



## *Vine* **LINE**



### **Summer 2024**

Learn about common houseplant ailments. Get in the know about heat tolerant plants.  
Discover more about the mushrooms on your lawn.

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## **Hello, My Fellow Garden Enthusiast!**

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Are you feeling the heat yet? It is that time of year when the heat and humidity will discourage even the most ambitious gardener from getting outside. Even so, summer offers its own rewards for those willing to be a bit uncomfortable. It is really the time to sit back with a cold drink and just enjoy the garden. No planning, no working for the moment, just enjoying the fruits of your labor. I enjoy the peaceful midsummer evenings harvesting tomatoes and the first watermelons with my sons while the hum of cicadas sets a tranquil tone. This year my 6-year-old has discovered he has a green thumb as his zinnias and tomatoes have been thriving. Much of a garden's joy is in its sharing as in the plants themselves.

At MBG I am most excited this season to watch our new Parade of Color beds fill in. These beds are a new annual display composed of many tropicals that love all the heat and humidity. My second favorite spot right now is our new Arboretum meadows. There is always something in bloom, currently ironweeds, asters, and agastache are still strong, and the helianthus "First Light" is getting ready to put on its show soon. The Arboretum is always full of bees, butterflies, and birds. It does a heart good to sit under a shade tree and just watch the life around you.

In this Vine Line, we have highlighted a few other horticulture items to be thinking of in the summer. Anna Podgorny has written about mushrooms and fungi, one of the most important yet misunderstood and magical aspects of horticulture and life in general. By the way, if you haven't watched the documentary *Fantastic Fungi*, I highly recommend it! Another way to enjoy plants in the heat of the summer is to bring them into your home and view them from the comfort of your couch! Wyatt Peterson, our Greenhouse Manager, has written about the most common cause of death in houseplants... improper watering. Last but not least Bella Kirkpatrick, the Horticulturist for the aforementioned Arboretum, has written about drought-tolerant plants. On the whole, we at MBG have been shifting to plantings that are more drought-tolerant. It is more important for ecological stewardship, and it just makes our lives easier to not have to spend our time worrying over water. I hope all these articles enrich your enjoyment of plants in a season when it can be hard to be outside for long periods of time. If you haven't had a chance, come check out the new Youth Education and Tropical Plant House, it is temperature-controlled and usually at a comfy 80 degrees in the day! Thank you!

*Daniel Drose*

MBG Director of Horticulture

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## Houseplants and Watering

*By Wyatt Peterson, Greenhouse Manager*

If your plant is struggling seemingly out of nowhere, wilting, and its leaves are yellowing and dropping early, you might think it's pot-bound, hasn't gotten enough fertilizer, or isn't getting enough water. While these are good guesses, it often surprises people to find out that overwatering is usually the culprit. In fact, the demise of most houseplants is due to overwatering.

Properly watering house plants can be one of the most challenging aspects of plant care because it is connected to many other factors, such as light intensity, soil quality, and the type of pot or container you use.

Overwatering is particularly deadly to indoor plants due to a series of soil-borne fungi that cause a disease known as root rot. These fungal infections attack the plant's roots, causing the plant to lose the ability to uptake water and nutrients from the soil. Symptoms of root rot include wilting, early leaf drop, black slimy roots, and usually the death of the plant. The fungi that cause root rot thrive in constantly moist soil, so the key to preventing root rot is to avoid prolonged periods (more than two days) of saturated soil. This can be achieved by implementing practices that allow the soil to dry out between waterings, a process I call cycling.



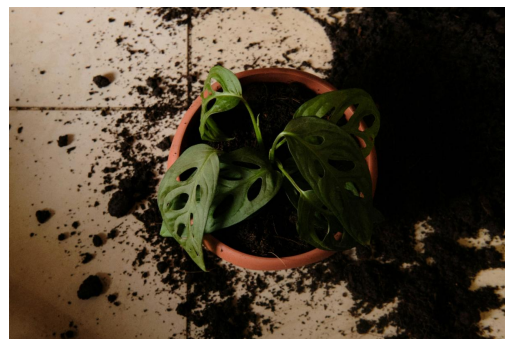
Here are some ways to ensure your plant is properly cycling:

First, consider the type of pot you are using. Ensure your pot has drainage holes in the bottom and a detachable saucer. Ideally, you would saturate the soil with water, and any excess water that the soil cannot hold would drain into the saucer, which could then be emptied. Some pots have saucers permanently attached to the bottom, known as "self-watering" pots. These pots leave

excess water in contact with the soil, greatly increasing the soil saturation period and creating an environment for fungi to thrive.

