

SDSU Extension

Having Fun With Fungi

BY DAVID F. GRAPER
SDSU Extension

Spring is a time when many intrepid mushroom hunters head out to their secret spots in search of mushrooms, particularly the highly prized morels. Morel mushrooms are especially desirable for their delicious taste and also because they are relatively rare, at least in the prairie where we live.

Morel mushrooms prefer to grow in hardwood forests, usually around the stumps of old dead trees, especially American elm. Here in South Dakota, they may be found along the Missouri and Big Sioux rivers as well. Since we don't have many hardwood forests and most of the elms are long gone, finding morels can be pretty challenging. If someone does find some, they will probably keep their location a secret, kind of like that favorite fishing hole or that productive patch of wild asparagus.

HOW TO IDENTIFY A MOREL FROM OTHER MUSHROOMS

Morels are only found for a few weeks in the spring of the year, usually after a good soaking rain. They can be found by the dozens in a good spot, essentially growing up overnight. They typically grow about 2 to 5 inches tall and are about 1 to 2 inches in diameter. The brown or gray caps have a distinctive wavy, brain-like appearance. If you cut one in half from top to bottom it should be completely hollow inside.

If all of these characteristics match up with what you find, then you can be pretty sure that you have morels. But, if the mushrooms you find are filled with feathery membranes inside or you find something that sort of looks like a morel but you don't find it until mid-summer or fall, it is not a morel.

Morels are considered to be one of the "fool-proof-four" of wild mushrooms since the identifying characteristics are quite straight forward.

SHAGGY MANE

Another mushroom that is easily identified and also one of the fool-proof-four are the Shaggy Mane mushrooms. They are common in lawns, growing to 6 inches in height and up to 2 inches in diameter. The surface of the caps look "shaggy" because they have scales of tissue that hang off the side. The caps are densely filled with gills that start out white but later turn gray, then to black as they age. Shaggy mane mushrooms will appear in small, somewhat loosely spaced clusters.

Inky caps are smaller mushrooms and even more common in lawns, again around the stumps of old trees or even close to where a stump was ground out. The fungus feeds on the decaying roots beneath the soil. These too will pop up overnight following a good rain. These emerge in clusters of tightly bunched small mushrooms about 1 inch in diameter in groups 3 to 6 inches around.

Initially the caps are white but later turn tan to light brown. Beneath the caps are gills that start out white but later turn gray and eventually black. The name "inky cap" refers to the dark color of the gills and that after a few days these patches of mushrooms turn into an inky-black mass of desiccated mushrooms.

The shaggy manes are considered to be quite edible but should be harvested and eaten while they are young and the gills are still white. If you harvest some, it is best to eat them right away because you cannot store them for long or they will dete-



IMAGE: METRO GRAPHICS

riorate into the same inky mess they become in your lawn. The inky caps can also be eaten but with caution. One species can cause poisoning symptoms if eaten within 24 hours of consuming alcohol. So it is best to probably stick with the much larger shaggy manes.

Most people consider inky caps a real eye-sore in their lawn leading to lots of questions on how to get rid of them. Since the mycelium or "body" of the mushroom is actually beneath the soil, growing through and feeding on the decaying old roots and stumps of dead trees, getting rid of them permanently is no easy task. It would likely mean a large-scale excavation process to get out all of the old wood and even then they might come back for a year or two. The best thing to do is use a stiff rake to get them out of the lawn and dispose of them.

PUFFBALLS AND CHICKEN-OF-THE-WOODS

The other two mushrooms considered to be members of the fool-proof-four are the puffballs and chicken-of-the-woods mushrooms.

Chicken-of-the-woods is a shelf-type mushroom that grows on the sides of trees, usually mid-summer to fall. It is bright yellow to orange and has pores on the undersides of the shelves instead of gills like the shaggy manes have.

Try to harvest this mushroom when it is young, brightly colored and has a soft texture. As it ages the color pales and the mushroom develops a tough texture. Some people say that it does taste like chicken when cooked.

The fourth mushroom is the puffball. This mushroom is also fairly common mid-summer to fall. You may find them growing in your lawn or shelterbelt. They can range in size from that of a golf ball to a basketball. These are completely white inside and out when they first grow but will turn tan and eventually

brown as they age.

