**Apple\_Apple\_scab**

apple scab (Venturia inaequalis) attacks both leaves and fruit. The fungal disease forms pale yellow or olive-green spots on the upper surface of leaves. Dark, velvety spots may appear on the lower surface. Severely infected leaves become twisted and puckered and may drop early in the summer. Symptoms on fruit are similar to those found on leaves. Scabby spots are sunken and tan and may have velvety spores in the center.

**Solution:** Rake under trees and destroy infected leaves to reduce the number of fungal spores available to start the disease cycle over again next spring. Water in the evening or early morning hours (avoid overhead irrigation) to give the leaves time to dry out before infection can occur. For best control, spray liquid copper soap early, two weeks before symptoms normally appear.

**Apple\_black\_rot**

Black rot is occasionally a problem on Minnesota apple trees. Large brown rotten areas can form anywhere on the fruit but are most common on the blossom end. fungal spores overwinter on fallen leaves, mummified fruits, dead bark, and cankers, it’s important to keep all the fallen debris and dead fruit cleaned up and away from the tree.

**Solution:** During the winter, check for red cankers and remove them by cutting them out or pruning away the affected limbs. Once black rot disease is under control in your tree and you’re again harvesting healthy fruits, make sure to remove any injured or insect-invaded fruits to avoid re-infection. Prune out dead or diseased branches.

**Apple\_Cedar\_apple\_rust**

Cedar apple rust (Gymnosporangium juniperi-virginianae) is a fungal disease that requires juniper plants to complete its complicated two year life-cycle. Spores overwinter as a reddish-brown gall on young twigs of various juniper species. In early spring, during wet weather, these galls swell and bright orange masses of spores are blown by the wind where they infect susceptible apple and crab-apple trees.

**Solution:** Rake up and dispose of fallen leaves and other debris from under trees. On juniper, rust can be controlled by spraying plants with a copper solution (0.5 to 2.0 oz/ gallon of water) at least four times between late August and late October. Apply preventative, disease-fighting fungicides labeled for use on apples weekly, starting with bud break, to protect trees from spores being released by the juniper host.

**Cherry\_powdery\_mildew**

Powdery mildew of sweet and sour cherry is caused by Podosphaera clandestina, an obligate biotrophic fungus. Mid- and late-season sweet cherry (Prunus avium) cultivars are commonly affected, rendering them unmarketable due to the covering of white fungal growth on the cherry surface. Initial symptoms, often occurring 7 to 10 days after the onset of the first irrigation, are light roughly-circular, powdery looking patches on young, susceptible leaves.

**Solution:** Manage irrigation, Pruning, Root sucker management. keep the disease off of the leaves. Maintain a consistent program from shuck fall through harvest.

**Corn\_Cercospora\_leaf\_spot Gray\_leaf**

Gray leaf spot (GLS) is a common fungal disease in the United States caused by the pathogen Cercospora zeae-maydis in corn. Disease development is favored by warm temperatures, 80°F or 27 °C; and high humidity, relative humidity of 90% or higher for 12 hours or more. Cercospora zeae-maydis overwinters in corn residue, allowing inoculum to build up from year to year in fields.

**solution:** Cercospora zeae-maydis overwinters in corn debris, so production practices such as tillage and crop rotation that reduce the amount corn residue on the surface will decrease the amount of primary inoculum. Planting hybrids with a high level of genetic resistance can help reduce the risk of yield loss due to gray leaf spot infection.

**Corn\_Common\_rust**

Common corn rust, caused by the fungus Puccinia sorghi, is the most frequently occurring of the two primary rust diseases of corn in the U.S., but it rarely causes significant yield losses in Ohio field (dent) corn. Occasionally field corn, particularly in the southern half of the state, does become severely affected when weather conditions favor the development and spread of the rust fungus. Sweet corn is generally more susceptible than field corn.

**Solution:** Numerous fungicides are available for rust control. Consult your local county extension office and C.O.R.N. website for the latest recommendations for efficacy. In seasons where considerable rust is present on the lower leaves prior to silking and the weather is unseasonably cool and wet, an early fungicide application may be necessary for effective disease control.

**Corn\_Northern\_Leaf\_Blight**

Northern corn leaf blight (NCLB) is a foliar disease of corn (maize) caused by Exserohilum turcicum, the anamorph of the ascomycete Setosphaeria turcica. With its characteristic cigar-shaped lesions, this disease can cause significant yield loss in susceptible corn hybrids. The ideal environment for NCLB occurs during relatively cool, wet seasons.

