



Mushrooms: From Forest to Plate

OSU Tree School 2012
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Tempress Truffles

What you will learn during this class!!



- Mushroom safety
- Introduction to NW edible fungi
- Eco-friendly harvesting practices
- Grow your own mushrooms
- Ways to enjoy and preserve fungi
- Mycological health benefits
- Other uses for mushrooms ie: dyes, oil clean-up, fertilizer
- Continued Education

Mushroom Safety Tips & Rules



- **Never, ever, eat a wild mushroom unless you have positively identified it with absolute confidence. If in doubt (even the vaguest shadow of doubt), don't eat it!**
- **If possible, go on a mushroom foray with an expert**
There's no better introduction to the rigors and skills of informed mushroom identification than seeing it done properly.



- **Read, Read, Read.** There are many great publications and websites that contain lots of information about mushroom identification. These resources has been created for us to use as a learning and safety tool.
- **Have a dry run**
Collect some mushrooms and identify them in the above books. This will develop your eye for the necessary details and general feel for mushrooms. It's amazing how quickly you'll learn to see the differences between mushrooms that "all look the same" to the uninitiated.



- **Know your prey, know your enemy, know the poisonous**
In following the above steps, you'll develop a clear idea of the edible mushrooms worth looking out for and the really poisonous ones to avoid at all costs. The vast majority of mushrooms fall in between, neither particularly good to eat, nor particularly toxic.
- The Death Cap- Amanita Phalloides



- **Ignore any rules of thumb**

The only way to be sure a mushroom is safe to eat is to positively identify it. Any supposed rule – “the caps of edible mushrooms peel”, “if it’s been nibbled by an animal then it’s safe to eat”, “cooking mushrooms makes them safe to eat” etc – is untrue, misleading and dangerous.



- **Take account of all relevant information**
Mushroom identification isn't just a question of examining the specimen in isolation. The more information you have, particularly the habitat and season, the easier the identification. If you found it in the middle of a treeless field, it's not a cep. If you picked it in September, it's not a morel.

Wild Harvesting Tools Needed

- Collection Basket or Bag
- Knife
- Small Brush
- Pocket Field guide
- Small first aid kit



Northwest Wild Edibles



Clockwise: Wild blueberries, morels, beaked hazelnuts, blackberries, clintonia

Oregon's State Mushroom: The Pacific Golden Chanterelle (*Cantharellus formosus*)



Winter Chanterelle aka Yellowfoot
(*Cantharallus Tubaeformis*)



How to identify the Golden Chanterelle



- Season-Fall and winter
- Coloring-Dark yellow to white
- Gill pattern-With well developed false gills; pale orange-yellow, with a pinkish cast in most collections.
- Stem-Stem: 4-8 cm long; to 2 cm thick at apex; usually tapering gracefully downward; more or less smooth; colored like the cap or paler; often bruising yellow near the base; fleshy.
- Spore pattern/Print-Whitish to pale yellowish.
- Forest type-Ecology: Mycorrhizal with western hemlock and other conifers; growing alone, gregariously, or in small clusters in old-growth and second-growth forests in fall and winter; British Columbia, Oregon, and northern California.
- Smell of sweet apricots

Cap



- 2-14 cm; convex with an inrolled margin, becoming broadly convex, flat, or shallowly depressed with an inrolled, uplifted, or irregular-wavy margin; the center not becoming perforated; fairly smooth, finely suede-like, or slightly roughened; bright to dull orange-yellow, with a grayish to brownish pigment layer that is nearly invisible in wet conditions but becomes more prominent with drying or with age in dry weather, appearing as tiny, darker scales; often bruising and discoloring yellowish

Mycorrhizal



- The term **mycorrhizal** comes from the Greek words *mykes*, meaning fungus, and *rhiza*, meaning root. Mycorrhizal fungi are fungi that have developed a symbiotic (mutually beneficial) relationship with the root systems of living plants, from garden vegetables all the way up to the trees of the Old Growth forests. Networks of mycorrhizal filaments envelop the seedling's root structure, supporting the plant's own ability to utilize water and nutrients in the soil. This relationship encourages healthy, vigorous growth—naturally.

False Chanterelles

- Jack o'lanterns (*Omphalotus olearius*, *Omphalotus illudens*, *Omphalotus olivascens*) contain the toxin muscarine. If eaten, they can cause severe cramps and diarrhea.





- The best ways to identify a chanterelle from a jack o'lantern is by examining the gills. Remember that chanterelles have false gills, which are forking wrinkles on the underside of the mushroom that appear "melted". Jack o'lanterns have true gills, meaning they are non-forked and knife-like.





- Other ways to tell a jack o'lantern from a chanterelle:
- Jack o'lanterns grow in large groups with the stems attached. Chanterelles are usually solitary or in a small bunch with separate stems.
- Jack o'lanterns are more orange, less yellow.
- Chanterelles will always be near trees due as they are mycorrhizal fungi. Jack o'lanterns may appear where there are no trees.