Harvest them while they are still white. Peel off the outer layer, then slice up the inner "meat." The texture of these is kind of like eggplant, and like eggplant, it picks up the flavor of what it is cooked with. When fully mature and dried out puffballs develop a hole near the top. If you kick them at this stage you will see clouds of spores fly out.

WHEN IN DOUBT, THROW OUT

Even though we say these are the fool-proof four, one should always be careful and follow some of the old sayings like: "when in doubt, throw it out" or "there are old mushroom hunters; there are bold mushroom hunters; but there are no old, bold mushroom hunters."

Wild mushrooms can certainly be delicious but there also those that are considered non-edible because of texture or flavor and then there are those that are mildly poisonous to deadly.

Never eat anything that you are not sure of. Even if you are sure, but have not eaten a particular mushroom before, start with a small amount and see how it affects you. You might just be allergic or have a reaction to a particular species, just as some people have various food allergies.

But what if you do not live near a forest or have time to go hunting for mushrooms? Maybe you really love eating mushrooms and want something more than the basic white button mushrooms or portobellas that you may find in your local grocery store. Maybe growing some of your own would be an interesting project to try and yield some fresh and delicious mushrooms to add to your favorite recipes.

SDSU RESEARCH INTO GROWING MUSHROOMS

Casey Snyder, an undergraduate Horticulture student, is conducting a research project on growing a

few saprophytic (wood consuming) mushrooms. Fresh gourmet mushrooms are rare in the United States and are a highly prized commodity in the culinary world.

Among the mushrooms considered gourmet, Shiitake and Oyster are the most commercially grown. Snyder's project focuses on these two species of mushroom based on commonality, consumer demand, and ease of growth.

The preferred method used for growing Shiitake and Oyster mushrooms is to collect and then inoculate manageably sized wood logs, typically 4 to 6 inches in diameter, with mushroom mycelial spawn.

Logs are inoculated by drilling holes in a diamond pattern using a 7/16th inch drill bit, filling open holes with prepared spawn, and waxing over exposed wood to seal in the spawn and moisture. Some species of mushrooms have spawn that is growing on dowels that are pounded into the logs.

Prepared logs are then handled gently and laid in shelterbelts, stacked in sheds, or propped against railings in designated growing sites. These sites should be shaded and cool, but still allow for air movement and ventilation to prevent mold. Logs inoculated in the spring, may fruit in late summer or fall but are more likely to fruit the next spring, then again in the fall. Fruiting may continue in the spring then again in the fall for 3 to 5 years but is generally best in years 2 to 3. The duration of fruiting depends on temperature and humidity and the condition of the logs.

There are many different methods of creating mycelia spawn from mushroom spores. Casey is using a commercially available sawdust spawn that is typically more economical than some other types of spawn. The inoculated logs will be weighed and sprinkled with water when humidity is low. The logs are very low maintenance between

inoculation and harvest as the mycelium needs time to establish in the log before fruiting. During this time the mycelium is consuming nutrients and starches inside the logs and ultimately preparing itself for reproduction. This is referred to as the incubation stage of mushroom production. The edible mushrooms that are harvested and consumed are the product of this process.

This project aims to discover profitability and practicality of cultivating mushrooms in South Dakota. About 1.7 million acres or 3 percent of South Dakota's total land area is forest land. Many residents of the state have access to woodland areas, including wood lots and shelterbelts. Rural residents often plant trees that are recommended by South Dakota State Extension and Conservation specialists. There are several programs available through the South Dakota Game, Fish, & Parks, as well as the Department of Natural Resources and the Conservation & Forestry Department of South Dakota, that pay landowners to establish woody habitat for many wildlife species, including nongame wildlife. The State recommends a number of trees to plant in shelterbelts, including: Bur Oak, Crabapple, Black Hills Spruce, Cottonwood, Green Ash and many others. While most of the trees used for shelterbelts are very hardy for our climate, they still require management from a young age (watering, weeding, fertilizing) to an advanced age (pruning, thinning, and weed tree removal). Weed trees that are commonly found seeded in established shelterbelts include: Common Buckthorn, Sumac, and others. Each tree specifically named in this section will be used in this project to test the viability of mushroom growth on South Dakota shelterbelt trees. Many of these trees can be cultivated or sourced in cities as well.

