Tree Stewardship and Planting Tips

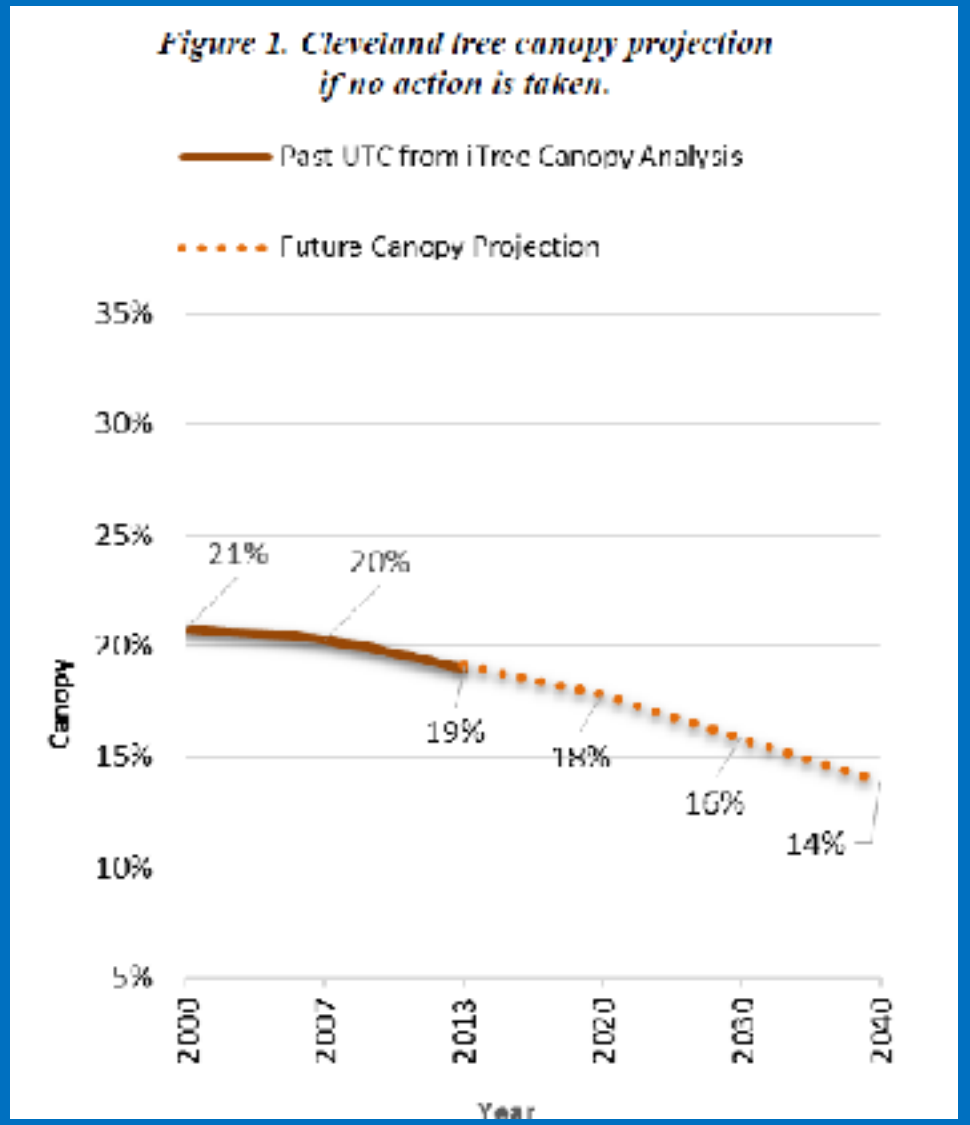
Case Western Green Bag Lunch, September 21, 2017