- Again, the main way to tell a true chanterelle from false is by examining the gills. False chanterelles have true gills, although they are forked on the edges. They still appear as close blades rather than lumpy folds. See how they differ from the gill picture in the first section above?
- Another way to distinguish the two is with color. The false chanterelle is a deeper orange with no yellow. The color is also graded, meaning they're darker at the center of the cap rather than one uniform color.
- Caution should be used when trying to identify chanterelle mushrooms, given that there are species out there that will make you sick. Reviewing this page and consulting a local guidebook will help you become more familiar with their traits.

Other Types of Edible Chanterelles

- White Chanterelle



Morels: (Morchella)



Blonde Morels



Black Morels (Burns)



How to Identify Morels



- Season-Spring
- Coloring-Black to Blond
- Gill pattern-Honeycombed
- Stem- Hollow
- Spore pattern-Varies
- Forest type

False Morels: *Helvella crispa*



False Morels: *Ptychoverpa bohemica*



Boletes

- King Bolete(*Boletus Edulis*) aka Porcini



Eco-friendly Harvesting Practices

- Tread Lightly
- Don't over harvest
- Let the young buds thrive
- Spread spores



Grow your own Mushrooms

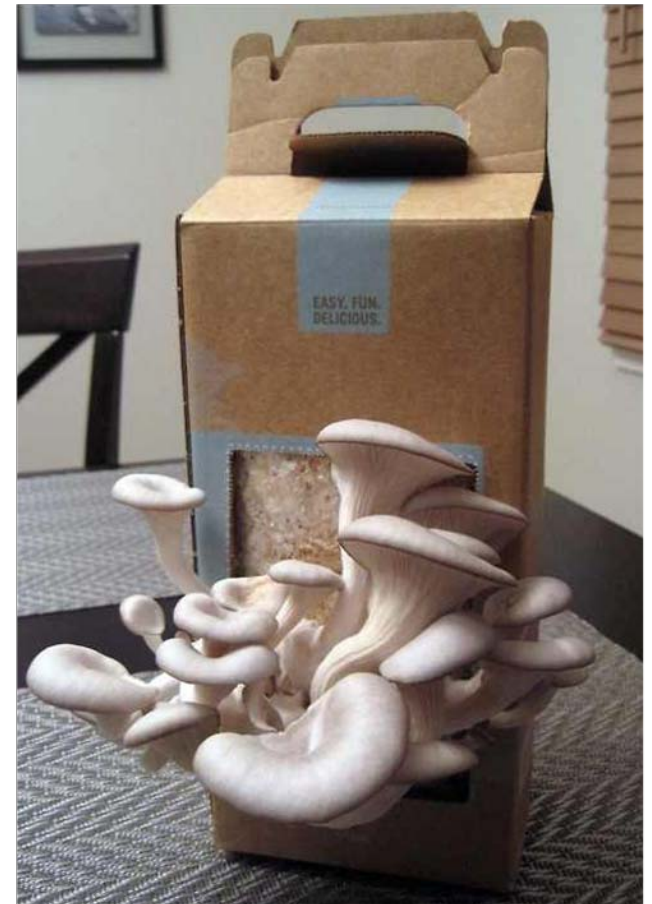


Most common types of cultivated fungi



- Shiitake
- Oyster Mushroom
- Maitake
- White button mushroom aka Portabella
- Enotaki
- Piopinni
- Truffles(not common)

Growing Indoors



Growing Outdoors



Cooking and Preserving



- Cook all wild mushrooms
- Pickling
- Sauté and freeze
- Canning
- Processed products
- Dehydrating

Mycological Health Benefits



- Immunity-Increased T-Cell count
- Cancer fighting-Mushrooms are a rich source of riboflavin, niacin, and selenium. Selenium is an antioxidant that works with vitamin E to protect cells from the damaging effects of free radicals. Male health professionals who consumed twice the recommended daily intake of selenium cut their risk of prostate cancer by 65 percent. In the Baltimore study on Aging, men with the lowest blood selenium levels were 4 to 5 times more likely to have prostate cancer compared to those with the highest selenium levels.
- Fat Burning

Kombucha Tea



Dyeing with Mushrooms



Environmental Clean-up



Mycoremediation,

A phrase coined by Paul Stamets, is a form of bioremediation, the process of using fungi to degrade or sequester contaminants in the environment. Stimulating microbial and enzyme activity, mycelium reduces toxins in-situ. Some fungi are hyper-accumulators, capable of absorbing and concentrating heavy metals in the mushroom fruit bodies.



Gardening and Agricultural Benefits

- Mycogrow



Myco-Tourism



Forest walks and hikes



NW Mycological Events



- Oregon Truffle Festival-Jan
- Morel Hunting-Fall
- Fall Chanterelle class with Temptress
- Mt.Pisgah mushroom show-October



Continued Education



- Oregon Mycological Society
- North American Truffle Society
- **Rogers Mushrooms** - <http://www.rogersmushrooms.com>
Probably the most complete collection of photographs and mushroom information available online.
- **MushroomExpert.Com** - <http://www.mushroomexpert.com>
Another extensive mushroom identification site. This one focuses specifically on North America. Whilst there is a considerable overlap between UK and US fungi, some of the mushrooms described are not found in the UK. Care should be taken therefore in using the keys on this site to identify UK fungi.
- **MykoWeb** - <http://www.mykoweb.com>
Another good, but US centric, mushroom site.