

1. Apple Aphis spp

Cause: Aphids, particularly *Aphis pomi* and *Aphis spiraeicola*, are small insects that suck sap from the phloem of apple trees.

Lifecycle: Aphids reproduce rapidly, especially in warm conditions, and can have multiple generations per year. Winged forms may appear when populations are high, spreading to other plants.

Symptoms: Infested trees exhibit curled and yellowing leaves, sticky honeydew on leaves and fruits, and sooty mold growth on the honeydew. Heavy infestations can stunt growth and reduce fruit quality.

Impact: Aphid infestations weaken the tree by removing essential nutrients, leading to poor fruit yield and quality.

Prevention: Regular monitoring, especially during the growing season, is crucial. Encouraging natural predators like ladybugs and lacewings can help keep aphid populations in check.

Recommended Action: For minor infestations, insecticidal soaps or neem oil are effective. For severe infestations, systemic insecticides may be required.

2. Apple Eriosoma lanigerum (Woolly Apple Aphid)

Cause: The woolly apple aphid, *Eriosoma lanigerum*, is a pest that targets apple trees, feeding on both the aerial parts and roots.

Lifecycle: Woolly apple aphids have a complex lifecycle, with both winged and non-winged forms. They overwinter as eggs or in sheltered areas on the tree.

Symptoms: The aphids produce white, woolly masses on branches, twigs, and roots. These can cause galls on roots and twig dieback. Root infestations are particularly damaging as they can lead to weakened trees.

Impact: Heavy infestations can stunt tree growth and lead to root galls that make the tree more susceptible to other diseases.

Prevention: Use resistant rootstocks and monitor for early signs of infestation. Natural predators like parasitic wasps can help control populations.

Recommended Action: Prune out heavily infested branches and apply horticultural oils or insecticides if necessary.

3. Apple Monillia laxa (Brown Rot)

Cause: Brown rot, caused by the fungus *Monilinia laxa*, is a common disease affecting apple trees, particularly in warm, wet conditions.

Lifecycle: The fungus overwinters in mummified fruit and infected wood. In the spring, it produces spores that spread to blossoms and young fruit.

Symptoms: Affected blossoms wilt and turn brown (blossom blight). Infected fruit develops brown, rotting areas that are often covered with grayish spores. Cankers may form on twigs and branches, leading to dieback.

Impact: Brown rot can significantly reduce fruit yield and quality. If left unmanaged, it can also weaken trees through repeated infections.

Prevention: Prune out and destroy mummified fruits and infected twigs. Ensure good air circulation through proper pruning and spacing of trees.

Recommended Action: Apply fungicides during bloom and again before harvest, especially if the weather is wet. Remove and dispose of all infected plant material.

4. Apple Venturia inaequalis (Apple Scab)

Cause: Apple scab is caused by the fungus *Venturia inaequalis*, which thrives in cool, wet conditions.

Lifecycle: The fungus overwinters in fallen leaves. In spring, spores are released, which infect young leaves, flowers, and fruit.

Symptoms: Early symptoms include olive-green or brown spots on leaves and fruit. As the disease progresses, these spots darken and become more pronounced, leading to leaf drop and cracked, scabby fruit.

Impact: Severe infections can lead to significant defoliation, reducing the tree's vigor and fruit yield.

Scabbed fruit is often unmarketable.

Prevention: Use resistant apple varieties if possible. Regularly remove fallen leaves and other debris that can harbor the fungus.

Recommended Action: Apply fungicides at the first sign of infection and continue throughout the growing season, especially in wet conditions.

5. Apricot Coryneum beijerinckii (Shot Hole Disease)

Cause: Shot hole disease, caused by the fungus *Coryneum beijerinckii*, affects apricot and other stone fruit trees.

Lifecycle: The fungus overwinters in buds, twigs, and mummified fruit. In spring, it produces spores that infect leaves, fruit, and twigs.

Symptoms: Small, purplish spots form on leaves and fruit, which eventually fall out, leaving small holes (hence the name "shot hole"). Severe infections can cause defoliation and reduced fruit quality.

Impact: While shot hole disease rarely kills trees, it can significantly impact fruit yield and quality, and repeated infections weaken the tree.

