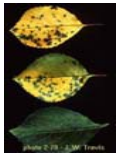
I. PLUM

No.	Disease/ Insect	Symptoms		Possible Causes	Solutions
1	BLACK KNOT (Apiosporina morbosa)		The warty swellings first become visible on new shoots in late summer or the following spring. At first the knots are olive-green and corky, but with age turn black and become hard and brittle	Infections occur on new shoot growth, mainly from ascospores during periods of measurable rainfall of six hours or more at 72 F (22 C)	Cultural practices should include removing wild plum and cherry seedlings from fence rows, woodlots, and along orchard perimeters; inspect orchards and surrounding areas each winter for black knots and prune out infected shoots and limbs; remove pruned knots from the orchard and bury or burn them before budbreak in the spring. When pruning infected material in the dormant season, always make the cut 3 to 4 inches below the margin of each knot, since the fungus grows in the tissue beyond the visible swellings. Sprays should be applied from white bud through shuck split (green tip through second cover in problem orchards).
2	BROWN LINE or CONSTRICTION DISEASE (Tomato ringspot virus)		A dark brown line forms at the graft union and extends into pits and grooves in the woody tissue. This girdling causes interveinal chlorosis of the leaves of the scion, and the tree dies Trees with constriction disease exhibit smaller than normal pale green to yellow leaves and reduced tree growth.	Propagated on certain selections of myrobalan rootstock It is caused by tomato ringspot virus, the causal agent of Prunus stem pitting.	Cultivating the site for 2 years is recommended if trees are to be re-established on infested sites. Purchase certified virus-free trees
3	BROWN ROT (Monilinia fructicola)		Infected fruit appear covered with tufts of grayish to tan fungal spores.	*M. fructicola* overwinters in orchards as mycelium on mummies, fruit stems, blighted blossoms and twigs, and cankers. Sporodochia develop under cool, wet conditions during the winter and early spring. Occasionally, cup-like apothecia of M. fructicola which produce ascospores can be found on fruit mummies under the tree Generally, conidia from mummies and cankers on stone fruit trees and other sources (for example, flowering ornamental plants of plum or quince, or wild plantings of plum) are believed to be the primary inoculum sources. Conidia of M. fructicola are generally formed during late spring when temperatures range from 55 to 77 F (13-25 C). Conidia are disseminated by wind and rain and germinate rapidly under favorable conditions. Insects (nitidulid beetles and honey bees) also can be important as vectors of the fungus during fruit ripening, carrying conidia to injury sites produced by oriental fruit moth, Japanese beetle, green June beetle, and other insects that injure fruit.	(1) Remove all remaining fruit from the tree after the final picking. This practice limits infection of fruit peduncles and twigs thus reducing the number of brown rot cankers. (2) Fruit thinning practices influence the carry over of brown rot during the summer months and into the fruit ripening season. In general, fruit thinned before pit hardening decompose rapidly; whereas, fruit thinned after pit hardening become infected on the orchard floor and serve as spore sources for the disease. (3) In spring, monitor for blossom infection and prune out any cankers and infected shoots. (4) In spring, just prior to and during the blossom period, examine the orchard floor for apothecia. Their presence requires that blossoms be thoroughly protected with fungicide sprays during wet periods. (5) Prune to avoid excessive overcrowding of branches to increase air circulation, promote rapid drying, and increase light and spray penetration. (6) Fertilize to maintain optimum nitrogen/potassium balance. (7) Avoid dumping rotten fruit in one location, which could become the starting point for disease and insect outbreaks in the following season. (8) Pick and handle fruit carefully to avoid injuries; remove field heat from the fruit promptly after harvest by hydrocooling or forced air cooling; use clean containers; keep packing areas clean.
4	PRUNE DWARF VIRUS		Stunting and leaf malformation in 'Italian Prune'	The virus is borne in pollen and seed. As high as 80 percent transmission in seed of Prunus species has been reported.	Nursery certification programs provide budwood to nurseries that is free of PDV.

