



## Tree Production Methods: How Roots are Evaluated and Manipulated

1. Primary Production Methods and their Variations on How Roots are affected and their influence on root development.
  - a. Bare Root
  - b. Balled & Burlapped
  - c. Container, including grow-bag
  
2. Root Realities: Why all roots are not the same.
  - a. What you want in ideal root growth for all production methods.
    1. Balanced root spread starting at the root crown.
    2. Dense root growth of large, medium, small and fine fibrous roots.
    3. Living white or light colored outside with white color inside.
    4. Lateral then vertical roots.
  
  - b. What problems to look for.
    1. Signs of early constriction, twisting and turning.
    2. Outer circling or bunched up roots.
    3. Black and purple roots that are usually dead.
    4. Unbalanced or lacking all roots on one side or very few roots.
  
3. What to do with what you get.
  1. Evaluate what you have.
  2. Usually very difficult to make the call to reject.
  3. Do the roots look healthy fresh and vigorous? Can you salvage the root system by pulling and bending roots out, cutting out constrictions and cutting off dead tips with enough to develop a good root system? Does the species transplant well?
  4. You must decide what to accept/what to reject. Make an educated decision.
  
4. Take Home Lessons
  - a. There is a wide variation in root systems.
  - b. You need to look at and get familiar with the diversity of root systems.
  - c. Most root systems will need some sort of manipulation, disturbance, pruning, cutting and spreading out to stimulate new root growth away from the ball.

**Jim Barborinas**, Urban Forestry Services, Inc. & Urban Forest Nursery, Inc. President,  
ASCA Registered Consulting Arborist #356, ISA Certified Arborist #PN-135, ISA Tree Risk Assessor Qualified  
**Christina Pfeiffer**, Urban Forestry Services, Inc., Associate Consulting Arborist  
ISA Certified Arborist #PN-124, ISA Tree Risk Assessment Qualified

15119 McLean Road  
Mount Vernon, WA 98273

Office (360) 428-5810  
Fax (360) 428-1822  
Cell (360) 770-9921