The Cleveland Tree Plan

Summary

Table 1. Cleveland's Urban Tree Canopy (UTC) Compared to Other Cities

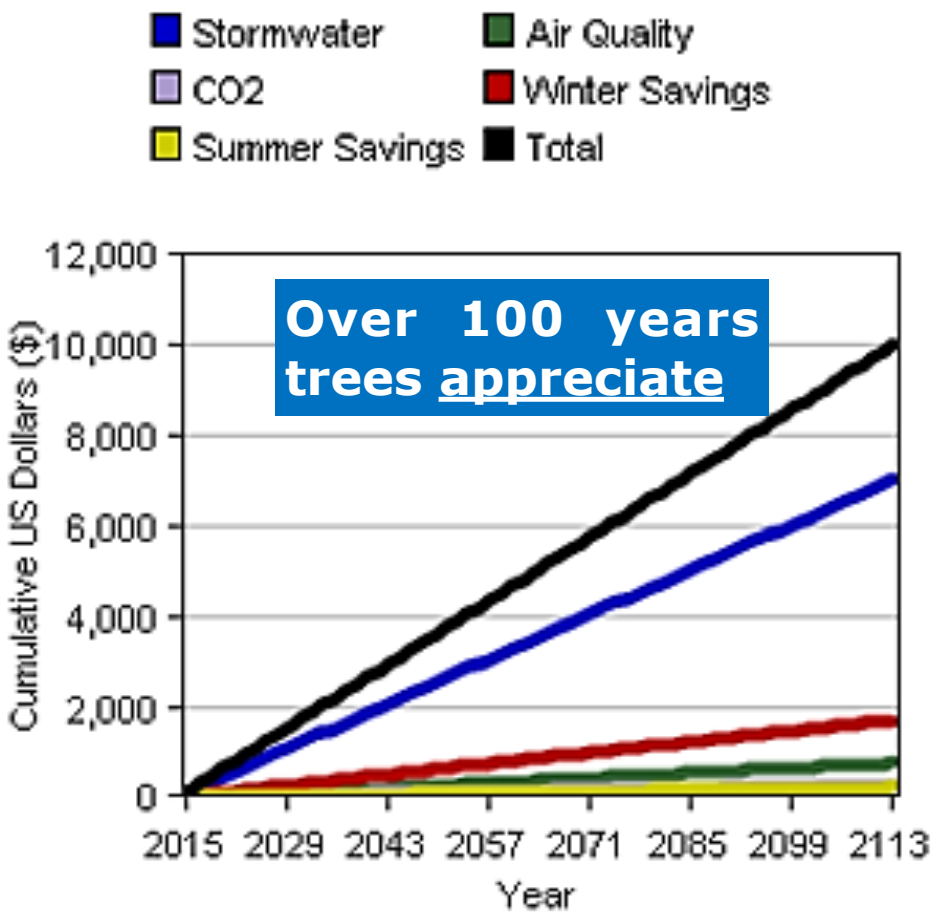
Location	UTC	Year	UTC Goal	Goal Target Date
Pittsburgh, PA	40%	2011	60%	20-year plan (2031)
Cincinnati, OH	38%	2011	Increase	Ongoing
Louisville, KY	37%	2013	40%	Ongoing
Washington, DC	35%	2009	40%	20-year plan (2029)
Boston, MA	29%	2006	40%	10-year plan (2016)
Lexington, KY	25%	2013	30%	ongoing
New York, NY	24%	2006	30%	2036
Cleveland, OH	***19%***	***2013***	-	-
Chicago, IL	17%	2007	25%	Ongoing
Indianapolis, IN	14%	2008	19%	10 year plan (2018)



