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Common Diseases

Powdery Mildew - Is a fungus, commonly found on top side of leaves, giving appearance of something powdery spilled on leaves. The fungus thrives under limited air flow, warm humid conditions and when plants are crowded together. Powdery Mildew is only topical and rarely is it fatal to the plant.

Prevention of Powdery Mildew would include not overcrowding your plants so that they can have ample airflow. Ample sun shine (unless a shade loving plant) so that leaves will dry quickly after rain or watering. Watering at root of plant, avoid overhead watering, keeping leaves dry as possible. Water in the morning so that leaves can dry throughout the day and not remain wet over night. Weed under plants to encourage good airflow around plantings.

Treatment of powdery mildew is in the form of several home remedies, it is recommended that you alternate weekly spray treatments so that a resistance to your treatment is not developed. First of the recommended remedies is Milk, a mix of 1 part milk to 10 parts water. Another remedy is a mix of 1 Tablespoon Baking Soda, 2 1/2 Tablespoons Horticultural oil and a gallon of water. Neem Oil is an anti fungal that is effective in the control of Powdery Mildew as well. Use 2.5 Tablespoons per gallon of water as a spray treatment every 7 to 14 days. There are also commercial treatments available as well that contain either copper or sulfur to combat the fungus. Wolf Hill Garden Center has these products available in addition to Neem Oil and Horticultural Oils.

Downey Mildew - Is not caused by a fungus, it is part of the Mold/Algae Family called the water fungus. Found on the underside of leaves as white grayish downy substance. Affected leaves can develop yellow patches and brown or black spots. Downey Mildew does penetrate the plant leaves and can be fatal to the plant. The mold thrives in high humidity, over crowded conditions and prefers cooler temperatures like early Spring.

Treatment for Downey Mildew is limited. Best thing to do is eliminate moisture and humidity which is what the mold thrives on. Water plants from below, not overhead and improve circulation by pruning away lower foliage. The mildew may clear itself some once the season progresses and temperatures rise in warmer season.

Botrytis Blight - Is the fungal disease that affected the Potato Crop in the 1840's, also known as grey mold. This blight is most active during cool, damp seasons but can occur any time of the year. High humidity, poor air circulation, overcrowding and overhead watering that lingers over long on foliage, aid the spread of this disease. Signs of blight start out as brown spots on leaves, buds and dark spots on petals. As the disease worsens, flowers and fruits rot, stems will get cankers and spots begin to show fuzzy gray mold. Gardeners should act immediately if blight is suspected, remove and discard all diseased materials, prune to healthy growth and sterilize pruners after pruning to prevent spread of the disease. Do not compost diseased debris. A garden kept tidy by collecting faded blossoms, fallen petals and dead foliage will help in controlling disease spread also.

Treatment of the grey mold should start with removing any suspected infected parts of plants. A fungicide can then be used to treat plants. Preventative application of a fungicide early when conditions are ripe for blight to appear is a good way to prevent the mold and halt the spread. Several fungicides that are available at Wolf Hill that are listed for treatment of Botrytis Blight are Daconil, Copper Fungicide and Serenade. Application of any fungicides should be done during times that bees are not active, such as at dusk.

Black Stem/Stem Rot - There are several fungus and molds that may cause plant stems to turn black and cause growth on that stem to wilt, turn yellow/brown and die. Pinpointing exactly which culprit is causing your plant to fail can be difficult but the preventative action is the same. Following these steps may help to avoid problems in your garden:

- * Ensure good ventilation - space plants, prune and stake them for optimal aeration.
- * Practice good sanitation - avoid handling plants when they are wet, remove and discard debris, and sterilize cutting tools after every use.
- * Good watering practices - Avoid overhead watering, water near base of plants, and avoid wetting foliage. Water early in the morning to allow drying of wet foliage as the day warms and sun comes out stronger.
- * Don't reuse growing mediums, old soil can harbor fungus and mold that can over winter and infect new plantings.
- * Keep plants healthy - fertilize, use good potting mix containing organic matter that drains well, give proper light and avoid low light.
- * Isolate infested or infected plants immediately. Prune below infected area, discard infested cuttings in trash, do not compost. Treat pruned plants with fungicide, but keep plant isolated until new growth shows no sign of being infected.

