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THE PURDUE LANDSCAPE REPORT

In This Issue

COVID-19 Guidelines for the Green Industry from Purdue Extension Specialists

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By now, you have heard of Corona virus COVID-19 and the strain it is putting on our healthcare systems. Clearly, the strategy of the Center for Disease Control that includes social distancing and working from home when possible is the best strategy we have right now to slow the spread of the disease so we can reduce the number of deaths from this virus. Unfortunately, the timing of this crisis will make it impossible for the green industry to continue some services. Social distancing and limitations on non-essential travel are likely to continue well into the peak of our maintenance and planting season. Ultimately, it is our hope that everyone in your industry and communities survives the crisis, so that we in the Purdue Cooperative Extension Service can help you get back to business.

Throughout this crisis, Purdue Extension Specialists will continue to work to support you in the best ways possible. Although we are working remotely due to state mandates, we will still be able to answer our phones and produce our regular blogs including the Purdue Landscape Report and Turf Tips. The Purdue Plant and Pest Diagnostic Laboratory will continue to function to help you identify problems encountered in the landscape. Check the PPDL website for latest information on how to safely submit samples. Plant and Turf Doctor apps will still be updated and supported.

Please bookmark your supporting trade association pages so that you can stay updated about Federal Relief efforts and suggestions for best courses of action. Topics on these pages range from how to protect yourself, your employees and your customers, to updates on labor issues, H2 visas, and what you can do to maintain plants while observing travel restrictions resulting from Governor Holcomb's March 23 stay at home declaration. Green Industry workers are considered part of the critical infrastructure and are allowed *some* work-related travel. This is by no means permission to continue business as usual during the crisis.

Ultimately your health and safety and those of your staff and clients are more important than anything else. We urge you to follow state and CDC guidelines and to postpone or reschedule anything that is not absolutely critical to protecting the public safety from falling trees, or maintaining your existing infrastructure and plants Also, as the season progresses, some mowing and maintenance will be necessary to reduce the habitat of ticks and mosquitos that spread other diseases.

Sites to Monitor

Federal Resources

- OSHA Guidance on Preparing Workplaces for COVID-19
- CDC COVID-19 guidance for companies
- CDC COVID-19 resources in English, Spanish and Chinese

State Resources

- Purdue Extension COVID-19 Response
- Office of the Indiana State Chemist
- Indiana Nursery and Landscape Association
- Indiana Professional Lawn and Landscape Association

Sample Critical Infrastructure Travel Permits (Essential work only!)

· ID for Employees Travel

· ID for Shipment of Supplies

Trade Association Websites

Turf

- Coronavirus and Your Golf Business
  National Golf Course Owners Association
- Responding to the Coronavirus
  National Club Association
- Coronavirus Special Club Update podcast
  National Club Association

Nursery and Greenhouse

- COVID-19 Resources

Indiana Nursery and Landscape Association Corona Virus

- Coronavirus Resource Center

AmericanHort

- COVID-19 Resources

Society of American Florists

Landscape Maintenance and Arboriculture

- Tree Care Industry Association
- How lawn and landscape maintenance services are essential services
- How arborists and tree care professionals protect the public

‘Leaves’ of Three, Let It Be Should Be ‘Leaflets’ of Three

(Rosie Lerner, rosie@purdue.edu)

Most gardeners have heard of the wise advice “leaves of three, let it be” referring to the pest plant poison ivy. While not quite as catchy, the saying really should be “leaflets of three, let it be.”

Poison ivy has a compound leaf made of three leaflets. The top leaflet has a long stalk.

Poison ivy leaves are compound rather than simple – a single leaf is divided into three separate portions, called leaflets. Plants with three leaflets are often referred to as being trifoliate. Another key identifying characteristic is that one side of a leaflet may have an irregularly toothed margin, while the opposite edge may be smooth or barely toothed.

Poison ivy is typically a vine that can climb quite high by means of aerial rootlets. But older poison ivy plants, especially those that have been cut back repeatedly, can take the form of a shrub.

Poison ivy flowers are rather inconspicuous and usually not noticed by gardeners. The subsequent fruits are greenish white, smooth berries in clusters about the size of currants. Birds and other wildlife eat the berries and then spread the seed in their droppings. So poison ivy can show just about anywhere.

