

DISEASES OF TREE FRUITS

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Refer to the manufacturer's label and to the spray guides in this publication for information on chemical rates, timing of sprays, resistance management strategies, preharvest intervals, and other restrictions.

Apple Diseases

Disease, Symptoms	Control
<p>Apple Scab Velvety, olive-green leaf spots that later become metallic black and may be puckered; leaves fall from tree. Fruit are scabby, deformed and cracked.</p>	<p><u>Chemical*</u>: The most effective materials are captan, Flint, Pristine, Indar, Inspire Super, Rally, Procure, Sovran, Fontelis, Merivon, Luna, and Vangard. Early-season sprays are most important.</p> <p><u>Cultural</u>: Fungus overwinters on fallen leaves and fruit. Rake up and destroy them. Plant scab-immune varieties.</p>
<p>Bitter Rot Small brown spots on the fruit enlarge rapidly becoming sunken and tan to dark brown. Concentric rings of spores are sometimes present. The fruit infection appears "V" shaped in a cross-section cut.</p>	<p><u>Chemical*</u>: The most effective materials are captan, Inspire Super, Merivon, and Ziram. Summertime sprays are most important.</p> <p><u>Cultural</u>: Remove mummified fruit, dead wood and fire-blighted twigs. Removal of newly-infected fruit from trees will aid in control.</p>
<p>Black Rot (Frogeye Leaf Spot) Leaf spots are purple with tan centers. The 1/8 inch spots are referred to as frogeye leaf spot. On the fruit, the lesions are dark, often black, firm and not sunken. Infected fruit mummify and often remain attached to the tree.</p>	<p><u>Chemical*</u>: Captan is the most effective material. Tank-mixing with Topsin M improves effectiveness. Summertime sprays are the most important.</p> <p><u>Cultural</u>: Remove mummies, dead wood and fire-blighted twigs. Destroy these prunings.</p>
<p>Cedar-Apple Rust Small, yellow spots develop on leaves in spring. These spots gradually enlarge and turn orange. Later, black dots appear in the spots on the upper surface, and tube-like protuberances on the lower surface. Severe infection results in heavy defoliation. Fruit lesions appear near the calyx end and are similar to the leaf lesions.</p>	<p><u>Chemical*</u>: The most effective materials are Indar, Inspire Super, mancozeb, Rally, Procure, Fontelis, Merivon, Luna, and Ziram. Needed in springtime, between early April and mid-May.</p> <p><u>Cultural</u>: Overwinters on cedar trees. Removal of nearby cedar trees is helpful, but not always possible. Consider resistant varieties.</p>
<p>Collar Rot Dark coloration of wood at or below the ground line in the root-crown area, sometimes extending up the trunk. Leaves may be small and yellow in summer. Symptoms are same for other root problems, and isolation of fungus often required for positive diagnosis.</p>	<p><u>Chemical*</u>: Ridomil Gold EC applied to the soil will protect healthy trees and provide some relief to lightly-infected trees.</p> <p><u>Cultural</u>: Fungus is soil-borne. Select well-drained soil for planting and request rootstocks with resistance if collar rot is anticipated. Avoid MM 106.</p>

