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21 August 16 PSAs

If individual branches of a spruce tree begin dying, Cytospora canker may be the cause. This disease is most common on large Colorado blue spruce trees that are stressed by drought or other factors. Cankers kill scattered branches throughout the tree canopy. It rarely kills spruce trees, but badly deforms and thins them out. Looking closely, you will often see a layer of bluish-white resin coating branches over or below a canker. Once a branch is infected, it can take several years before the canker girdles and kills the branch. Unfortunately, there is no fungicide control for Cytospora canker. Prune and destroy infected branches during dry weather to reduce spreading the disease. Plant spruce trees on sites with moist, well-drained soil. Consider planting a different type of evergreen, or select Norway or White spruce. Mulch the soil beneath trees to conserve soil moisture and water deeply during drought periods.

Bagworms on evergreens was my top insect question last summer. I've only had about two questions this year so why might that be? Bagworms, like many insects, follow natural population cycles that include several years of outbreaks followed by periods of decreased activity. Factors that help regulate bagworm populations include weather and natural enemies such as birds, insect predators and diseases. One explanation for a reduction in bagworms this year could be this past winter's cold spell. During fall, most insects produce glycerol and other compounds to lower the lethal freezing point of their bodies. However, bagworms overwinter as eggs inside of female bags and 75% of the eggs can be killed if the temperature falls to one degrees F. and remains there for at least 24 hours. Bagworms may not be as large of an issue this year but it is still wise to monitor evergreens for bagworms to see if control may be needed next year.

When fairly young trees planted in the last few years have leaves with uniformly brown margins, this is known as leaf scorch. It is due to roots not replacing moisture as quickly as leaves are losing moisture via transpiration. On larger leaved trees, or young trees with less established root systems, growing in windy, exposed sites, leaf scorch may simply be due to heat and wind increasing the transpiration rate. A deep watering, about 8" deep from the tree trunk to well beyond the dripline; and the use of a 2" to 4" deep layer of organic mulch can decrease moisture stress. Know that most lawn irrigation systems do not moisten soil deep enough to fully benefit trees, especially in dry years. Leaf scorch can also be a sign of root or trunk. If this is the case, the tree may continue to decline but there is not much that can be done other than mulching, correct irrigation; and avoiding nitrogen fertilization of stressed trees.

Growers have been harvesting vegetables for several weeks and fruits are also ready or nearing maturity, including plum, peach, grape, apple and pear. With any food crop, if pesticides are used to control insect or disease problems, it is important for growers to wait the required number of days after the last pesticide application before harvesting. This is called the preharvest interval or PHI. Crops must stay in the garden or on the plant until the PHI has passed before they can be safely harvested. Check pesticide labels to determine each product's pre-harvest interval. Every pesticide product's label has a "Directions for Use" section which states "It is a violation of Federal Law to use this product in a manner inconsistent with its labeling." This makes the label a legal document and PHI a legal as well as a safety requirement. Crops need to stay in the garden to allow sunlight, heat and microbes to degrade the pesticide before harvest.

Powdery mildew causes a grayish white powder to develop on upper leaf surfaces. While heavily infected leaves can die, most plants are not killed by powdery mildew. This disease is promoted by warm temperatures and high humidity so we are seeing a lot of mildew this year. Many types of plants are susceptible, including lilac, peony, Phlox, Monarda or bee balm, and Zinnia. If plants have been heavily infected this summer, consider replacing them with more resistant varieties or resistant plants. Sanitation can reduce powdery mildew some. Now is the time to remove heavily infected, brown or dying stems. This fall, rake and remove all infected plant debris near infected plants. Moving plants to an area with more sunlight and better air circulation can help reduce future infections. In most cases, a fungicide application is not required for powdery mildew because overall plant health is not affected.

Improving Soil Structure by Preventing Soil Compaction

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Plant roots grow in soil pore spaces. Pore spaces are also where oxygen is found. Just as plant roots cannot grow without water, they cannot grow without oxygen. Soil pore space is important to plant growth and efficient water use.

Soils with good structure have adequate pore space making them well drained while still having good water and nutrient holding capacity. Good soil structure equals good soil aggregation.

Soil aggregates are groups of mineral particles (sand, silt, and clay) bound together by beneficial fungi, earthworm secretions, soil glues and more. Aggregation is highly dependent on organic matter and biological activity in soil.

Soil structure is harmed by compaction, excessive tillage, low organic matter, erosion and salt build-up in soil.

Compaction occurs when mineral particles are squeezed together, resulting in few large macropores and numerous tiny micropores. Compaction hinders root growth and reduces the rate of water infiltration and drainage.

This is because water more effectively moves downward through large pore spaces than smaller ones. Water is also more likely to run off of hard, compacted soil than soak in; increasing wasteful run-off and the potential for nonpoint source pollution.

When soil has poor drainage and water moves through it slowly, it remains saturated longer decreasing available oxygen. A saturated soil is also less likely to accept new water and the potential for run-off increases further.

Some signs of soil compaction include water ponding, worn paths from foot or vehicle traffic, excessive runoff during rainfall, plants under stress such as stunted growth, discolored leaves and drought stress. Dense soil that is difficult to dig indicates compaction.

To reduce soil compaction, do not work soil when too moist and avoid traffic, foot or equipment, on wet soils such as mowing lawns when the soil is wet. When working in planting beds, lay down temporary wooden planks or use a layer of mulch.

Heavily compacted soils may need tillage to relieve compaction. On lawns, core aeration that removes plugs a few inches deep will help. Adding organic matter to soil on a regular basis to maintain five percent organic matter level is important to soil structure.

Fall is a good time to incorporate organic matter. Sources include plant debris like grass clippings, tree leaves and wood chips, well-rotted manure, composted yard waste, peat moss, and green manures (plants planted in fall and tilled under in spring).

For composted plant debris, spread a one to three inch layer over the garden and spade or till it in six to eight inches deep. Know that excessive tilling damages soil structure. If used once a year to roughly incorporate plant debris or compost, this is fine.

If plant debris is composted prior to incorporating into soil, the soil organic matter will last longer because most decomposition has already taken place. About half of the organic matter will still remain in soil after two growing seasons.