There are a few look-alike plants that gardeners could mistake for poison ivy. Boston ivy is a common landscape vine that is trifoliate, but only in the very young foliage. In Boston ivy, each leaflet is attached by a stalk. In poison ivy, generally only the top leaflet is attached by a stalk. Mature Boston ivy leaves are three-lobed, but not separated into separate leaflets.

Young (juvenile) Boston ivy also has a compound leaf made of three leaflets, but the mature leaves are lobed rather than divided into leaflets.

Fragrant sumac, a small shrub, is also trifoliate, but none of the leaflets have stalks. Their fruit are red and slightly fuzzy.

All parts of the poison ivy plant, including the stem and roots, contain and secrete a nonvolatile oil that affects the skin. This oil is insoluble in water. That means if you simply wash with water alone after coming into contact with poison ivy, you may spread the oil to other areas and increase the discomfort.

Once established, the woodiness of the poison ivy plant makes it difficult to control. Repeatedly cutting the plant back to the ground may eventually starve the plant; however, each time you cut it you expose yourself to the oil. You can dig up and discard small plants, but if you leave behind any portion of the root system the plant will likely re-sprout.

Several herbicides are available for poison ivy control. Keep in mind, however, that any herbicide that will kill poison ivy will also kill any desirable plants. So if the poison ivy is growing among shrubs and trees, you must apply chemical controls directly to the poison ivy plant and not to any of the other plants. If the poison ivy growth is severe enough, it may be worth sacrificing some desirable plants to eliminate the poison ivy. Always read and follow the label directions before using any pesticide product.

For more information on Poison Ivy, see Purdue Extension Bulletin HO-218-W, https://www.extension.purdue.edu/extmedia/HO/HO-218-W.pdf.

Epidemiology Plant pathology is the study of plant diseases

(Janna Beckerman, jbeckerm@purdue.edu)

Plant pathology is the study of plant diseases. In my career, I’ve studied or witnessed the plant disease epidemics of chestnut blight, Dutch elm disease, sudden oak death, soybean rust, and many more. I am not comparing these to the current pandemic of Covid-19. It doesn’t compare. Please understand this is just an opportunity for education.

Epidemiology is the study of disease. It is a study by public health experts, and it is a study done by plant pathologists. There are some similarities and obviously, some very significant differences.

Management	People	Plants
Curtailing interactions	patient isolation, quarantine, social distancing practices, and school closures	quarantine, blocking plants by type, adequate spacing between blocks, preventing work around wet plants, gloved workers
Reducing contagiousness	through antivirals and antibiotics, handwashing	through cultural conditions, fungicides, insecticides, disinfestants, handwashing
Reducing susceptibility	vaccines, healthy weight, diet & lifestyle	resistant varieties, appropriate cultural conditions

Quarantines actually began in the fourteenth century in response to the Black Death (plague, caused by the bacterium, *Yersinia pestis*) and continue to be used to this day because they are effective. Quarantines and social distancing during the 1918 'Spanish Flu' pandemic were implemented differently between Philadelphia and St. Louis, with very different outcomes (Fig. 1). A critical lesson from data modeling and the historical record is that quarantine and social distancing work best when they are implemented early, and when they are maintained.

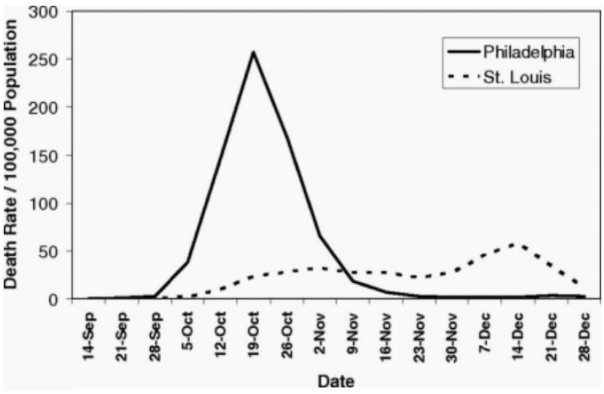

Figure 1. Philadelphia and St. Louis responded differently to the Spanish Flu pandemic of 1918, with very different outcomes.

