



Watering and Mulching

Tree Keeper Training

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Properly planted and Placed trees = long-term benefits



- Trees perform significantly better with more rooting space
- **Trees planted correctly are healthier and produce larger canopies**
- Want more bang for you tree buck? Plant large-maturing trees
 - Provide more stormwater benefits
 - Provide higher levels of carbon sequestration
 - Can help mitigate urban temperatures better

Longevity



- ▶ Even after 5-10 years trees can still die from improper planting
 - ▶ Consider this when diagnosing tree problems
- ▶ Larger tree at planting-longer to establish and longer to tolerate potentially challenging conditions
 - ▶ Trees may be dying from the moment installed

Planting Stock



- Bare root
- **Container-grown**
- B&B



Ball & Burlap and Container-grown Stock



- Machine or hand dug
- 80-85% of roots lost
- Typically in basket
- Transportation issues
- Common for large material

- Maintain 100% of roots
- Often root bound; girdling roots
- Transportation easy
- Easy planting-quick to dry out





Water

- ▶ Lack of proper irrigation post-installation leads to:
 - ▶ Poor root establishment
 - ▶ Gradual decline of health
 - ▶ Nutrient deficiencies
 - ▶ Root rot issues
 - ▶ Weak or stunted growth

Amazing what a little water can do...



Plant Establishment- How long?

- For a 2" caliper tree :
- 6 months in zones 9-11
- 1 year in zones 7-8
- 2 years in zone 2-6

What does established mean?

Most roots have grown a distance equal to 3X the distance from the trunk to branch tips



Factors that limit growth

1. Compacted soil
2. Little or no irrigation
3. Grass or weeds growing too close to trunk
4. Planting too deep or too high
5. EXCESSIVE Pruning at planting- pruning to correct form is good!



Not mulch!!!

Procedures that encourage establishment



1. Loose soil
2. Proper irrigation
Management!
3. Mulch ring of about 8'
around planting hole
4. Root flare slightly above
grade
5. Leaving top mostly unpruned

Information on tree establishment
from Ed Gilman, U of Florida

Factors that have little or no impact



1. Peat/organic matter added to backfill (single hole)
2. Root stimulant products
3. Fertilizer at planting
4. Adding mycorrhizae spores
5. Water absorbing gels

Watering Recommendations

Size of tree	Watering amount*	Watering duration	Watering frequency
<2" caliper (15 gallon container-grown tree)	5 – 10 gallons	2 – 5 minutes	2X per week during 1 st growing season, then once a week as needed
2 – 4" caliper (15 – 25 gallon container grown tree)	10 – 25 gallons	5 – 10 minutes	2X per week during 1 st and 2 nd growing seasons, then once a week as needed
>4" caliper (>25 gallon container grown tree, or tree that has been in the landscape more than one year)	25 – 60 gallons	10+ minutes	2X per week during 1 st – 3 rd growing seasons, then once a week as needed

How to apply water?





The “Mis-mulching of America”

- Finish off with proper mulching
 - No more than _____ hardwood on woody beds
 - No more than _____ pine straw on beds
 - No more than _____ in herbaceous/flower beds
 - Use good products



- Conserves soil moisture
 - Water lost ↓ by 21% in summer
- Reduces fluctuations of soil temperature
 - By 10° F in summer



Proper Mulching





- Proper mulching:
 - Reduces weed competition by 40-50%
 - Reduces compaction and erosion
 - Reduces heaving of small plants



The Bottom line...

- Species and soil texture dependent
- 2 to 3x diameter hole
- Plant trees in amended beds where possible
- DO NOT HEAVILY COMPACT FILL SOIL
- Stake where necessary and do it correctly
 - Lots more options available
- Plants are quite resilient!
- No one size fits all...





Resources



- Contact Barbara Fair, at bfair@ncsu.edu
- For free, downloadable PDFs and Specifications for Planting (**CADD compatible**) check out www.hort.ifas.ufl.edu/woody
- Thank you!