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New tree selection specifications

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Determining which tree to plant has many variables, including species / variety, species attributes, site quality, ecologically viable soil volume, site occupancy / density, planting stock provider, and hardscape limitations. For low maintenance and sustainable shade, street and park tree plantings, selecting a great tree which is site compatible, biologically healthy and structurally strong are key. In addition, past tree health care activities can positively or negatively influence tree performance.

To get the best tree for your site and purpose, a list of idealized specifications should be developed. Below are listed a number of sample specifications which should be considered. These specifications are not about perfect or absolute characteristics, but suggest relative tree attributes which could lead to good tree performance. These ideal specifications can be used to select and tag young trees for shade, street and park tree plantings. Because no single tree is perfect, not all these specifications can be attained. Deciding which specifications to use, and which are most critical to your site objectives, will require careful consideration. Final tree selection will require specification trade-offs and compromises to meet management objectives.

As more specifications are met by an individual tree, understand more cost was incurred to reach this level of tree quality, and expect to pay more to purchase this tree. In new trees, you do get what you pay for! For selecting and planting new trees, strive for the best quality you can afford.

Excellent landscape performance is dependent upon three components: excellent tree, excellent site, and excellent after-planting care. Failing in any one of these three components generates poor results, and lowers values and benefits. A cost-effective tree planting program must look beyond initial tree cost to health care costs and tree benefits over time. Tree health care after selection and planting, if poorly provided, leads to tree neglect and abuse (i.e. trees and their sites become stress ridden, wounded, structurally unsound, and pest susceptible.). Purchasing a poor quality tree requires additional spending and management efforts to attain required performance, if a tree even survives. Select a set of individual specifications which could help meet your management objectives.

The objective of listing a number of basic specifications here is to improve the quality of life for both new trees and the people around them, over a long period of time. These specifications are intended to minimize both long-term tree / site liability and management costs, as well as maximizing tree values and benefits. Good quality control on trees being produced and purchased are the foundation of a cost-effective and sustainable community forest management program.

Idealized New Tree Specifications

(select a set of individual specifications which meet your landscape objectives)

Species –

- 1) Tree should be certified in writing as to scientific, variety, and/or cultivar name.
- 2) Tree should be certified as to specific seed source location (if wild is identified, then within 50 miles N/S & 100 miles E/W).
- 3) Tree species, variety, type, or cultivar source from within the same hardiness, heat, and planting zone as the site.

Tree Form –

- 4) Tree should be fully open-grown with strong stem (and branch) taper for wind-firmness.
- 5) Tree should **not** appear “leggy” or excessively slender, and it should stand on its own and resist wind deflection.
- 6) Tree should **not** have been staked in the nursery.
- 7) Tree should be entirely free from stress / pest signs and symptoms.
- 8) Tree should have a single dominant leader with **no** side branches taller than the main leader.
- 9) Tree should **not** have a flat, multi-branch crown top.
- 10) Tree should **not** show wounds of tipping, topping, rounding-over, or trimming (internodal cuts).
- 11) Trees should **not** have all branches growing from a single area on the stem (clustered or crowned).
- 12) Trees with branches normally growing in whorls should have only 3-4 branches per whorl.
- 13) Tree should have branches distributed along stem in an alternating pattern and **not** occur horizontally opposite each other across stem.
- 14) Tree should **not** be leaning or have significant sweep, crook, or bend.

Crown –

- 15) Tree should have a proper crown shape for species or cultivar, and healthy color (if evergreen).
- 16) Tree should have approximately two-thirds of total height in living branches.
- 17) Tree should **not** have foliage touching the soil surface when wet.
- 18) Tree should show vigorous and substantial growth for at least the last two growing seasons.
- 19) Tree should **not** have stem base sprouts, first-year stem sprouts, sprouts around wound areas, or sprouts around branch bases.
- 20) Tree should **not** have been crown thinned concentrating foliage near ends of stem top or branches.
- 21) Tree should have **no** wounds visible around outside of the crown.
- 22) Tree crown should have **no** dead, damaged, or broken leaders, branches, or twigs.

Pruning –

- 23) Tree should have been properly pruned, with pruning cuts made to conserve the stem flange.
- 24) Tree should **never** have been flush cut, stubbed back, flat-topped, trimmed, rounded-over, hedged, tipped, or topped (i.e. no internode cuts).
- 25) Tree should have long lower branches abridged (reduced), **not** removed, to focus growth upward.
- 26) Tree should have **no** rapidly growing lateral branches or upright branches.
- 27) Tree should have **no** visible stub or tip cutting wounds.
- 28) Tree should **not** have any visible branch stubs or internodal cuts present.
- 29) Tree should have **no** periderm (bark) damage, especially on stem base or main root base.
- 30) Tree should **not** have vertical crack (longitudinal faults) closures over old wounds. Proper pruning wound closures should be circular.
- 31) Tree should have **no** periderm (bark) within branch-stem unions (i.e. no included periderm).
- 32) Tree should **not** have been over pruned, over thinned, or branches lion-tailed.
- 33) Tree should **not** have been treated at any time with wound paint.

Training --

- 34) Tree should have **no** forks, even on opposite branching species.
- 35) Tree should have **no** narrow stem branch junctures (confluences) with ripples and included bark.
- 36) Tree should have **no** side branches taller than the main leader.
- 37) Tree should have **no** branch more than one-third diameter of main leader where it is attached.
- 38) Tree should **not** have branches which cross-over each other or rub against each other.
- 39) Tree should **not** have branches growing upward inside the crown.

Roots –

- 40) Tree should have a root ball size that minimally meets nursery standards. Strive for a root ball at 150% of standard root ball size.
- 41) Tree root ball depth should be less than 0.75 times (0.75X) root ball diameter.
- 42) Tree should have been root pruned one or more times. The last root pruning should have occurred at least one full growing season before installation.
- 43) Tree should **not** have large roots cut close to the root crown / stem base.
- 44) Tree root ball should have **no** circling or girdling roots.
- 45) Tree base should show (above soil) the top 1/3 of three or more large structural roots.
- 46) Tree should **not** have heavily matteed or concentrated roots around the outside of container.

Packaging –

- 47) Tree should be unwrapped to examine. Stems should be wrapped for shipment and installation. Remove wrap promptly.
- 48) Tree should **not** have had antitranspirants used on foliage.
- 49) Tree should have a treatment history provided of specific fertilizer and pesticide applications.

- 50) All holding and shipping materials should be easily removable without damaging tree.
- 51) All loading / placement should be focused on lifting by the roots while stabilizing the stem.
- 52) Tree should be planted correctly just above grade with no visible damage or wounds.
- 53) Tree should **not** have any pests or pest damage of any kind.

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