Apple Disease, Symptoms	Control
<p>Fire Blight Shoots blight from tip downward; leaves turn brown (apple) or black (pear). Shoot tip bends, resembling shepherd's crook. Blossoms wilt suddenly and turn brown. Limb and trunk blight occur when the infection moves downward from infected shoots or fruit spurs into larger branches on the trunk.</p>	<p>Chemical*: Apply streptomycin sulfate during bloom period only, every 3 to 5 days. Alternate with Kasumin for best results. A late dormant application of a fixed copper spray or Bordeaux mixture is helpful. Streptomycin sprays are not effective after the bloom period. Fixed copper sprays during the growing season are helpful, but are not recommended if fruit are present because of the risk of russet.</p> <p>Cultural: Plant resistant varieties (refer to SP277R, "Fire Blight"). Avoid excessive nitrogen fertilizer applications. Cankers and blighted shoots should be pruned out before the growing season begins. Refer to SP277R for pruning procedures.</p>
<p>Powdery Mildew On leaves, the fungus appears as whitish, felt-like patches that spread and engulf the entire leaf. Infected leaves are narrower than normal, folded and stiff. Infected fruit have a netlike russetting.</p>	<p>Chemical*: The most effective materials are Flint, Indar, Inspire Super, Pristine, Rally, Procure, Merivon, Luna, and Sovran. Topsin M and sulfur are also effective. The most important sprays are the springtime sprays, beginning at tight cluster.</p> <p>Cultural: The fungus overwinters on buds infected the previous summer. Many varieties are resistant.</p>
<p>Sooty Blotch and Fly Speck This condition does not harm the fruit, but is unsightly. Sooty blotch appears as superficial sooty or cloudy blotches on the surface of the fruit. Fly speck appears on fruit as sharply defined, black, shiny dots in groups of a few to 100 or more.</p>	<p>Chemical*: The most effective materials are Flint, Sovran, Pristine, Topsin M, and Ziram. Captan is also effective. Sprays are needed during the summertime.</p> <p>Cultural: These fungi overwinter on twigs of many woody plants. Apple fruit infections are most numerous during the summer. Follow spray schedule and good pruning practices to allow air, sunlight and spray penetration of the canopy.</p>
<p>White Rot (Bot Rot) Fruit rots show up late but develop rapidly, beginning as tan or red spots. In cross section, the rot is cylindrically shaped, extending to the core. The rot may involve the entire fruit and, on green varieties, is tan in color with concentric rings. Branch cankers become tan to orange and papery.</p>	<p>Chemical*: Captan is the most effective material. Tank-mixing with Topsin M improves effectiveness. Summertime sprays are the most important.</p> <p>Cultural: The fungus overwinters in bark and in limb cankers. Fire-blighted branches can be readily colonized by this fungus. Remove and destroy all dead branches and twigs. Practice proper pruning.</p>

Peach and Nectarine Diseases

Disease, Symptoms	Control
<p>Brown Rot, Blossom Blight</p> <p>The most noticeable phase is the fruit rot phase. Small, circular, brown spots enlarge rapidly and become covered with ash-gray tufts or spores. Fruit shrivel and mummify. Shoots can sometimes become infected and die. Infected blossoms wilt and turn brown.</p>	<p><u>Chemical*</u>: The preharvest and harvest periods are critical. Beginning at two to three weeks prior to harvest, use a sterol inhibitor (Elite, Indar, or Orbit/PropiMax) alternated with a strobilurin (Abound, Flint, or Pristine) or with a Group 7 (Merivon, Fontelis). Captan tank mixes help prevent fungal resistance development. Homeowners can use Immunox plus captan.</p> <p><u>Cultural</u>: The fungus overwinters in mummified fruit and in cankers. Remove all mummies and blighted twigs from trees after last picking. Follow spray schedule with emphasis on the preharvest period. Control insects that injure the fruit. Keep fruit cool after picking.</p>
<p>Bacterial Spot</p> <p>Leaf spots are small and brown, black or red, more numerous at the leaf tips. The centers of the leaf spots fall out, creating a "shothole" effect. Infected leaves may turn yellow and fall to the ground. Fruit sometimes develop dark pits in the skin.</p>	<p><u>Chemical*</u>: The most effective materials are fixed coppers and Mycoshield/Flameout/FireLine. Chemical control is limited. The use of coppers after petal fall may cause burn.</p> <p><u>Cultural</u>: Use of resistant varieties is the primary method of control, and is highly recommended. Adequate fertility is important in minimizing the effects of this disease.</p>
<p>Peach Leaf Curl</p> <p>Infected leaves are thickened, curled and puckered and often flushed with red or purple. Affected leaves appear in spring and drop from tree.</p>	<p><u>Chemical*</u>: A single spray, using the correct material, will provide nearly perfect control, if applied before bud swell. After bud swell, the disease cannot be controlled. The most effective materials are chlorothalonil, thiram, and Ziram.</p>
<p>Peach Scab</p> <p>Spots on the fruit are small, dark and circular. These spots usually do not begin to appear until the fruit are well grown, and tend to be concentrated at the stem end. The skin may toughen and crack. Forty to 70 days elapse from the time the spore lands on the fruit until the spots appear.</p>	<p><u>Chemical*</u>: The most effective materials are Abound, Adament, captan, chlorothalonil, Gem, and Topsin M. Begin sprays at shuck split and repeat every 10 to 14 days until 40 days before harvest. The fungus overwinters in twig lesions. Spores are most abundant two to six weeks after the shuck split stage of development.</p>

