**VERTICILLIUM WILT:**

**Indication:**

Wilting and dieback from the edges of the leaves in late spring/early summer followed by blackening of the branches, gradually working its way down through the trunk. Another indication is new growth emerging in spring, aborting, and dying. Dark streaks appear in the wood when cut into.

**Cause:**

Verticillium lives in the soil and enters the plant through its roots. It becomes most active where soils are constantly very wet, or where drainage is poor.

**Treatment:**

If drainage is poor steps should be taken to improve it and there should be no standing water after irrigation.

All dying branches should be cut back at least 6 inches below where the blackening is visible and your shears should be sterilized between every cut with either rubbing alcohol or a solution of 1 part bleach to 9 parts water. You should see clean, opaque colored wood at the cut. If there is any brown coloration cut back a few inches more with sterilized pruning shears until you see no discoloration.
If you have had a Maple succumb to Verticillium, it is not advisable to replant another Maple in the same place unless the soil is replaced since the fungal propagules can survive up to 13 years in the soil.

**PSEUDOMONAS:**

**Indication:**

Blackening of new buds in late winter/early spring working its way down the branch. Another indication is irregular blackening of the bark of twigs and branches.

**Cause:**

This disease favors certain climate conditions (cool, wet weather) especially following a warm dry period.

**Treatment:**

It is an airborne pathogen not soil borne, and so can be controlled by liberal spraying or keeping the foliage protected from rain. It is usually not fatal to the plant and once the disease is under control it can be cut back, fertilized, and will flush back with new, healthy growth although there may be some residual damage to the bark.
UNDERWATERING:

Indication:
Uniform dieback on the youngest leaves. Newer growth wilting.

Cause:
Too little water. Irrigation schedule needs to be increased. In containers the soil has dried and will not readily retain moisture.

Treatment:
Increase the irrigation schedule. For containers, if when watering the water immediately exits through the drain holes the rootball has dried out. Submerge the entire container in a larger container of water for 15 minutes. For large containers the use of a soil penetrant with a slow trickle of water may help to re-wet the soil. A layer of mulch (kept away from the trunk) will help keep soils from drying out.
**SUN BURN:**

**Indication:**

Irregular brown patches of dead tissue, most likely on the leaf surface. Leaves curled and dry to the touch. Outer leaves mainly show burn while those underneath are fine.

**Cause:**

Excessive sun, irregular watering, afternoon water on leaves.

**Treatment:**

Most maples will show burn their first few years as they acclimate to our climate. Do not remove the dead leaves as they are providing shade to the other leaves and, more importantly, the bark of the limbs. Placing a layer of mulch (keep 3 inches away from trunk) in summer will help reduce burn. Be sure to be consistent watering and never allow the soil to dry out. Make sure that your cultivar is listed as a variety that can endure sun.
**WIND BURN:**

**Indication:**

Irregular browning of leaf edges, especially those on the west side of the plant. Tattered or torn leaves.

**Cause:**

Excessive wind and/or inconsistent irrigation.

**Treatment:**

Place maples in a protected location. Provide windbreaks with structures or strategically placed plantings to act as a baffle. Be sure to be consistent with your watering and never allow the soil to dry out, especially for those in containers.
SALT BURN:

**Indication:**
Uniform brown leaf tips, sometimes with white specks. Most common in containerized plants or those planted in areas with high salt content in the water.

**Cause:**
Excessive salt in the soil, usually the residual from watering.

**Treatment:**
Leach the soil monthly by filling your pots with water and continue to add water while it runs out the drainage holes. Do this several times then allow the water to completely drain out. For in-ground plantings occasional heavy irrigation around the root zone will help move salts.
FALL LEAF DROP:

Indication:
Leaves curling and drying up while other leaves changing colors.

Cause:
Normal Fall season foliage drop. Occurs in Fall as temperatures begin to drop.

Treatment:
This is normal. Continue normal care during this period. Once leaves have completely dried up you can physically remove those that do not fall on their own. Care should be taken when removing the leaves not to damage the buds that are on the branches where the leaves are attached.
APHIDS:

**Indication:**
Small brown or green bugs on new growth in spring, some with wings, some without. Older growth has a sticky sap-like residue on the leaves. Ants present on the leaves and stems.

**Cause:**
Aphids. Very common in spring when new growth is emerging. Aphids are sucking insects that feed on new growth and leave behind a sticky secretion. Ants are present to gather up the secretion and are also protecting the Aphids from natural predators while simultaneously moving them to help spread the population.

**Treatment:**
Moderate levels of aphids can be controlled with a sharp jet of water. Releasing ladybugs (a predator of aphids) will control populations. Heavy infestations will require a spraying of either a horticultural oil or a neem oil. Ants should be kept out of the plant by placing a tree wrap with Tanglefoot a few inches from the base of the trunk. This provides for a sticky barrier that ants cannot cross.
**CATEPILLARS:**

**Indication:**

Random holes in the middle of the leaves as well as the edges. White webbing (cocoon) where leaves touch or in curled leaves. Droppings resembling coffee grounds on the ground around the tree.

**Cause:**

Caterpillars eating the leaves.

**Treatment:**

Spray with Bacillus therengiensis (Bt) taking care to thoroughly cover both sides of the leaf surface. This non-chemical bacteria treatment will clog the digestive system of the feeding caterpillars, killing them in a few days.
POWDERY MILDEW:

Indication:
A white powder-like fungus appearing in patches on the leaf surface.

Cause:
Powdery mildew. It grows best at moderate temperatures and in shade, especially if air circulation is poor. It also occurs in humid, foggy areas as well as dry locations and spreads as wind blown spores. Water on the foliage will not spread the spores as they cannot survive in water.

Treatment:
Moderate levels of powdery mildews can be ignored. To prevent further infestations improve air circulation by thinning out branches and increasing sunlight, if possible. Spraying with Neem or Jojoba oil will kill the spores and prevent the mildew from spreading.
SOOTY MOLD:

Indication:
Black sooty substance covering the upper sides of the leaves in late spring, early summer.

Cause:
Black sooty mold. Mold develops on the sticky residue left behind by aphids.

Treatment:
For heavily infected leaves wipe off leaves with a damp cloth. A spraying of water mixed lightly with a spreader-sticker may sometimes help clean the leaves. Control aphids in the spring.
DIFFERENT STYLE LEAVES APPEARING:

Indication:

Shoots of pure green, usually larger, leaves appearing together on branches or at base of plant. Most common on variegated varieties.

Cause:

Plant reversion. The original parent plant has begun growing from an errant cell. Can sometimes be caused by excess fertilization.

Treatment:

Tear, do not cut, these branches off at the source. Cutting will cause regrowth while tearing will remove the cell(s) in question. Catch these early as they could overtake the entire tree. Avoid excess fertilization.
DISCOLORED LEAVES:

**Indication:**
Leaf color not as expected. Mottled coloration. Most prevalent in red-leaved varieties.

**Cause:**
Lack of sufficient sunlight. Sometimes from excess fertilization.

**Treatment:**
Provide more sunlight (gradually) to your plants. For variegated varieties avoid heavy fertilization to maximize variegation.