II. CHERRY

No.	Disease/ Insect	Symptoms	Possible Causes	Solutions
1	BACTERIAL CANKER (Pseudomonas syringae pv. syringae and P. s. pv. Morsprunorum)	  Cankers on trunks, limbs and branches exude gum during late spring and summer Leaves on the terminal portions of cankered limbs and branches may wilt and die in summer or early autumn if girdled by a canker. Leaf spots are dark brown, circular to angular, and sometimes surrounded with yellow halos The affected tissues collapse, leaving deep, black depressions in the flesh, with margins becoming yellow to red as lesions and fruit age. On fruit stems, lesions are elliptical and brown with watersoaked margins. Infected leaf and flower buds may fail to open in spring, resulting in a condition referred to as "dead bud.'	The bacteria can survive from one season to the next in bark tissue at canker margins, in apparently healthy buds and systemically in the Bacteria multiply within these overwintering sites in the spring and are disseminated by rain to blossoms and to young leaves. Bacteria of both pathovars can live in an epiphytic phase on the surface of symptomless blossoms and leaves from bloom through leaf After leaves abscise in autumn, the bacteria may enter the tree through fresh leaf scars. Outbreaks of bacterial canker are often associated with prolonged periods of cold, frosty, wet weather late in the spring or with severe storms that injure the emerging blossom and leaf tissues.	Copper-containing compounds may be of limited value for the control of bacterial canker because strains of P. s. syringae resistant to copper are common in orchards with a history of copper usage. Also, copper injures most stone fruit crops. Even on the more tolerant crop species, it becomes more injurious as applications are repeated.
2	BLACK KNOT (Apiosporina morbosa)	 Occurs only on the woody parts of trees, primarily on twigs and branches, and sometimes on trunks and scaffold limbs. The warty swellings first become visible on new shoots in late summer or the following spring. At first the knots are olive-green and corky, but with age turb black and become hard and brittle	Often found in poorly managed orchards, home plantings, or on abandoned and wild trees Infections occur on new shoot growth, mainly from ascospores during periods of measurable rainfall of six hours or more at 72 F (22 C)	Cultural practices should include removing wild plum and cherry seedlings from fence rows, woodlots, and along orchard perimeters; inspect orchards and surrounding When pruning infected material in the dormant season, always make the cut 3 to 4 inches below the margin of each knot, since the fungus grows in the tissue beyond the visible swellings. Sprays should be applied from white bud through shuck split (green tip through second cover in problem orchards).
3	BROWN ROT (Monilinia fructicola)	 Superficial-appearing red halos, 3/16 to 1/4 inch (5-19 mm) in diameter and necrotic pitted areas up to 1/4 inch (6-7 mm) in diameter	The optimum temperatures for fruit infection are 68 to 72.5 F (20-23 C). M. fructicola is proportional to temperature and duration of wetness, with as little as five hours of wetting needed at 68 F (20 C) to cause significant infection. Infection can occur at the bloom stage or shortly thereafter, with symptoms appearing as fruit reach maturity.	(1) Remove all remaining fruit from the tree after the final picking. This practice limits infection of fruit peduncles and twigs thus reducing the number of brown rot cankers. (2) Fruit thinning practices influence the carry over of brown rot during the summer months and into the fruit ripening season. In general, fruit thinned before pit hardening decompose rapidly; whereas, fruit thinned after pit hardening become infected on the orchard floor and serve as spore sources for the disease. (3) In spring, monitor for blossom infection and prune out any cankers and infected shoots. (4) In spring, just prior to and during the blossom period, examine the orchard floor for apothecia. Their presence requires that blossoms be thoroughly protected with fungicide sprays during wet periods. (5) Prune to avoid excessive overcrowding of branches to increase air circulation, promote rapid drying, and increase light and spray penetration. (6) Fertilize to maintain optimum nitrogen/potassium balance. (7) Avoid dumping rotten fruit in one location, which could become the starting point for disease and insect outbreaks in the following season. (8) Pick and handle fruit carefully to avoid injuries; remove field heat from the fruit promptly after harvest by hydrocooling or forced air cooling; use clean containers; keep packing areas clean.
4	LEAF SPOT (Blumeriella jaapii)	 In the spring, one to three weeks after petal fall, the disease first appears as small, purplish spots on the upper surface of the leaves. These spots eventually turn brown. Most spots are circular; however, when abundant, they often coalesce and form large, irregular dead patches Yellowing of older, infected leaves before they drop. Entire trees can be defoliated by midsummer. Early and repeated defoliation can also result in small, weak fruit buds, death of fruiting spurs, reduction in fruit set and size, and reduced shoot growth.	Primary cycle: The fungus overwinters in diseased leaves on the ground. In the spring, fruiting structures called apothecia develop on these leaves. Around bloom or shortly afterwards, ascospores are formed within these fruiting structures. During wet periods, ascospores are forcibly discharged from these leaves and are carried upward by wind and splashing rain to infect newly developing leaves. During this primary cycle, most spores are discharged from bloom to four to six weeks after petal fall. Once ascospores are ejected, they attach to the young leaves, germinate in a film of water, and penetrate through stomata on the underside of the leaf surface within a few hours. *Secondary cycle:* Eventually, the fungus produces conidia on the underside of the leaf. These conidia are responsible for the extensive	Fungicides are the primary means for managing cherry leaf spot. Start fungicide applications at petal fall, or after the first leaves have unfolded, and repeat applications every 7 to 10 days until harvest, and conclude with one or two postharvest applications, beginning 2 to 3 weeks after harvest. Spraying alternate sides of trees on a 7-day schedule, rather than spraying both sides on a 10-day schedule, will improve efficiency of fungicide use.
5	POWDERY MILDEW (Podosphaera clandestina)	 On young leaves, the fungus appears as whitish, feltlike patches. Newly developed leaves on new shoot growth become progressively smaller, are generally pale in color, and somewhat distorted. Severely infected leaves curl upward, become brittle with age, and may drop prematurely. By mid-season, the whitish fungal growth can be seen abundantly growing over the leaves and shoots, sometimes in patches and other times covering most of the new growth.	The fungus may overwinter on diseased, fallen leaves, but it does so more commonly in infected buds, as in the case of apple powdery mildew. Warm temperatures without rain, but with sufficient moisture such as high humidity, morning fogs, dews, or intermittent rains, are ideal for rapid increase of the disease.	Begin fungicide spray applications at petal fall or shuck split and continue at 7- to 10-day intervals until harvest. Cultural practices to reduce mildew include annual tree pruning and removing hedgerows located close to orchards to facilitate drying of fruit and foliage to create a less favorable microclimate for disease development.

6	PRUNUS NECROTIC RINGSPOT VIRUS		In early spring, foliation and blooming of infected branches may be delayed, with leaves remaining small with depressed fine lines (etching) and partial-to-complete rings on the upper surface. Areas of symptomatic leaves may become necrotic and fall out, giving those leaves a tattered look Green fruit may show arcs and rings. Terminal and lateral shoots are often irregular in length, stunted, or die back at growing points. Occasionally, large areas of bark are killed and show gumming.	Movement of virus in the orchard occurs through transmission by pollen to seed and to pollinated plants.	