Prevention: Avoid overhead watering and prune trees to improve air circulation. Remove and destroy infected plant material.

Recommended Action: Apply copper-based fungicides during the dormant season and early spring to protect new growth.

6. Apricot *Monillia laxa* (Brown Rot)

Cause: Brown rot in apricots, caused by the fungus *Monilinia laxa*, is particularly destructive in warm, humid climates.

Lifecycle: Similar to its impact on apples, the fungus overwinters in mummified fruit and infected branches. Spores are released in spring, spreading to blossoms and fruit.

Symptoms: Blossom blight, fruit rot with brown, sunken lesions, and cankers on twigs and branches are typical symptoms. Infected fruit often drops prematurely.

Impact: Brown rot can devastate fruit crops, leading to significant losses in both yield and quality.

Prevention: Prune trees to improve air circulation and remove infected fruits and branches. Avoid injury to fruit, as wounds can serve as entry points for the fungus.

Recommended Action: Apply fungicides during bloom and pre-harvest. Thoroughly clean up fallen fruit and prune out cankered wood.

7. Canker Symptom

Cause: Cankers are caused by various fungal or bacterial pathogens, often entering through wounds or weakened areas of the tree.

Lifecycle: Pathogens causing cankers may overwinter in infected wood or debris. In spring, they produce spores or bacteria that infect new growth.

Symptoms: Cankers appear as sunken, dead areas on branches or trunks, often with oozing sap or a gummy exudate. Severe infections can girdle branches, leading to dieback.

Impact: Cankers weaken the tree's structure, making it more susceptible to breakage, and can significantly reduce tree vigor and fruit production.

Prevention: Avoid wounding trees and prune during dry weather to reduce the risk of infection. Ensure trees are healthy through proper nutrition and watering.

Recommended Action: Prune out infected branches, making cuts well below the canker. Dispose of infected material properly. Apply fungicides or bactericides if necessary.

8. Cherry Aphis spp

Cause: Aphids, particularly *Myzus cerasi*, are common pests on cherry trees.

Lifecycle: Aphids reproduce quickly, especially in warm, dry conditions. They have multiple generations per year, with both winged and wingless forms.

Symptoms: Infested leaves curl and yellow, and sticky honeydew is secreted, leading to sooty mold. Fruit development can be affected, and tree vigor is reduced.

Impact: Heavy aphid infestations can reduce fruit quality and yield, and may also transmit viruses to the tree.

Prevention: Regular monitoring and encouraging natural predators like ladybugs can help control aphid populations.

Recommended Action: Apply insecticidal soap or neem oil for light infestations. For severe infestations, systemic insecticides may be necessary.

9. Downy Mildew

Cause: Downy mildew is caused by various species of oomycetes, which are fungal-like organisms.

Lifecycle: The pathogen overwinters in plant debris or soil. In spring, it produces spores that are spread by wind and water to new growth.

Symptoms: Infected plants exhibit yellow or pale green patches on the upper surface of leaves, with white, downy growth on the undersides. Severely infected plants may become stunted or die.

Impact: Downy mildew can cause significant yield losses, particularly in wet, humid conditions. It affects a wide range of crops, including grapes, cucumbers, and onions.

Prevention: Improve air circulation around plants, avoid overhead watering, and use resistant varieties when possible.

Recommended Action: Apply fungicides at the first sign of infection. Remove and destroy infected plant parts to reduce the spread of the disease.

10. Drying Symptom

Cause: Drying symptoms can result from various factors, including environmental stress (drought, excessive heat), fungal infections, or pest infestations.

Symptoms: Leaves or fruits may dry out and shrivel, often leading to premature drop. In some cases, the entire plant may show signs of wilting and decline.

Impact: If left untreated, drying symptoms can lead to significant yield losses and even plant death.

Prevention: Ensure plants receive adequate and consistent watering, especially during dry periods. Mulch around plants to retain soil moisture and reduce temperature fluctuations.

Recommended Action: Identify the underlying cause of the drying symptoms. If pests or diseases are involved, treat accordingly. Ensure proper watering and care to help plants recover.

11. Gray Mold (*Botrytis cinerea*)

Cause: Gray mold is caused by the fungus *Botrytis cinerea*, which thrives in cool, damp conditions.

