The Plant Doctor
Slime Molds

Slime molds are the cause of many panic calls to the Extension Service and garden stores. "Everything was fine when we went to bed! But this morning, the yard (or a bush) is covered with—something!"

The "something" may be gray, blue, yellow, orange, or almost any other color. It may even look like an intricate fan or dog vomit. A close look at the mass shows either small pores (pin-sized holes) or round balls. If you rub the mass between your fingers, a sooty-like powder covers them. The mass covering your plant is a slime mold.

Slime molds live in areas with lots of moisture and decaying organic matter such as wood mulch or decaying trees. They are found all over the world, including such diverse areas as deserts and mountains. There are many genera of slime molds. The most common slime mold in Mississippi turf is *Physarum*, which is usually grayish in color. The circular patches of yellow to pink growth in shredded wood mulched landscape beds are most often *Fuligo* sp.

Mistakenly called fungi, slime molds are really myxomycetes. They act more like amoebas than fungi. Like amoebas, slime molds spend most of their lives as a single cell—but unlike amoebas, slime molds can become very large during this stage. During the single-cell stage, they move like amoebas, extending finger-like projections (called plasmodia). These projections pull the rest of the body along, letting the slime mold move as much as several feet per day.

Like amoebas, when slime molds find something to eat, they first surround their food, then swallow it. Slime molds may feed directly on organic matter, but they also may thrive on microorganisms such as bacteria. In fact, some slime molds encase a strain of food bacteria inside their spores, so newly hatched slime molds can start "farming"[1].

When certain conditions are triggered, the single cells of many slime molds come together to form a large network of plasmodium. You see slime molds most often in this stage. The entire surface of the plant or turf is often covered by the slime mold, creating a dramatic appearance.

The plasmodium will then clump together to form a mass. The masses then produce grayish-white sporangium (plural sporangia)[2], an environmentally resistant structure that produces spores. About the size of a pinhead, they grow perpendicular to the surface of the leaves.

Before the masses and sporangia are formed, the plasmodium crawls up to the highest places around so that the launching spores can reach as many places as possible. Grass blades and other small plants are common "launching" platforms.

Slime molds are fascinating organisms and can make great science fair projects (for more information, see Steve Stephenson's 2000 book *Myxomycetes: A Handbook of Slime Molds*). Different types of decaying wood and forest debris can be collected, kept in a humid place or box, and the different types of slime molds growing from them used for many experiments. The sporangia can be collected and stored in a refrigerator for later use.

You can grow slime molds in petri plates or storage containers that hold moisture. They can be fed everything from water-soaked old-fashioned rolled oats (such as Quaker Oats) to Bonner's solution inoculated with a non-mucoid strain of *Escherichia coli*. Place a moistened (not wet), heavy piece of porous paper (filter paper) in the container. Place a piece of sporangium on the moistend paper, and close the top.

You will need to check the chamber every day and moisten it if needed with drops of water. You will see the hatched and active plasmodia. Then, add pre-moistened rolled oats to the surface of the paper in the pattern you wish. If you do not feed your plasmodia, they will try to reproduce. You can then save the hard resting structure (sclerotium) formed by the aggregated mass of plasmodia.

Control

In most cases, control is not necessary. As soon as the area dries, the slime mold disappears. In unusual cases, the layer of crusty growth may become heavy enough to shade grass blades and cause yellowing.

If this happens, or if you just don't like the look of it, you can easily break up slime mold growth by sweeping with a broom, spraying the area with a garden hose, or spraying with a mild detergent solution (1 tablespoon of liquid detergent per gallon of water), which will destroy the growth. You can remove slime molds from lawns by mowing and collecting the clippings, poling with a switch of bamboo, or pulling a garden hose across the affected area.

Fun Facts about Slime Molds

Slime molds are extremely efficient in their movements—so much so that they can be used to design more efficient networks and computers.

For instance, scientists placed food in a way to mimic the population centers of the cities that surround Tokyo, Japan. The slime mold grew to form a network that rivaled the efficiency, reliability, and cost of Tokyo's train network[3]. A similar effort modeled Canada's road network[4].

Computer scientists are using slime molds to model the shape of a polygon linking points on a surface[5]. These calculations are necessary for computer games.

References

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Information Sheet 1684 (POD-02-16)

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