree, and willow, but have a wide range of suitability. See our [Species Compatibility Chart](#) for more information. Healthy trees with intact bark can be harvested at any time of year except in the spring between bud swell and full leaf-out when the tree's energy is supporting developing leaves. The ideal time is in the month prior to bud swell.

LOG INOCULATION:

For production on logs, cut trees of at least 3" diameter to desired length. Logs should be inoculated within a week or two of cutting unless they can be stored in a way that keeps them below freezing and hydrated, e.g., covered in snow during northern winters. Using a 12 mm bit, drill holes of 1" depth every 4–6" in rows 2–3" apart, staggered in a diamond pattern down the length of the log. Break up the sawdust spawn. Use a log inoculation tool by jabbing the end into the spawn a few times to load it, then lining the end up with a hole in the log. Depress the thumb piece to insert spawn into the hole, ensuring it is flush with or slightly below the surface of the log. Repeat for the remaining inoculation holes. Using daubers or a paint brush, seal plugged holes with melted wax. This protects the log both from drying out and potential contamination. If growing in a dry climate, consider also sealing the cut ends of the logs with wax.

PILLAR INOCULATION:

For pillar production, cut trees of a larger diameter into at least 2 lengths of 6–18" and at least one 2" long. Logs should be inoculated within a week or

two of cutting unless they can be stored in a way that keeps them below freezing and hydrated, e.g., covered in snow during northern winters. Lay a piece of cardboard on the ground and add a 1" layer of spawn in a circle, roughly the same diameter as the logs. Place a 6–18" piece on top of the spawn. On the surface of the log piece, add another 1" layer of sawdust spawn and stand another log piece on that. Add a final 1" layer of sawdust spawn and cap with a 2" piece. The number of log pieces and therefore height of a pillar is limited only by the structural integrity of the arrangement.

STUMP GROWING:

Sawdust spawn can be used to inoculate freshly cut stumps of a suitable species. This method has the potential to yield mushrooms for a significantly longer time than logs. To inoculate stumps, follow instructions below for inoculating logs with these additional considerations: girdle the stump by removing the outer bark in a ring around the base to prevent suckers from growing; in the inoculation step, also drill holes in the cut surface of the stump.

CONTAINER INOCULATION:

Mushrooms can be grown in containers indoors or outdoors. Oysters can fruit from either the side or out the top of a container. If side fruiting, use a container that already has side openings like a milk or bulb crate, or drill holes if the container does not already have them. Holes of ½" will allow mushrooms to fruit but minimizes moisture loss during colonization. If top fruiting, no holes are needed except the opening of the container. To reduce the risk of contamination, sanitize the container. Substrate may also be pasteurized to kill off potential contaminants using either cold water with hydrated lime or hot water. To inoculate, start with moist substrate. Ideally, this would be around 50% capacity, or when the substrate weighs twice what it did when dry. Next, break up and mix spawn, adding it at a rate between ½ bag and 1 full bag spawn per 5 gallons of substrate. A higher ratio of spawn leads to faster and more reliable colonization and is recommended for beginner growers. Add mixture to the desired container, mixing thoroughly or making alternating layers of substrate and spawn.

MUSHROOM BED INOCULATION:

Oyster mushrooms can be grown in outdoor beds, between garden rows, or anywhere there is ample compatible substrate. The volume that one bag of sawdust spawn can inoculate depends on bed depth and ratio of spawn to substrate, but in general, one bag of spawn can inoculate a 4' x 4' in

bed. Prepare bed site by removing undesired plants or debris. Substrate can be hydrated to start, watered in between layers, or watered thoroughly at the end. Begin with a layer of substrate 1" deep and crumble spawn on top, breaking up large pieces. Beginning with another 3–6" layer of substrate, continue alternating between spawn and substrate until out of spawn or beds are the desired depth. End with a final layer of substrate to protect the spawn.

COLONIZATION:

Maintaining moisture levels is paramount during the time between inoculation and fruiting, where mycelium grows, but no fruiting bodies are visible. Allow this process to happen in an area out of direct sunlight. If producing on pillars or in containers, consider covering with a tarp, a layer of straw mulch, or similar material to keep moisture in. Remove cover when mushrooms are ready to begin fruiting, indicated by pins (baby mushrooms) beginning to form on the surface. If producing on logs, keep the logs close to the ground but not in direct contact with it, and stack densely to help mitigate moisture loss due to excessive airflow.

CONSIDERATIONS FOR FRUITING ON LOGS:

When logs are fully colonized, sometimes indicated by the presence of mycelium on the cut ends, they should be re-arranged in a way that increases aeration and harvester access. Fruiting will naturally occur the first time. After the initial fruiting, if more regular harvests are desired, logs can be "force fruited" by soaking them in cold water for no more than 24 hours. This can be attempted with Oyster but works best with Shiitake. Allow about 8 weeks between flushes if using this method.

HARVEST:

Clusters of maturing mushrooms grow very quickly and should be checked at least once a day when nearing maturity. To harvest, twist or cut clusters off at the base of the stem. Harvest just before caps begin to flatten out and edges are still curved under. Overmature mushrooms will have a shorter shelf life and are more easily damaged in handling. Fading or discoloring, as well as firmness, are indicators that the mushrooms may not be ideal for consumption, as their flavor and texture can degrade with age.

PRODUCTION WINDOW:

When growing mushrooms using any method, the number of flushes produced will depend on substrate density and type, environmental conditions, and mushroom species. When growing on logs, the larger the diameter, the longer the

production window. Due to their diameter, stumps and pillars have the potential to produce for much longer than logs. In northern climates, a rule of thumb is that the log's diameter in inches equals the number of years it is likely to produce. This timeline will be shorter in mild areas with a more continuous growing season. Variability in both containers and their substrates makes it challenging to accurately predict yield. Beds have the ability to produce for a few years, provided adequate substrate is added yearly.

PESTS AND DISEASE:

Mold can grow on sawdust spawn damaged in transit or on harvested mushrooms that have been stored for a long time. Do not consume moldy mushrooms. To combat slug damage, diatomaceous earth can be spread on beds or around the base of logs. Mammals can be a minor pest but often will not consume all your yield. Mammals can be deterred by using row cover such as Agribon-15. It is better to harvest mushrooms when they are younger as they will usually have less pest damage.

CAUTION:

Ensure mushrooms are cooked thoroughly before consumption. If eating a species for the first time, start with a small amount to test for allergies. Logs or substrate for mushrooms grown outside have a higher risk of being colonized by other fungal species. Make sure to confidently identify mushroom species prior to consumption, as they may be a fruiting body of a local species.

LEARN MORE

- Substrate Suitability Chart:
<https://www.johnnyseeds.com/growers-library/mushroom-substrate-suitability-chart.html>
- Tree Species Suitability Chart:
<https://www.johnnyseeds.com/growers-library/mushroom-tree-species-suitability-chart.html>