

Name of Problem	Type of Treatment	Treatment Name	Active Ingredient(s)	When to Treat	Mixing Ratio	How to Apply
<b>Anthracnose</b>						
Anthracnose is a term for a group of common fungal diseases that affect shade trees and shrubs. It is most common after wet springs or during more humid periods. Symptoms include leaf spots, curled cupping leaves, and early leaf drop. In addition to treatments, rake up leaves and dispose of them in the trash. This can help in treatment. Do not mulch or compost the leaves, as anthracnose spores can over winter in the soil.	Organic	Copper Soap Fungicide	Copper Octanoate (Copper Soap)	Before disease is visible or at first signs of disease. Apply with at least 12 hours of dry weather expected afterwards. Reapply After Rain following proper application intervals	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
	Organic	Neem	Neem Oil Extract	Apply at first sign of spring budding. Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water, or 0.5 TBSP (0.25 fl oz) per quart of water.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
	Organic	Triple Action	Pyrethrins, Neem Oil Extract	Apply at first sign of spring budding. Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
<b>Black Knot</b>						
A common fungal disease of <i>Prunus</i> varieties, including ornamental ad edible. Symptoms include black galls (tumor-like growths) that appear on branches and occasionally trunks of trees and shrubs. Occurs more often after wet springs. In addition to chemical treatments, you can Prune out affected areas of branches in late winter to limit the spread of spores (disposing of clippings in the trash). Sanitize pruning tools with isopropyl alcohol between each cut. It is also important to consider more resistant varieties of trees. Similar species that are planted into an area with existing black knot can be easily infected.	Chemical	Broad Spectrum Fungicide	Chlorothalonil (tetrachloroisophthalonitrile)	Apply in spring after pruning out black knot in late winter	10 tsp per 4 gallons of water. Max 5 applications per year.	Make one application at bud break or popcorn (pink, red or early white bud). If weather conditions favor disease make a second application 10 days later (full bloom to petal fall). Apply at shuck split to prevent infections on young fruit. If additional disease control is needed after shuck split and before harvest, use another registered fungicide.
	Chemical	Daconil Fungicide	Chlorothalonil	Begin 2 weeks before disease normally appears or when forecasts predict an extended period of wet weather. Alternatively, begin treatment when disease first appears.	N/A - Ready to Spray	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
<b>Black Spot</b>						
One of the most important diseases of roses, Black spot appears as feathery-edged black spots on rose leaves. As the spots grow, the leaves yellow and drop. Young leaves are most susceptible when wet overnight, but spores can travel many ways, including by touch. In addition to chemical treatments, you can prune out affected areas to limit the spread of spores (disposing of clippings in the trash). Sanitize pruning tools with isopropyl alcohol between each cut. It is also important to consider more resistant varieties of roses. Similar species that are planted into an area with existing black spot can be easily infected.	Organic	Neem	Neem Oil Extract	Apply at first sign of spring budding. Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water, or 0.5 TBSP (0.25 fl oz) per quart of water.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
	Organic	Triple Action	Pyrethrins, Neem Oil Extract	Apply at first sign of spring budding. Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
<b>Canker</b>						
Cankers can be caused either by living organisms, including fungi and bacteria, or by nonliving things such as excessive low or high temperature or hail. Look for local areas of rough bark or cracks in the bark. Prune out affected branches 3-4" below the canker, sanitizing with isopropyl alcohol between each cut. (follow up with a spray of fungicide in fall). Cankers on the main trunk indicate the tree should be removed.	Organic	Copper Soap Fungicide	Copper Octanoate (Copper Soap)	For bacterial canker, apply as a dormant spray as buds begin to swell, repeating at the bud burst stage, and weekly thereafter as needed, up to six sprays. In the fall spray again at 10% and 80% leaf drop.	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
<b>Chlorosis</b>						
Chlorosis is a deficiency in plants that often appears as lightening of the green in leaves. It can be caused by lack of iron in lime-rich soils, disease, or lack of sunlight. In some cases, it can be treated with a supplement of iron.	Chemical	Chelated Liquid Iron	(Containers Chelated Iron, Copper, Manganese, and Zinc)	When nutrient deficiency is noticed.	Trees: 1 pint of solution per gallon of water	Apply 1 pint of diluted solution per 500 sq. ft. Any convenient method of application may be used. If a quart hose-on sprayer is used, dilute 1 pint with equal volume of water and apply with sufficient water to cover 500 sq. ft

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	Chemical	<b>Iron+ Soil Acidifier</b>	Ammoniacal Nitrogen, Combined Sulfur, Iron	When issue is first noticed, or when wanting to acidify the soil.	None	Use about 2 ounces (4 tablespoons) for the average shrub, working into the top 2 to 4 inches of the soil around the shrub. For trees up to 3 inches in trunk diameter, use 6 ounces (12 tablespoons) per inch diameter. For trees 4 inches or more in trunk diameter, use 8 ounces (16 tablespoons) per inch diameter — equally applied in holes 10 to 12 inches deep around the drip line of tree. IMPORTANT: Water shrubs and trees thoroughly after application to get nutrients into the root zone.
