WASHINGTON STATE UNIVERSITY
BENTON COUNTY EXTENSION

# PLANT PROBLEMS: ENVIRONMENTAL

Symptom Patterns and Physiological Causes (Non-Insect and Non-Disease)

[Adapted by Marianne C. Ophardt for Central Washington From: Woody Ornamentals, Chemiawn Corp.; 1980 Provided by J. Robert Nuss, Prof. Of Ornamental Horticulture, Horticultural Department, Pennsylvania State University, February 1987]

★ = Good bets, very likely for our area
√ = A good possibility for our area
χ = Unlikely for our area

## A. Leaf edges or tips brown on young plants - recently transplanted to five years old:

1. ★ Improper planting techniques and/or not watered properly - water isn't reaching root ball, air pockets, plant roots are "pot bound."
2. √ Planted and watered too much - roots drown, no air.
3. √ Planted too deep - roots suffocate.
4. χ Planted in clay soil - poor internal soil drainage, roots drown/suffocate.
5. Planted in compacted soil - roots fail to expand and grow into the soil at the site.
6. √ Plastic twine or wire girdling stem or trunk.
7. χ Planted near drain spout - excess water in root zone.
8. Excess fertilizer near plant roots - roots killed or dried out.
9. Grade change near existing roots - soil removed or filled around plant damaging roots.
10. ★ Insufficient roots in root ball - size of root system on plant too small to take up sufficient water for plant.
11. ★ Solid plastic sheeting or other container material covering root ball - restrict growth and interfere with water movement to the roots.
12. Toxic chemicals used near plant and absorbed by roots - (herbicide, salt, etc.)
13. ★ Winter injury to trunk or branches.
14. ★ Gas leak in vicinity - roots damaged (toxic or drying action to soil)
15. Winter use of salt and de-icing chemicals damage roots and/or foliage.
16. Winter injury from fluctuating temperatures.
17. ★ High winds at elevated temperatures on new succulent spring growth.
18. Vandalism (physical damage, chemical damage)
19. ★Late spring frost - brown new growth.
20. Air pollution.

## B. Leaf edges or tips are brown on established plants - over five years in site.

1. √ Girdling roots.
2. ★ Inadequate irrigation.
3. ★ Improper - frequent shallow watering.
4. √ Existing root system paved over - damaging roots - heat, low oxygen, drying.
5. ★ Heat reflection from walls or paved surfaces - resulting in excessive water loss.
6. Grade change over existing roots - soil fill or soil removal - damaging roots.
7. Construction work and root damage (physical injury, soil compaction).
8. ★ Late spring frost - brown new growth.
9. χ Gas leak - especially older established areas.
10. Unusual weather conditions affecting soil moisture levels.

11. ★ High winds at high temperatures on new tender spring growth.
12. χ Lowered water table due to the construction of buildings or home wells.
13. χ Lightning damage (stem or trunk damage often visible).
14. Improper use of toxic chemicals (pesticides)
15. De-icing salt injury.
16. Mechanical injury to trunk or roots.
17. ✓ Old age decline (possible site condition induced).
18. Air pollution.
19. Spray injury (pesticides).
20. χ Electrical injury (other than lightning).
21. ★ Winter injury. (From December 1990 double could snap).
22. ✓ Damage to stems and trunks.

### C. Leaf or leaf edges show chlorosis or yellow color.

1. ✓ Micro-nutrient deficiency - iron or manganese.
2. ✓ Winter injury to root and trunk tissues.
3. ★ Improper soil pH for the crop. (Many local soils are very high pH -above 8.0)
4. ★ Excessive irrigation - soil saturated for long periods.
5. ✓ Over fertilization or salt damage (root injury).
6. Poorly drained soil - root injury and limited uptake.
7. ✓ Damaged stem or trunk.
8. Poor soil preparation.
9. ★ Compacted soil.
10. Toxic chemicals (root injury and limited uptake)
11. Air pollution.
12. Genetic variation - possibly normal for any given cultivar.

### D. Poor leaf color and size, weak, reduced growth, gradual dieback of branches.

1. ✓ Poor soil preparation.
2. ★ Excessive irrigation - soil saturated for long periods.
3. Winter injury to root and trunk tissues.
4. Poor soil drainage.
5. ★ Poor planting practice - too deep, too shallow, limited water, over fertilization.
6. ★ Drought injury.
7. ✓ Damage to stem or trunk.
8. ✓ Girdling roots.
9. ✓ Soil compaction.
10. ✓ Restricted roots (not enough growing room)
11. Toxic gases.
12. Toxic chemicals.
13. Air pollution.

### E. Plants dying suddenly.

1. Over fertilization.
2. ✓ Girdling twine or wire around trunk.
3. Poor drainage.
4. ★ Severe drought damage.
5. Toxic gases.
6. Toxic chemicals.
7. ★ Excess soil water during high temperatures.

## F. Plant fails to flower or fruit.

1. ✓ Plant too young.
2. ✓ Frost or cold injury to flower buds.
3. ✓ Poor or improper pruning practices - removed flowering wood or buds.
4. ✓ Male plant - no fruit possible - supplies pollen only - female plant needed for fruit.
5. ✓ Excessive vegetative growth.

## G. Loss of fruit or berries before maturity.

1. ✓ Drought damage - stems or fruit dried out.
2. Bird damage.
3. ✓ Low temperature injury - improper fruit development.

## H. Excess flowering or fruiting.

1. ✓ Root damage.
2. ✓ Restricted stem.