**Solution:** by using hybrids with resistance, but because resistance may not be complete or may fail, it is advantageous to utilize an integrated approach with different cropping practices and fungicides. Scouting fields and monitoring local conditions is vital to control this disease.

**Grape\_Black\_rot**

Black rot, caused by the fungus Guignardia bidwellii, is a serious disease of cultivated and wild grapes. The disease is most destructive in warm, wet seasons. It attacks all green parts of the vine – leaves, shoots, leaf and fruit stems, tendrils, and fruit. The most damaging effect is to the fruit. Warm, muggy weather in the spring and summer, along with unsprayed fruit of susceptible varieties, may cause fruit to become almost completely rotted by harvest time.

**Solution:** Keep the vines off the ground and insure they are properly tied, limiting the amount of time the vines remain wet thus reducing infection. Keep the fruit planting and surrounding areas free of weeds and tall grass. Prune the vines in early winter during dormancy. Use protective fungicide sprays.

**Grape\_Esca\_(Black\_Measles)**

Esca is a grape disease of mature grapevines. It is a type of grapevine trunk disease. Grapevine measles, also called esca, black measles or Spanish measles, has long plagued grape growers with its cryptic expression of symptoms and, for a long time, a lack of identifiable causal organism(s). Esca is a vascular wilt disease that attacks the perennial organs of grapevines, producing extensive wood necrosis in the trunk and cordon through the slow and systemic development of pathogenic fungi

**Solution:** Wine grape growers with small vineyards will often have field crews remove infected fruit prior to harvest. Raisins affected by measles will be discarded during harvest or at the packing house, while table grape growers will leave affected fruit on the vine.

**Grape\_Leaf\_blight\_(Isariopsis\_Leaf\_Spot)**

On leaf surface we will see lesions which are irregularly shaped (2 to 25 mm in diameter). Initially lesions are dull red to brown in color turn black later. If disease is severe this lesions may coalesce. On berries we can see symptom similar to black rot but the entire clusters will collapse. Common in tropical and subtropical grapes. The disease appear late in the season. Cynthiana and Cabernet Sauvignon are susceptible to this pathogen.

**Solution:** Fungicides sprayed for other diseases in the season may help to reduce this disease.

**Orange\_Huanglongbing\_(Citrus\_gre..)**

Huanglongbing (HLB) or citrus greening is the most severe citrus disease, currently devastating the citrus industry worldwide. The presumed causal bacterial agent Candidatus Liberibacter spp. affects tree health as well as fruit development, ripening and quality of citrus fruits and juice. Fruit from infected orange trees can be either symptomatic or asymptomatic.

**Solution:** The most effective control strategy has been to remove infected trees in an area and then replant with CLas-free trees. to control the ACP and reduce the likelihood of resistance is the Citrus Health Management Areas. Florida growers have been using foliar nutritional spray products that often contain macro- and micro-nutrients to compensate for lack of nutrient assimilation.

**Peach\_Bacterial\_spot**

Bacterial leaf spot of peach, also known as bacterial shot hole, is a common disease on older peach trees and nectarines. This peach tree leaf spot disease is caused by the bacterium Xanthomonas campestris pv. pruni. Bacterial spot on peach trees results in loss of fruit and the overall malaise of trees caused by recurrent defoliation. The most characteristic sign of peach tree leaf spot are angular purple to purple-brown spots on foliage, followed by the center of lesion falling out, giving the leaves a “shot hole” appearance. Leaves soon turn yellow and drop.

**Solution:** Oxytetracycline is generally considered the most effective compound and the least prone to phytotoxicity problems. Syllit+captan is used as a moderately effective alternative to oxytetracycline, but with some risk of phytotoxicity if used repeatedly without intervening rains. Copper provides a third alternative for bacterial spot control where needed but with a somewhat greater risk of phytotoxicity.

**Pepper,\_ bell\_Bacterial\_spot**

Bacterial spot is one of the most devastating diseases of pepper. When it occurs soon after transplanting and weather conditions remain favorable for disease development, the results are usually total crop loss. When the disease occurs in commercial pepper fields early in the season, some farmers destroy the entire crop by disking because it is so difficult and economically costly to control once present in the field.