Cherry Diseases

<p>Cherry Leaf Spot Small, circular, purple spots on leaves. Only a few lesions per leaf can cause the leaves to turn yellow and fall. The fruit on trees severely defoliated by leaf spot fail to mature properly and are soft and watery.</p>	<p><u>Chemical*</u>: Apply captan, Gem, Indar, Pristine, Rally, or Adament, beginning at petal fall and repeating at 10-to 14-day intervals until harvest. Rotate classes. Homeowners can use captan or Immunox.</p> <p><u>Cultural</u>: The fungus overwinters in infected leaves on the ground. Rake and destroy fallen leaves.</p>
<p>Black Knot Elongated swellings or knots on limbs twigs or trunk. The swellings may be less than an inch to over a foot long. Newly formed knots are greenish and soft but become hard and black with age. Affected limbs die.</p>	<p><u>Chemical*</u>: Apply captan, beginning at pink and repeating at 10- to 14-day intervals until terminal growth stops. Chemical control is only a supplement to the pruning practices below.</p> <p><u>Cultural</u>: The fungus overwinters in the knots, and spores are discharged from the pink stage of blossom bud growth until terminal growth stops. Prune out knots and destroy. Since the fungus may have extended beyond the swelling, make cuts well below visible infection.</p>
<p>Brown Rot, Blossom Blight See "Peach."</p>	<p>See "Peach."</p>

Pear Diseases

Disease, Symptoms	Control
<p>Fire Blight See "Apple."</p>	<p>See "Apple." Also see SP277R, and avoid planting highly susceptible varieties.</p>
<p>Pear Scab Caused by a different fungus from apple scab fungus. Symptoms are similar, but twig infections can also occur.</p>	<p><u>Chemical*</u>: Ferbam, Flint, Sovran, Pristine, Fontelis, Inspire Super, Merivon, Scala, Topsin M, Vangard and Ziram can be used on pear, and a regular spray schedule, as for apple, is needed for control. Mancozeb can also be used, but not within 77 days of harvest. NOTE: Captan is not labeled for use on pears. HOMEOWNERS: Neither mancozeb nor 3336 can be used on residential pear trees. Copper and sulfur products are the only fungicides labeled for use on residential pears.</p> <p><u>Cultural</u>: Rake and destroy fallen leaves, on which the fungus overwinters.</p>
<p>Fabraea (Entomosporium) Leaf Spot Spots can occur on leaves, shoots and fruit spots are at first purplish-black dots, becoming circular, brown lesions about 1/8 inch in diameter.</p>	<p><u>Chemical*</u>: The fungus overwinters on twig cankers and on fallen leaves. Mancozeb is the most effective fungicide, but has a 77-day preharvest interval. Ferbam, Flint, Sovran, Pristine, Topsin M, and Ziram are also effective.</p> <p><u>Cultural</u>: Rake and destroy fallen leaves.</p>

Plum Diseases

<p>Black Knot See "Cherry."</p>	<p>See "Cherry." Avoid planting highly susceptible varieties such as Damson, Stanley, Bluefree and Shropshire.</p>
<p>Brown Rot, Blossom Blight See "Peach."</p>	<p>See "Peach."</p>
<p>Bacterial Spot Can be a severe problem on Japanese plums; American and European plums are less susceptible. See "Peach" for symptoms.</p>	<p>See "Peach." Avoid planting highly susceptible varieties such as AU Frontier, AU Rosa, AU Rubrum, Frontier, Methley and Santa Rosa. Some Japanese plum varieties are resistant.</p>

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