<b>Downy Mildew</b>						
Downy mildew is a group of water molds that affect a number of different plants. Some species of this fungus can affect numerous species, but others have a very narrow range of hosts. Symptoms can vary depending of the species of downy mildew, but many species can cause water-soaked spots, chlorosis, and defoliation. Increasing air circulation by thinning plants in your landscape can help manage this disease, as can reducing or eliminating overhead watering (water at the base of the plant instead).	Organic	<b>Copper Soap Fungicide</b>	Copper Octanoate (Copper Soap)	Begin 2 weeks before disease normally appears or when forecasts predict an extended period of wet weather. Alternatively, begin treatment when disease first appears.	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
	Organic	<b>Neem</b>	Neem Oil Extract	Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water, or 0.5 TBSP (0.25 fl oz) per quart of water.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
	Organic	<b>Triple Action</b>	Pyrethrins, Neem Oil Extract	Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
<b>Fire Blight</b>						
Fire blight is a disease that can kill blossoms and shoots and cause dieback of branches from cankers. Branches appear scorched by fire and blossoms appear water-soaked before turning brown or black and shriveling. Affected branches can curl downward after turning black and form a hook.. Common on apples, crabapples, and pears.	Organic	<b>Copper Soap Fungicide</b>	Copper Octanoate (Copper Soap)	Begin 2 weeks before disease normally appears or when forecasts predict an extended period of wet weather. Alternatively, begin treatment when disease first appears.	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
	Chemical	<b>Fire Blight Spray</b>	Streptomycin Sulfate	Begin spraying at start of blossom period. Repeat at 3 to 4 day intervals during bloom and at 5 to 7 days intervals after bloom if weather favors disease spread.	1 TBSP per 2.5 gallons of water	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
<b>Leaf Spot</b>						
Leaf spot diseases are minor infections that disrupt photosynthesis . This can also be managed by raking up and destroying leaves that have fallen. If leaf spot occurs for more than 2-4 seasons, it should be taken seriously. Extended periods of leaf drop can cause the tree to weaken and be more susceptible to other diseases and insects.	Organic	<b>Copper Soap Fungicide</b>	Copper Octanoate (Copper Soap)	Begin 2 weeks before disease normally appears or when forecasts predict an extended period of wet weather. Alternatively, begin treatment when disease first appears.	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
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	Organic	Triple Action	Pyrethrins, Neem Oil Extract	Apply at first sign of spring budding. Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
<b>Needle Blight</b>						
Specifically Pine Needle blight (Dothistroma needle blight) causes needles to turn brown and drop. New infections often appear in late summer to fall. Dead needles and spots may be seen at any time during the year on a plant with reoccurring disease. Commonly affects Austrian Pine.	Organic	Copper Soap Fungicide	Copper Octanoate (Copper Soap)	Begin 2 weeks before disease normally appears or when forecasts predict an extended period of wet weather. Alternatively, begin treatment when disease first appears.	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
	Chemical	Daconil Fungicide	Chlorothalonil	Begin 2 weeks before disease normally appears or when forecasts predict an extended period of wet weather. Alternatively, begin treatment when disease first appears.	N/A - Ready to Spray	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
<b>Powdery Mildew</b>						
Powdery mildew is a group of fungi that affect a number of different plants. Some species of this fungus can affect numerous species, but others have a very narrow range of hosts. Symptoms can vary depending of the species of powdery mildew, but the most common is a white or grey powder on the upper surface of lower leaves. Can cause distorting of leaves, inturn causing the leaves to die. Increasing air circulation by thinning plants in your landscape can help manage this disease, as can reducing or eliminating overhead watering (water at the base of the plant instead).	Organic	Copper Soap Fungicide	Copper Octanoate (Copper Soap)	Apply when presence of disease is expected on plants. Apply spray at the minimum application interval during the first 2 weeks after emergence.	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
	Organic	Neem	Neem Oil Extract	Apply mid-summer or when disease is first detected. Preventative: Apply on a 7-14 day schedule until the potential for disease development is no longer present. Treatment of existing disease: apply on a 7 day schedule until disease pressure is eliminated, then continue on a 14 day schedule.	2 TBSP (1 fl oz) per gallon of water, or 0.5 TBSP (0.25 fl oz) per quart of water.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations. Frequently mix solution as you spray.
	Non-caustic	Relocate		Spring before plant emerges from dormancy or fall after leaves have dropped and plant is dormant.		Relocate plant to an area that recieves more sunlight or has better air circulation. When transplanting, only relocate plant when dormant and dig a large enough root to ensure best survival.
<b>Powdery Mildew</b>						
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<b>Rust</b>						
Rust is a fungal infection that causes minor damage to plants. It is commonly seen in yellow, orange, and red spots on the leaves. It can help to pinch off the affected leaves, but never remove more than 1/3 of the leaves from a plant at a time. Reducing moisture on plants can also help (watering at the base of a plant rather than overhead).	Organic	Copper Soap Fungicide	Copper Octanoate (Copper Soap)	Begin 2 weeks before disease normally appears or when forecasts predict an extended period of wet weather. Alternatively, begin treatment when disease first appears.	0.5-2.0 fl oz per gallon of water. Use the higher concentration to control diseases that may go dormant over winter. Unless otherwise stated on label, apply at a rate of 1.1 - 2.3 gallons of dilution per 1,000 sq. ft.	Spray all parts of plant (top and bottom of leaves). Repeat according to product label for individual plant recommendations.
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