**Solution:** The most effective management strategy is the use of pathogen-free certified seeds and disease-free transplants to prevent the introduction of the pathogen into greenhouses and field production areas. Crop rotation should be used to avoid pathogen carryover on volunteers and crop residue. Avoid fields that have been planted with peppers or tomatoes within one year, especially if they had bacterial spot previously. Eliminate solanaceous weeds in and around tomato and pepper production areas.

**Potato\_Early\_blight**

Early blight of potato is caused by the fungal pathogen Alternaria solani. The disease affects leaves, stems and tubers and can reduce yield, tuber size, storability of tubers, quality of fresh-market and processing tubers and marketability of the crop. The first symptoms of early blight appear as small, circular or irregular, dark-brown to black spots on the older (lower) leaves.

**solution:** Time irrigation to minimize leaf wetness duration during cloudy weather and allow sufficient time for leaves to dry prior to nightfall. Avoid nitrogen and phosphorus deficiency. Scout fields regularly for infection beginning after plants reach 12 inches in height. Pay particular attention to edges of fields that are adjacent to fields planted to potato the previous year. Kill vines two to three weeks prior to harvest to allow adequate skin set.

**Potato\_\_Late\_blight**

Late blight caused by the fungus Phytophthora infestans is the most important disease of potato that can result into crop failures in a short period if appropriate control measures are not adopted. Small water-soaked spots develop at the tips, margins or any other part of the leaf which enlarge to form irregular dark brown lesions surrounded by a light green halo. elongated brown stripes develop on the stem. Infected tubers show irregular, shallow or sunken reddish brown patches.

**Solution:** The disease can be managed with a timely application of fungicide, though epidemics can occur rapidly once crops are infected. Avoid planting problem areas that may remain wet for extended periods or may be difficult to spray. Eliminate sources of inoculum such as hairy nightshade weed species and volunteer potatoes. Use foliar fungicides on a regular and continuing schedule.

**Squash\_Powdery\_mildew**

powdery mildew primarily infects leaves and vines, infections occasionally occur on cucumber or melon fruit. Powdery mildew does not directly infect squash fruit. powdery mildew on squash is not prevalent during wet growing seasons. The leaves lose their normal dark green hue, turn pale yellow, then brown and finally shrivel, leaving the squash exposed to sunburn.

**Solution:** Apply fertilizer based on soil test results. Avoid over-applying nitrogen. Provide good air movement around plants through proper spacing, staking of plants and weed control. Home gardeners can apply sulfur products to both the upper and lower surface of the leaves. Apply fungicides after finding the first spot of powdery mildew.

**Strawberry\_Leaf\_scorch**

Diplocarpon earlianum is a species of fungus that causes disease in strawberry plants called strawberry leaf scorch. The disease overwinters in plant debris and infects strawberry plants during the spring season when it is wet. The five main methods to reduce strawberry leaf scorch include: irrigation techniques, crop rotation, planting resistant and disease-free seeds, fungicide use, and sanitation measures.

**Solution:** Planting resistant and disease-free seed as well as burning all plant debris after harvest are common sanitation methods used. Crop rotation can be used in intervals of three to five years. Crop rotation gives various nutrients a chance to accumulate in the soil, such as nitrogen, as well as the mitigation of pests. Fungicides, such as thiophanate-methyl, are used to inhibit the ability of D. earliana to access the host. Therefore, it prevents the growth of the fungus on the strawberry leaves.

**Tomato\_Bacterial\_spot**

Bacterial spot is caused by four species of Xanthomonas and occurs worldwide wherever tomatoes are grown. Bacterial spot causes leaf and fruit spots, which leads to defoliation, sun-scalded fruit, and yield loss. Due to diversity within the bacterial spot pathogens, the disease can occur at different temperatures and is a threat to tomato production worldwide.

**Solution:** the use of pathogen-free certified seeds and disease-free transplants to prevent the introduction of the pathogen into greenhouses and field production areas. Treat seeds with dilute bleach, hydrochloric acid, or hot water to reduce the potential for seedling infection.Crop rotation should be used to avoid pathogen carryover on volunteers and crop residue.

**Tomato\_Early\_blight**

Early blight is one of the most common tomato diseases, occurring nearly every season wherever tomatoes are grown. It affects leaves, fruits and stems and can be severely yield limiting when susceptible cultivars are used and weather is favorable. Severe defoliation can occur and result in sunscald on the fruit.