Although plant quarantine can mean the legal enforcement to prevent pathogens and pests from establishment in new areas, it is also an IPM tactic that can be used to prevent disease introduction and establishment in a nursery, greenhouse or landscape. For plants, quarantines often begin in the greenhouse and nursery long before plants reach the landscape. Ideally, new shipments should be isolated from any already present stock, to prevent the introduction of disease to the entire greenhouse or nursery. In this instance, the goal of this type of quarantine is to prevent the introduction of asymptomatic but diseased plants. Many plant diseases, just like human diseases, have an incubation period. For plants, this period can be a few days to several weeks.

One of the most challenging aspects of Covid-19 is that many infected people are asymptomatic or have mild symptoms. These people can spread the virus to others for days before they develop symptoms or realize they are infected. These asymptomatic people can easily spread disease to people who are older, or have pre-existing health conditions, with the results being catastrophic. Quarantine works directly to prevent the unintentional spread of any disease.

We see this same phenomenon play out in the plant world: Many viruses, bacteria, root rots, foliar nematodes, and downy mildews are introduced via asymptomatic plant material. Sudden oak death (SOD), caused by *Phytophthora ramorum,* has been spread through our industries by infection on shrubs like rhododendron, pieris, azalea, and camellia. These plants exhibit just minor leaf spots and blights that are often overlooked, the same way we overlook a sniffle, cough or sneeze. Unfortunately, the cause of SOD (also called Ramorum canker and blight) produces millions of spores on the shrub hosts, that can infect and kill other shrubs like viburnum, in addition to oaks, larch and many other types of trees. Nurseries focus on the 'filthy five', rhododendron, azalea, camellia, pieris, and kalmia, which can spread SOD, and often quarantine these to prevent the introduction to SOD to the nursery or landscape.

Social Distancing


Figure 2. Hot, wet, humid conditions drove this Phytophthora epidemic of vinca. Note the 'resistance' of the ornamental pepper.

That 6-ft social distance is simply to keep the Covid-19 virus from coming in contact with another person. The simple act of talking produces aerosols of saliva, and, if the person is infected, the disease is spread. Maintaining at least a 6-ft distance to prevent the spread is one way to slow the spread of the disease. Now, obviously, plants are not social creatures, but crowding plants can create conditions that are conducive for plant disease outbreaks. Tight spacing reduces airflow between plants and increases the relative humidity in the canopy. This increases leaf wetness and prevents drying—creating a conducive environment for many plant pathogens (Fig. 2). Tight plant spacing also prevents good coverage with pesticides when plants are blocking each other from contact with the pesticide spray. Simply spacing plants their recommended distance permits airflow that can reduce or eliminate the need for pesticides, while improving application efficacy when pesticides must be used.

Handwashing

One of the simplest things we can do at this time is wash our hands with soap and warm water for 20 seconds if we handle something that may have been contacted by someone else, if you touch your face, if we sneeze or cough into our hands, and of course, after using the restroom. Plants have no such need or ability, but our ability to wash our hands reduces the spread of many plant viruses, including tobacco mosaic virus. Disinfestants like Lysol or bleach kill microbes when used to surface sterilize counters, handles, and common areas. In the greenhouse or nursery help reduce overwintering inoculum of many plant pathogens, including Rhizoctonia, Pythium, algae, bacterial and viral plant pathogens. Common greenhouse and nursery disinfestants include bleach, 70% alcohol, hydrogen peroxide

(Zerotol), peroxyacetic acide (Oxidate, Sanidate), potassium peroxymonosulfate (Virkon Greenhouse), and the quaternary ammonium chlorides or Q-salts (e.g., Green-Shield, KleenGrow ,Physan 20).

Risk Communication versus Infodemic

How risk is communicated is perhaps one of the most important factors to control any disease outbreak. As people, we have the option to behave in a way to protect ourselves, our friends, our families, and each other to delay, avoid or prevent the epidemic escalation of Covid-19. Right now, focus on the people in your life—and take some time to enjoy plants. They provide a sense of peacefulness and beauty that we can all use right now. Most of all, let's all practice social distancing, self-quarantining, and hand washing. It's good for your landscape, your green business and you. Together, in time, we can get back to growing a greener future.

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