Lifecycle: The fungus overwinters in plant debris and produces spores that are spread by wind and water. It can infect a wide range of plants, particularly when they are stressed or wounded.

Symptoms: Gray, fuzzy mold develops on flowers, leaves, stems, and fruits. Infected tissue becomes soft and decays rapidly. In fruit crops, gray mold often develops at the blossom end and spreads throughout the fruit.

Impact: Gray mold can cause significant crop losses, particularly in soft fruits like strawberries and grapes. It also affects ornamental plants and vegetables.

Prevention: Improve air circulation around plants, avoid overhead watering, and remove plant debris. Harvest fruits and vegetables promptly to reduce the risk of infection.

Recommended Action: Apply fungicides at the first sign of disease. Remove and destroy infected plant parts to prevent the spread of the fungus.

12. Leaf Scars

Cause: Leaf scars can result from various factors, including insect feeding, fungal infections, or physical damage.

Symptoms: Affected leaves may show irregular, discolored scars, often leading to tissue death in the surrounding area. In some cases, entire leaves may become distorted or drop prematurely.

Impact: While leaf scars usually have a minor impact on overall plant health, severe damage can reduce photosynthesis and lead to stunted growth.

Prevention: Protect plants from physical damage, control pests that feed on leaves, and avoid over-fertilization, which can make leaves more susceptible to injury.

Recommended Action: Monitor plants for signs of pests or diseases and treat accordingly. Remove damaged leaves to improve the plant's appearance and reduce the risk of secondary infections.

13. Peach *Monillia laxa* (Brown Rot)

Cause: Brown rot in peach trees is caused by the fungus *Monilinia laxa*, which infects blossoms, fruit, and twigs.

Lifecycle: The fungus overwinters in mummified fruit and infected wood. In spring, spores infect blossoms, leading to blossom blight. The infection can then spread to developing fruit and twigs.

Symptoms: Infected blossoms turn brown and wither. Fruit develops brown, sunken lesions that may produce grayish spores. In severe cases, cankers form on twigs, leading to dieback.

Impact: Brown rot can cause significant losses in fruit yield and quality. Repeated infections weaken the tree, making it more susceptible to other diseases and environmental stress.

Prevention: Remove and destroy mummified fruit and infected wood. Prune trees to improve air circulation and reduce humidity in the canopy.

Recommended Action: Apply fungicides during bloom and pre-harvest, especially in wet conditions. Proper sanitation is essential to reduce the spread of the disease.

14. Peach *Parthenolecanium corni* (European Fruit Lecanium)

Cause: The European fruit lecanium, *Parthenolecanium corni*, is a scale insect that feeds on peach and

other fruit trees.

Lifecycle: The insect overwinters as immature nymphs on twigs. In spring, they mature and lay eggs, which hatch into crawlers that spread to new feeding sites.

Symptoms: Infested trees exhibit sticky honeydew, which attracts sooty mold. Leaves may curl, turn yellow, and drop prematurely. Heavy infestations can reduce tree vigor and fruit quality.

Impact: Scale infestations can weaken trees, reduce fruit yield, and make the tree more susceptible to other pests and diseases.

Prevention: Encourage natural predators like parasitic wasps and ladybugs. Monitor for scale insects during the growing season.

Recommended Action: Apply horticultural oil during the dormant season to smother overwintering nymphs. Insecticidal soaps or systemic insecticides may be needed for severe infestations.

15. Pear *Erwinia amylovora* (Fire Blight)

Cause: Fire blight is caused by the bacterium *Erwinia amylovora*, which infects pears and other pome fruits.

Lifecycle: The bacterium overwinters in cankers on branches. In spring, it spreads to new growth via rain, insects, or pruning tools, infecting blossoms, shoots, and fruit.

Symptoms: Infected blossoms and shoots blacken and wither, often bending into a "shepherd's crook" shape. Cankers form on branches, which may ooze bacterial exudate. In severe cases, the entire tree may die.

Impact: Fire blight can cause devastating losses, especially in susceptible pear varieties. It spreads rapidly and can kill young trees in a single season.

Prevention: Use resistant varieties and avoid heavy nitrogen fertilization, which promotes lush growth susceptible to infection. Prune during the dormant season to remove infected wood.