The local foods movement is one that can be profitable and beneficial to communities. Small scale farmers provide a variety of products to consumers from vegetables and fruits to value-added goods like jellies and maple syrup. Consumers desire locally grown products at a reasonable price and mushrooms are a unique product that can capture their attention by novelty, nutrition, and price.

This project will work in conjunction with a local foods producer, Foodtopia Farms, in Toronto (S.D.). This producer serves local counties and the state through the South Dakota Local Foods Cooperative. Marketability and production of mushrooms has been very successful in nearby Minnesota and is promising throughout this state. It is speculated that demand for gourmet mushrooms will be a sustainable venture and allow consumers to have regularly stocked, fresh and locally produced gourmet mushrooms seasonally.

There are other smaller-scale options for a home grower as well. Mushroom growing kits are available for a variety of mushroom species. Basically the kit includes mushroom spawn or mycelium that is growing in sawdust or some other growing media. Generally you open the bag and moisten the growing media to help get the mycelium to grow and begin fruiting. In a short time you should have mushrooms growing out of the medium that you can harvest and enjoy.

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Are Owners Listening?

Overweight Pets Are Unhealthy Pets, Veterinarians Warn

BY TRE'VELL ANDERSON
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Garfield is not the only fat cat around.

According to the Association for Pet Obesity Prevention, more than 50 percent of the nation's cats and dogs are overweight. And just as concerning, more than 90 percent of their owners don't recognize that their pet is carrying around extra pounds.

"People automatically think a fat cat is a happy cat," says Ernie Ward, owner of Seaside Animal Care in Calabash, N.C. "But it's not cute. It's killing."

Ward founded the organization in 2005 after realizing that many veterinarians were not talking to pet owners about obesity. Ten years later, he says, vets are finally having those necessary conversations.

"It's an emotional land mine," Ward says. "You don't know when you're going to step on the wrong button because people inherently have a problem with questions (about how they're) feeding pets because we equate love with food and treats."

Not unlike humans, pets can face obesity because of too much food and too little exercise, says Eve Flores, a veterinarian and co-owner of DTLAvets with Leia Castaneda. Overweight animals are more



KATIE FALKENBERG/LOS ANGELES TIMES/TNS
A veterinarian assistant weighs a bulldog, Biff, at DTLAvets in Los Angeles. According to a recent study, more than 50 percent of cats and dogs in the country are overweight.

prone to a host of health conditions, including arthritis, high blood pressure and blindness.

Below are some suggestions from Ward, Flores and Castaneda for pet owners looking to improve pets' health:

ANNUAL CHECKUPS

Many pet owners do not take their dogs or cats to the veterinarian until something is wrong. "We can't

practice preventive medicine if we're not seeing the pets," Flores says.

Pets should be seen by the veterinarian at least once a year for the doctor to evaluate the animals — and educate the owners.

READ LABELS

"The most important decision a pet owner makes every day is what they feed their pet," Ward says.

Flores encourages pet owners to

"People automatically think a fat cat is a happy cat. But it's not cute. It's killing."

ERNIE WARD

look at the ingredients listed on food packages. If any of the first three items is unpronounceable or hard to understand, don't buy it.

CALORIES COUNT

"Pay attention to the amount you're actually feeding your dog," Castaneda says, adding that owners should be aware that treats have calories too. She also says that diet food and pet foods that are grain free or raw have become marketing tools more than healthful alternatives.

EXERCISE

Ward uses a simple equation to get through to his clients: "Fat equals inflammation, which equals disease which equals early death." To avoid that, exercise is a must, he says. "It is as simple as walking your dog 30 minutes a day, interacting with your cat for five minutes three times a day."

Flores adds that extending normal walking or play times by 10 minutes can do the trick.

4-H To Offer Harvest Programs For Children

Harvest of the Month is an educational program for kids ages 5-9 designed to help you add more fruit and vegetables to your daily routine more often — at home, work, school and everywhere in between. Each fruit and vegetables featured during our lesson makes learning easy, tasty and fun.

Programs are set for the Yankton 4-H Office, 901 Whiting Drive, on July 7 and 9, July 14 and 16 and July 21 and 23. The cost is free.

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