**Solution:** Use pathogen-free seed, or collect seed only from disease-free plants. Control susceptible weeds such as black nightshade and hairy nightshade, and volunteer tomato plants throughout the rotation. It is important to alternate between different chemical families to avoid the development of pathogen insensitivity to particular active ingredients.

**Tomato\_Late\_blight:**

**Late blight** is a potentially devastating disease of **tomato** and **potato**, infecting leaves, stems and fruits of **tomato** plants. The disease spreads quickly in fields and can result in total crop failure if untreated. **Late blight** of **potato** was responsible for the Irish **potato** famine of the **late** 1840s.

**Solution:**

Read seed packages or plant labels carefully to select a **tomato** variety that is resistant to **blight**. Stake or cage **tomato** plants so that foliage grows vertically, off the ground. Mulch well around plants. When watering, use a soaker hose rather than an overhead sprinkler.

**Tomato\_Leaf\_Mold:**

 is a fungal disease that can develop when there are extended periods of **leaf** wetness and the relative humidity is high (greater than 85 percent). ... The optimal temperature **tomato leaf mold** is in the low 70s. Symptoms of disease include yellow spots on the upper **leaf** surface.

**Solution:**

When **treating tomato plants** with fungicide, be sure to cover all areas of the **plant** that are above the soil, especially the underside of **leaves**, where the disease often forms. Calcium chloride-based sprays are recommended for **treating leaf mold** issues. Organic fungicide options are also available.

**Tomato\_Septoria\_leaf\_spot:**

 is caused by a fungus, **Septoria** lycopersici. It is one of the most destructive diseases of **tomato** foliage and is particularly severe in areas where wet, humid weather persists for extended periods. **Septoria leaf spot** usually appears on the lower **leaves** after the first fruit sets.

**Solution:**

1. Removing infected **leaves**. Remove infected **leaves** immediately, and be sure to wash your hands and pruners thoroughly before working with uninfected **plants**.
2. Consider organic fungicide options. ...

3.Consider chemical fungicides.

Tomato\_Spider\_mites **Two**-**spotted\_spider mite:**

 is the most common **mite** species that attacks vegetable and fruit crops in New England. **Spider mites** can occur in **tomato**, eggplant, potato, vine crops such as melons, cucumbers, and other crops. **Two**-**spotted spider mites** are one of the most important pests of eggplant.

**Solution:**The best way to begin treating for **two**-**spotted mites** is to apply a pesticide specific to **mites** called a miticide. Ideally, you should start treating for **two**-**spotted mites** before your plants are seriously damaged. Apply the miticide for control of **two**-**spotted mites** every 7 days or so.

**Tomato\_Target\_Spot:**

 is a fungal disease that mainly affects the foliage of many members of the Solanacea family such as potatoes, **tomatoes** and capsicums. It can also be transferred to the tubers of potatoes and occasionally the fruit of others. It is also referred to as 'early blight' on potatoes.

**Solution:**Cage or stake **tomato** plants to keep the plants above the soil. Water **tomato** plants in the morning so the leaves have time to dry. Water at the base of the plant or use a soaker hose or drip system to keep the leaves dry. Apply a mulch to keep the fruit from coming in direct contact with the soil.

**Tomato\_Tomato\_mosaic\_virus:**

 (ToMV) can cause yellowing and stunting of **tomato** plants resulting in loss of stand and reduced yield. ToMV may cause uneven ripening of fruit, further reducing yield. Tobacco **mosaic virus** (TMV) was once thought to be more common on **tomato**.

Solution:  
There are no **cures** for **viral** diseases such as **mosaic** once a plant is infected. As a result, every effort should be made to **prevent** the **disease** from entering your garden. Fungicides will NOT **treat** this **viral disease**. Plant resistant varieties when available or purchase transplants from a reputable source.

**Tomato\_Tomato\_yellow\_Leaf\_Curl\_Virus** (TYLCV) :

is a **tomato** (Solanum lycopersicum)-infecting plant **virus** transmitted by whitefly Bemisia tabaci. It belongs to the genus Begomovirus of the family Geminiviridae and has a single-stranded circular DNA genome of about 2.8 kb encapsidated in a twinned icosahedral virion3.

**Solution:**

Use only **virus**-and whitefly-free **tomato** and pepper transplants. Transplants should be **treated** with Capture (bifenthrin) or Venom (dinotefuran) for whitefly adults and Oberon for eggs and nymphs. Imidacloprid or thiamethoxam should be used in transplant houses at least seven days before shipping.