Recommended Action: Prune out infected branches during dry weather, making cuts well below the affected area. Disinfect pruning tools between cuts. Apply bactericides in early spring to protect blossoms.

16. Plum *Aphis* spp

Cause: Various species of aphids, including *Brachycaudus helichrysi* and *Hyalopterus pruni*, infest plum trees.

Lifecycle: Aphids reproduce rapidly, with multiple generations per year. Winged forms develop when populations are high, spreading to other plants.

Symptoms: Infested leaves curl and yellow, and sticky honeydew is secreted, leading to the growth of sooty mold. Severe infestations can weaken the tree and reduce fruit quality.

Impact: Aphid infestations reduce tree vigor, fruit yield, and quality. They can also transmit viruses to the tree.

Prevention: Regular monitoring and encouraging natural predators can help control aphid populations.

Recommended Action: Apply insecticidal soap or neem oil for light infestations. Systemic insecticides may be needed for severe infestations.

17. RoughBark

Cause: Rough bark can result from environmental stress, fungal infections, or pest infestations. It may also be a sign of certain tree diseases.

Symptoms: The bark becomes rough, cracked, and may start peeling off. In severe cases, cankers or galls may form, leading to dieback of affected branches.

Impact: Rough bark can reduce the tree's ability to transport nutrients and water, leading to reduced vigor and, in severe cases, tree death.

Prevention: Ensure trees are healthy through proper watering, fertilization, and pruning. Avoid wounding the bark, as this can provide entry points for pathogens and pests.

Recommended Action: Identify the underlying cause of the rough bark and treat accordingly. Prune out affected areas if necessary and apply protective treatments to the tree's bark.

18. StripeCanker

Cause: Stripe canker is typically caused by fungal or bacterial infections that affect the bark and underlying wood of the tree.

Symptoms: Long, narrow, sunken lesions or cankers form on branches or trunks, often with oozing sap or gum. The cankers may enlarge over time, leading to girdling and dieback.

Impact: Cankers weaken the structural integrity of the tree, making it more susceptible to breakage.

Severe infections can kill branches or the entire tree.

Prevention: Avoid wounding trees and prune during dry weather to reduce the risk of infection. Maintain tree health through proper care and management.

Recommended Action: Prune out infected areas, making cuts well below the canker. Dispose of infected material properly. Apply appropriate fungicides or bactericides if necessary.

19. Walnut *Eriophyes erineus* (Walnut Leaf Gall Mite)

Cause: The walnut leaf gall mite, *Eriophyes erineus*, is a microscopic mite that feeds on walnut leaves, causing the formation of galls.

Lifecycle: The mites overwinter in bark crevices or bud scales. In spring, they move to new leaves, where their feeding induces the formation of galls.

Symptoms: Small, blister-like galls form on the leaves, which can lead to distorted growth. The galls are often pale green or yellow but may turn brown as they age.

Impact: While the galls are unsightly, they usually cause minimal damage to the tree. However, severe infestations can reduce photosynthesis and overall tree vigor.

Prevention: Use resistant varieties and encourage natural predators. Monitor trees for early signs of mite activity.

Recommended Action: If the infestation is severe, apply miticides to control the mites. In most cases, galls cause minimal damage and do not require treatment.

20. Walnut *Gnomonia leptostyla* (Walnut Anthracnose)

Cause: Walnut anthracnose is caused by the fungus *Gnomonia leptostyla*, which infects leaves, fruits, and young shoots.

Lifecycle: The fungus overwinters in fallen leaves and produces spores in the spring that infect new growth. Infections are most severe in wet, humid conditions.

Symptoms: Small, brown or black spots develop on leaves, which may coalesce, causing large areas of leaf tissue to die. Severely infected leaves may drop prematurely. The fungus can also infect the fruit husks, leading to poor nut development.

Impact: Severe anthracnose infections can lead to significant defoliation, reducing tree vigor and nut yield.

Prevention: Rake and destroy fallen leaves to reduce the source of infection. Prune trees to improve air circulation and reduce humidity in the canopy.

Recommended Action: Apply fungicides at the first sign of infection, especially during wet weather. Ensure proper sanitation practices to reduce the spread of the disease.