Next, consider the size of the pot. If your pot is too large compared to the root ball of your plant, there won't be enough roots to take up all the water held within the soil pores. In this case, it could take days or weeks for the soil to dry out.

Also, consider your potting medium or soil. It's best to use a well-draining soil mix; consider adding perlite to your potting mix to improve drainage and aeration.



Finally, ensure that your plant is getting plenty of light. Unless you have a bright sunroom, our homes are rather dark from a plant growth perspective. Plants use water to complete the photosynthesis reaction, so by giving your plant more light, you are speeding up the rate at which your plant uses that water and the rate at which the water evaporates from the soil. Conversely, if your plant is placed in a darker location in your home, you should water it more sparingly. Implementing these practices can greatly reduce the risk of root rot.

However, if you are already dealing with a case of root rot, all hope isn't lost. Depending on the severity of the case, you can potentially save your plant. Start by removing the plant from the pot and washing all of the soil off the roots using some water pressure. Remove any roots that are black in color or slimy in texture. The next step is to remove the fungal infection. This can be done by simply letting the roots dry over a few hours or by spraying 3% hydrogen peroxide on the roots. Once the roots are disinfected, the plant can be repotted into a smaller pot since it has lost some root mass. Use a well-draining potting mix and watering can resume right away, just at a reduced frequency.

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## Finding Plants to Beat the Heat

*By Bella Kirkpatrick, Arboretum Horticulturist*

With summer in full swing, it is important to ensure your plants have everything they need to beat the heat, especially water. This year, Memphis shifted from USDA hardiness zone 7b to 8a. This change means that the average temperatures are warmer, meaning plants will require more water. Watering plants takes a lot of time, energy, and resources. If you want to conserve water or have a lower-maintenance garden, you can add mulch to retain moisture and prevent weeds that would use water from coming up. An alternative would be to use more of a “green mulch” like we have in the Arboretum meadows. This involves planting groundcover plants that will prevent weeds from coming up as well as shading the ground, aiding in water retention. Large grasses and sedges are great to use for this.

If you want even more plants that can withstand high temperatures, look no further than drought-tolerant plants. These are plants that can go through weeks of drought without supplemental watering. Drought-resistant plants can survive longer without water, up to a few years. In general, native plants tend to be more drought tolerant as they are already adapted to this climate, and in the wild, they do not require supplemental watering. Sometimes referred to as “xerophytes” meaning dry plants, drought-tolerant plants employ various adaptive strategies.



An important part of being a drought-tolerant plant is the ability to get as much water as they can and be able to hold on to it. One way plants can successfully get water is by developing a deep taproot. Plants such as butterfly weed develop a taproot that goes deep into the ground, granting the plant access to whatever water might be down there. There is a misconception that taproots develop as a plant searches for water deeper below the surface. In reality, roots grow where there is water, which is why it is very important that during the plant's

establishment phase, you water deeply. On the other hand, some drought-tolerant plants focus on creating lateral spreading roots that stabilize the plant and take up surface water.

While it's important to be able to collect water, it's important to be capable of retaining that water. Plants might work on ways to store water. In plants such as sedums or agave, the leaves are fleshy and succulent. Other plants might store their water in the roots by having them resemble bulbs or tubers.

In addition to water storage, water retention is important as well. Plants undergo a process called transpiration where water evaporates out of the plant, most often from leaves. To limit the amount of water loss, a plant can do a variety of things. One way to limit transpiration is to decrease the leaf surface area. This can be done by having feathery leaves like you would see on a yarrow or coreopsis, or by having very few leaves. The leaves might also have tiny hairs called trichomes that shade the stomata where the plants lose their water as seen on plants such as lambs ear or lavender. Sometimes, the stomata are set in deeper on plants such as pines, and these deep-set stomata also limit plant transpiration. Finally, the leaves might be a blue or grey color such as in big bluestem.

