

Mushrooms are one of the most unique grown produce



How Mushrooms Grow

The mighty mushroom has a unique and fascinating production process. Before they make their way to your plate, mushrooms go through a growing process in a highly controlled environment unlike that of any other produce item.



White Mushrooms

White mushrooms, like all mushrooms, grow from microscopic spores, not seeds. Plants growing from spores are called fungi. A mature mushroom will drop as many as 16 billion spores. Spores must be collected in the nearly sterile environment of a laboratory and then used to inoculate grains or seeds to produce a product called spawn (the mushroom farmer's equivalent of seed).

Because mushrooms have no chlorophyll, they must get all their nutrients from organic matter in their growing medium. The medium, called compost, is scientifically formulated of various materials such as straw, corn cobs, cotton seed and cocoa seed hulls, gypsum and nitrogen supplements. Preparing the compost takes one to two weeks. Then it's pasteurized and placed in large trays or beds. Next the spawn is worked into the compost and the growing takes place in specially constructed houses where the farmers can regulate the crucial aspects of heat and humidity.

In two to three weeks, the compost becomes filled with the root structure of the mushroom, a network of lacy white filaments called mycelium. At that point, a layer of

pasteurized peat moss is spread over the compost. The temperature of the compost and the humidity of the room must be carefully controlled in order for the mycelium to develop fully. Eventually, tiny white protrusions form on the mycelium and push up through the peat moss. Farmers call this pinning. The pins continue to grow, becoming the mushroom caps, which are actually the fruit of the plant, just as a tomato is the fruit of a tomato plant. It takes 17 to 25 days to produce mature mushrooms after the peat moss is applied. Size is no indication of maturity in mushrooms. Perfectly ripe ones vary from small buttons to large caps.

Each crop is harvested over a period of several weeks and then the house is emptied and steam-sterilized before the process begins again. The remaining compost is recycled for potting soil. The harvested mushrooms are set in carts, refrigerated and then packaged and shipped quickly to supermarkets, food processors and restaurants. The entire process from the time the farmer starts preparing the compost until the mushrooms are harvested and shipped to market takes about four months.



Crimini Mushrooms

Crimini mushrooms are grown and harvested in the same manner as the white mushroom. The reason they have a darker color and slightly denser texture is that they come from a different strain of spores.



Portabella Mushrooms

Portabella mushrooms are also grown like the white mushrooms. Actually, the portabella is a mature crimini. It's usually three to seven days older than the Crimini when harvested. As a result of their longer growing period, portabellas develop much larger caps, ranging up to six inches in diameter.

Fungi Growing Facts



Mushrooms grow indoors
24/7/365



Unlike green plants,
mushrooms don't need
light to grow



Mushrooms double in
size every day



Shiitake Mushrooms

Shiitake mushrooms were originally cultivated on natural oak logs, a process which took two to four years before the mycelium colonized the wood sufficiently to produce fruiting. Shiitakes were harvested on a seasonal basis (spring and fall) for about six years. Now, however, oak sawdust is packed into poly bags, sterilized, inoculated with spawn and placed in environmentally controlled rooms. These man-made "logs" produce shiitakes in seven weeks. The total process, from spawning to the end of harvesting, takes about four months as compared to the six-year cycle on natural logs.



Oyster Mushrooms

Oyster mushrooms, like other mushrooms, are grown in mushroom houses, but they require a bit more humidity and fresh air than the white variety. They grow well on a range of agricultural and wood waste products, including hardwood chips, chopped cereal straws or corn cobs. After the growing medium is pasteurized and cooled, it is inoculated; that is, mixed with spawn and packed into long, tubular shaped plastic bags. Holes are punched in the bags to allow the mycelium to breathe and the bags are hung up or set on racks in the growing rooms. After about 14 days, the mushrooms pop out through the holes and can be harvested. If straw is used as a growing medium, the substrate can be used as fertilizer after mushroom production is completed.



Enoki Mushrooms

Current technology uses automated systems to fill plastic bottles with substrate usually ground corn cob pellets along with other ingredients such as wheat bran and soybean meal. The bottles are sterilized, inoculated with the mushroom culture and placed in growing houses. When the substrate is fully colonized with mycelium, the bottles are moved to an area where a plastic collar is attached to the mouth of the bottle. This collar guides the forming mushrooms to grow straight up to help control carbon dioxide. Enokis require a colder environment, 45 degrees, compared to growing temperatures of about 60 degrees, which other varieties require. After about 90 days, the mushrooms are harvested. The collars are removed, the Enokis plucked from the mouth of the bottle and usually packaged in shrink-wrapped bags. The remaining substrate is recycled, since enokis only produce one set of fruiting bodies per crop.



Beech Mushrooms

In some ways, growing beech mushrooms is similar to growing enokis. Plastic bottles are sterilized, inoculated with mushroom culture and then placed in growing houses to allow the substrate to colonize with the mycelium. However, beeches require a temperature of 60 to 64 degrees in order for the culture to fully develop. It takes about 100 days to produce a mature crop. Afterward, the mushrooms are harvested and packaged for sale. Since beeches only produce one set of fruiting bodies per crop, the remaining substrate is recycled for agri-business products.



Maitake Mushrooms

The cultivated maitake starts out as a mushroom “culture”- a piece of mushroom tissue grown on special sterile media in a petri plate in a laboratory. The culture is used to make mushroom spawn- a series of steps to make a lot of mushroom tissue out of a little. The mushroom spawn is used to inoculate maitake production logs, which are made out of sawdust supplemented with grain byproducts such as bran. The logs go through a “spawn run” where the mushroom spawn colonizes the sawdust and supplements and knits them together in a solid mass. This takes about 30 days.

The logs are incubated in special mushroom houses with temperature, humidity and air flow carefully controlled. Once the logs start to pin (small mushrooms begin to form) the logs are moved into “fruiting” houses which are also very carefully controlled to provide the best environment for mushroom formation. Like the enoki mushroom, maitake produces only one time, then the substrate is recycled into agri-business products. The whole process from lab to table takes from 10 to 14 weeks.

