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What Is Growing in My Landscape Mulch?

Mushrooms

Slime molds

Bird's nest fungus

Artillery fungus

PENNSTATE



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Landscape mulches are used to protect soil, conserve moisture, moderate soil temperature, and limit weed growth, as well as beautify and unify landscape plantings. Most mulches are mixtures of shredded wood and bark residues from lumber and paper mills, arboricultural and land-clearing operations, and wooden pallet disposal or recycling facilities.

As does other organic matter, wood and bark decompose over time. The primary organisms involved with their decomposition are bacteria and fungi, which derive their energy for growth from the carbon-based compounds found in wood and bark. These compounds include cellulose, lignin, and simple sugars. Bacteria are microscopic organisms that are not visible in the mulch. Fungi also may be microscopic, but many develop visible reproductive structures.

The fungi involved in the decomposition of landscape mulches are natural components of the mulch environment. Some fungi, such as the artillery fungus, are “recyclers” and break down woody tissue directly. Fungi-like organisms, such as slime molds, consume bacteria and other organisms living in the mulch. Slime molds are not harmful to landscape plants, and no known health hazards are associated with them unless they are eaten. They can be found from April through October, usually following rainy weather.

This brochure describes four common types of organisms growing in landscape mulches in the eastern United States—mushrooms, slime molds, bird’s nest fungus, and the artillery fungus.

MUSHROOMS

Common names: mushrooms, toadstools

Scientific names: Many different fungi produce mushrooms.

What do mushrooms look like?

They come in various colors, shapes, and sizes ranging from less than an inch to several inches tall. Some are soft and fleshy and disappear soon after they emerge; others may remain in mulch for a few days, weeks, or an entire growing season.

Are they a problem?

They may be poisonous if eaten.

What should be done?

Appreciate their beauty, ignore them, or remove them.



Many different species of fungi produce fruiting bodies called mushrooms.



This fungus is called a stink-horn. It gets its name from the foul odor of the cap of the fruiting body.

SLIME MOLDS

Common names: slime molds, “dog vomit”

Scientific names: species of *Physarum*, *Fuligo*, and *Stemonitis*

What do slime molds look like?

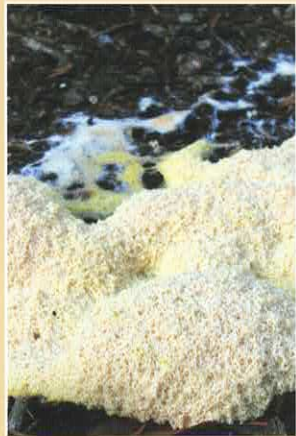
They start as brightly colored (yellow, orange, etc.), slimy masses that are several inches to more than a foot across. They produce many tiny, dark spores. These molds dry out and turn brown, eventually appearing as a white, dry, powdery mass.

Are they a problem?

No. These fungi-like organisms are “feeding” on bacteria growing in the mulch. They are normally a temporary nuisance confined to small areas.

What should be done?

Slime molds may be left in place to decompose. If their appearance is offensive, discard the fruiting bodies in a compost pile, household garbage, or a spot in the yard away from existing mulch.



A fresh, brightly colored yellow slime mold.



A fresh, brightly colored pink slime mold.

BIRD'S NEST FUNGUS

Common name: bird's nest fungus

Scientific names: species of *Crucibulum* and *Cyathus*

What do bird's nest fungi look like?

They resemble tiny, gray to brown bird's nests or splash cups with eggs. The nest is up to ¼ inch in diameter.

Are they a problem?

These fungi may grow in large areas of mulch, but they are not a problem. The “eggs” are masses of spores that splash out of the nest when hit by a raindrop. These spores occasionally stick to surfaces, as do the spores of the artillery fungus, but they are easily removed and do not leave a stain.

What should be done?

These naturally occurring fungi decompose organic matter and do not need to be removed. They are interesting to look at—show them to children!



Bird's nest fungus (*Crucibulum* spp).



Bird's nest fungus (*Cyathus* spp).

ARTILLERY FUNGUS

Common name: artillery fungus

Scientific name: species of *Sphaerobolus*

What do artillery fungi look like?

They resemble a tiny, cream or orange-brown cup with one black egg. The cup is approximately $\frac{1}{10}$ inch in diameter. Areas of mulch with artillery fungi may appear matted and lighter in color than the surrounding mulch.

Are they a problem?

They may be a problem. The fruiting body of this fungus orients itself toward bright surfaces, such as light-colored houses or parked automobiles. The artillery fungus "shoots" its black, sticky spore mass, which can be windblown as high as the second story of a house. The spore mass sticks to the side of a building or automobile, resembling a small speck of tar. You may also find them on the undersides of leaves on plants growing in mulched areas.

Once in place, the spore mass is very difficult to remove without damaging the surface to which it is

attached. If removed, it leaves a stain. A few of these spots are barely noticeable, but as they accumulate, they may become very unsightly on houses or cars.

What can be done?

Penn State researchers have recently discovered that blending 40 percent used mushroom compost with landscape mulch greatly suppresses the artillery fungus. Mushroom compost, or mushroom soil, is the pasteurized material on which mushrooms are grown. After the final crops of mushrooms are picked, the used compost is pasteurized a second time and removed from the mushroom house. This valuable by-product (sometimes called "black gold") is often made available to gardeners and home-owners. Used mushroom compost has physical and chemical characteristics that make it ideal for blending with landscape mulch to enhance growth of horticultural plants. In addition, mushroom compost contains beneficial microbes that compete with, or actually destroy, nuisance fungi such as the artillery fungus and bird's nest fungi. Homeowners are increasingly interested in controlling nuisance fungi without the use of chemicals. Blending used mushroom compost with landscape mulch offers a "green" and environmentally friendly solution to reducing the harmful effects of the artillery fungus.



Fruiting bodies of the artillery fungus.



Artillery fungus spore masses on vinyl siding.