It is important to mention that while some plants are drought tolerant, some are drought avoidant. These plants do most of their activity outside of a drought, such as opening their stomata at night or growing early in the season. Annuals spread a lot of their seeds before they die from a drought.



Some plants have desiccation tolerance, meaning they can bounce back after drying out. Plants such as ferns and moss close their stomata and seem to die to reduce the energy they are consuming, but once they get a good watering they will bounce right back!

Plants can have multiple different strategies to withstand drought, so when looking for plants look for the characteristics of drought tolerance. Keep in mind that while a species of plant might be drought tolerant, the tolerance can vary on an individual level. Now you can put your watering can down and enjoy the summer!



## Are Mushrooms in Your Lawn a Bad Sign?

*By Anna Podgorny, Assistant Horticulturist*

Mushrooms can strike varying emotions in homeowners as they might raise concerns for the health of their yards. However, mushrooms play a crucial role and can have a positive impact on the lawn's soil health. Understanding the ecological roles fungi have on lawns can provide a more insightful perspective on whether or not mushrooms are a bad or good

sign.

## Fungal Ecology and Life Cycle

Fungal communities are highly dynamic and consider seasonal variations, plant and animal compositions, and stages of succession. Fungi are heterotrophs meaning that they gain energy through other organisms. They secrete enzymes so that digestion takes place outside their cells. Fungi then absorb nutrients from living (as biotrophs) or dead (as saprotrophs) organisms. Many fungi live in close association with land plants and some with animals. They supply their partners with key nutrients and decompose dead organic matter (wood, dung, leaf litter). Some fungal species are associated with specific plant partners or substrates (the surface on which an organism lives and grows).

Fungi can be separated into three groups based on their relationship to the environment: parasitic, saprophytic, and mycorrhizal. Parasitic fungi feed off living organisms, saprophytic rely on dead or decaying matter, and mycorrhizal fungi for a symbiotic relationship with plant roots to exchange nutrients.



## Ecological Benefits and Considerations for Homeowners

Mushrooms have a beneficial role through symbiotic relationships with the plants around them by providing nutrients such as nitrogen, phosphorus, carbohydrates, and water distribution. This symbiotic relationship promotes positive growth and productivity for the plant. Other ecological benefits of fungi include breaking down organic matter such as fallen leaves and wood which produces a nutrient-rich soil. This makes fungi impeccable recyclers of nutrients in terrestrial

environments. The appearance of mushrooms can mean that the soil is abundant in organic matter and is aerated properly. The mushrooms that we see above ground are simply the fruiting bodies of fungi while most fungi live below the ground which is referred to as mycelium. Fungi produce fruiting bodies when the environmental conditions are humid and moist over a prolonged period, but once the moisture clears then the mushrooms will dry out. This does not mean that the mushrooms have gone away as the fungi continue to grow in the soil. Simply removing the fruiting body via hand or tool would be a temporary solution to the aesthetic of your lawn but can prevent the mushroom from dispersing its spores. Not all mushrooms found in lawns are harmless as some can be toxic to humans and animals and should not be ingested. Do not eat unidentified mushrooms as they could be poisonous and should only be ingested if identified properly. Fungicide is not a recommended tactic for permanent removal due to its ineffectiveness and potential damage to soil health. Adopting an understanding of fungal ecology can allow for sustainable lawn practices and improved soil health.

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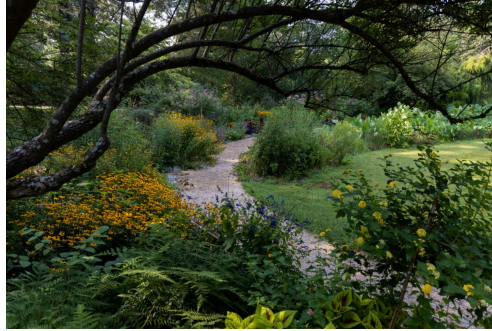
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