Black Spot or Leaf Spot Fungus - Black Spot - *Diplocarpon Rosae*, is a fungal disease that is common on roses but can effect other plants with fleshy leaves and stems. Black Spot usually will occur when temps range around 60's F and leaves are wet for more that 6 hours continuously. This disease will run rampant if unchecked until average daily temperatures rise above 85 degrees F. The disease starts as tiny black dots on the leaves no bigger than a pinhead, as the fungus progresses the dots get larger and are ringed by yellow. Eventually the entire leaf will turn yellow and drop off the plant. Rain and overhead watering will splash the fungal spores to new tissue, thus spreading the disease. Leaf Spot treatment is the same as for black spot. The cause of leaf spot is microscopic fungal spores find a warm, wet plant surface to land on. Avoiding water plant leaves can help in reducing the occurrence of some leaf spot.

Treatment for both Black Spot and general Leaf Spot involves removing diseased leaves, including those that have dropped to the ground. Throw away diseased material, do not compost. Neem oil is a great fungicide for the fungus or make a home remedy spray made of one heaping Tablespoon of Baking Soda to a gallon of water and a dash of horticultural oil or soap. This spray helps change the PH of the leaf surface where the fungus cannot survive. Preventative measures of spraying susceptible plants lightly before temperatures hit 60 degrees may help keep fungus from starting. Avoiding watering plants on cloudy days and making sure that there is good air circulation will also help prevent spread of this fungal disease.

Rust - Common Rust (*Phragmidium*) is a fungal disease that occurs on many common Perennials, Annuals and vegetables on the lower leaves of mature plants. Rust starts out as white raised spots on the underside of leaves which then progresses to reddish orange spore masses, giving the appearance of rust. Spots may eventually turn yellow then black and cause leaves to turn yellow and drop. Warm temperatures and humidity or moisture with slow drying leaf surfaces can be a perfect incubation area for rust to start on your plants.

Treatment for Rust starts with picking off infected leaves and raking under plants of all debris, do not compost infected material. Water early morning and avoid overhead watering, allow plants time to dry out during the day. Prune and stake plants, and remove any weeds to create good airflow around plants. Mulch after removing diseased debris to prevent fungal spores from splashing up onto lower leaves. Copper or sulfur powder applications every 7 - 10 days at the first sign of disease will help keep fungus from spreading.

INSV (Impatiens Necrotic Spot Virus) - This virus is very aggressive and can spread quickly, immediate identification is very important. Identification of the virus is when there are bull's eye markings, stem lesions, black ring spots and other leaf lesions. The cause of INSV is from the Western flower thrip, they are tiny and you may never see them congregating around your plant flowers. Placing yellow or blue sticky traps near suspect plants may help you identify if thrips are present, As the name implies this is a virus that most commonly effects Impatiens but can be found on other plants as well if they are exposed to it.

Treatment of the plants will not help, you must destroy the effected plants immediately. The plants will appear to struggle to thrive. Keeping thrips under control and removing suspect plants is the best protection for your entire plant community. Keeping plants pruned of any dead or damaged parts, and removing debris below the plant can help control a thrip infestation.

Aster Yellows - This is a bacteria like organism called Phytoplasmas that is spread between plants by an insect called the Aster Leafhopper (*Macrosteles quadrilineatus*). The insect hops from plant to plant, (not just asters) feeding on plants by sucking sap, when an infected plant is fed upon the leafhopper will then transmit the infection to subsequent plants while feeding. The organism doesn't necessary kill the plant once infected but will cause severe contortions, deformity, twisting, curling foliage, yellow leaves and abnormal bushy growth. The pathogen will produce different symptoms in various plant species.

There is no treatment for a plant that is infected with Aster Yellows. The best way to manage infection is to remove infected plants and keep garden beds weeded. Also mulching with light colored or reflective mulch to disorient the leafhopper and reduce feeding on plants. In the vegetable garden it is suggested to use row covers to keep the insects from plants.