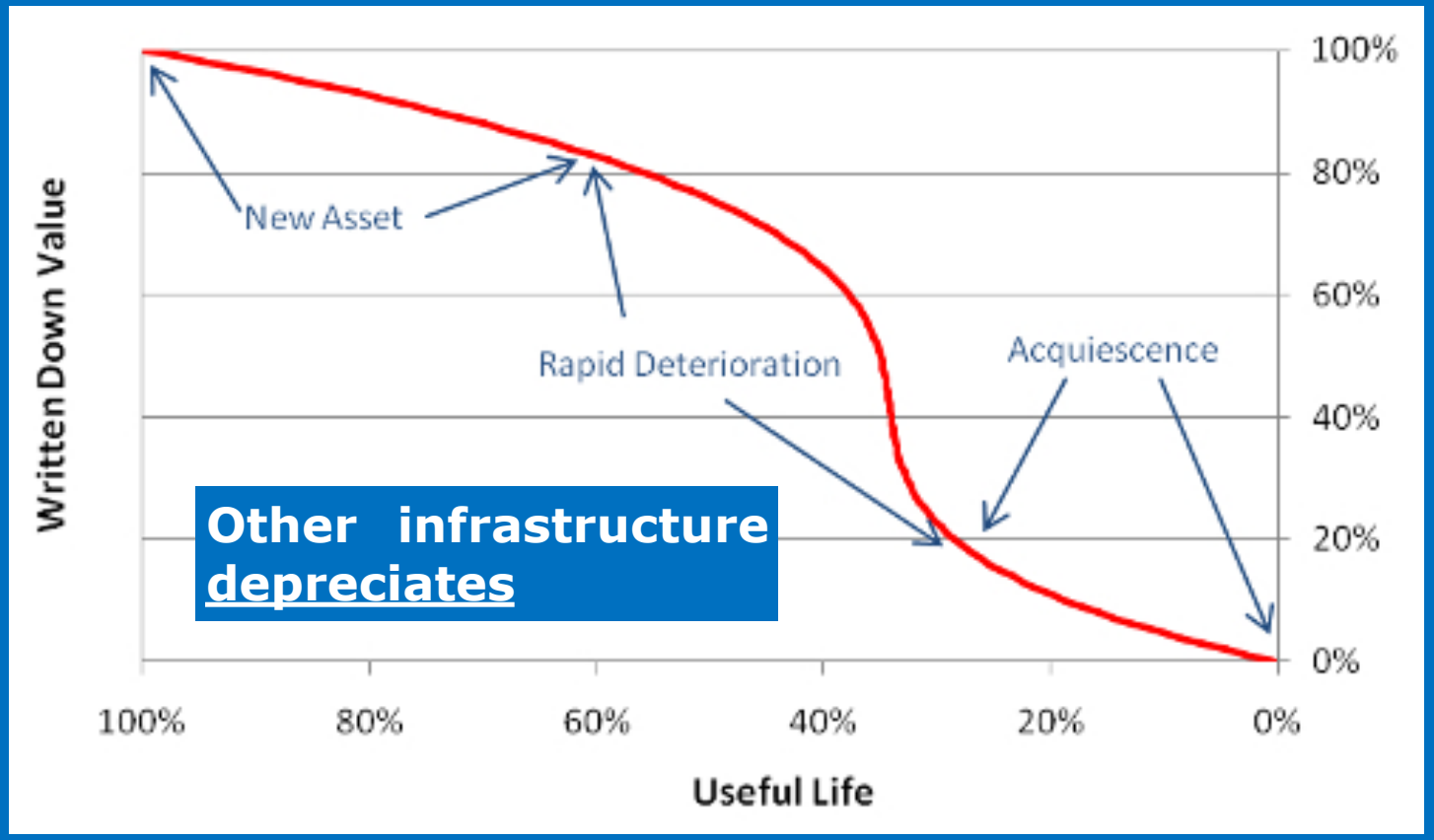
The Cleveland Tree Plan

Why Trees?

i-Tree



Breakdown of tree benefits



The Cleveland Tree Plan

Why Trees?

In Cleveland that means $28 million in annual benefits

- 1.8 billion gallons of rainwater every year (value: $11 million).
- Saves residents and business owners $3.5 million in energy costs each year.

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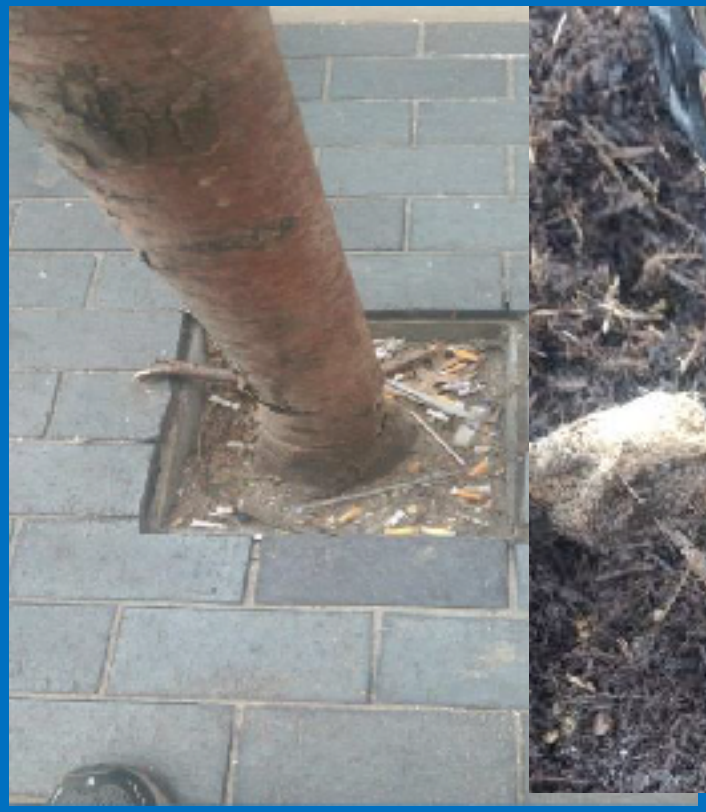
Table 3. Annual Tree Benefits

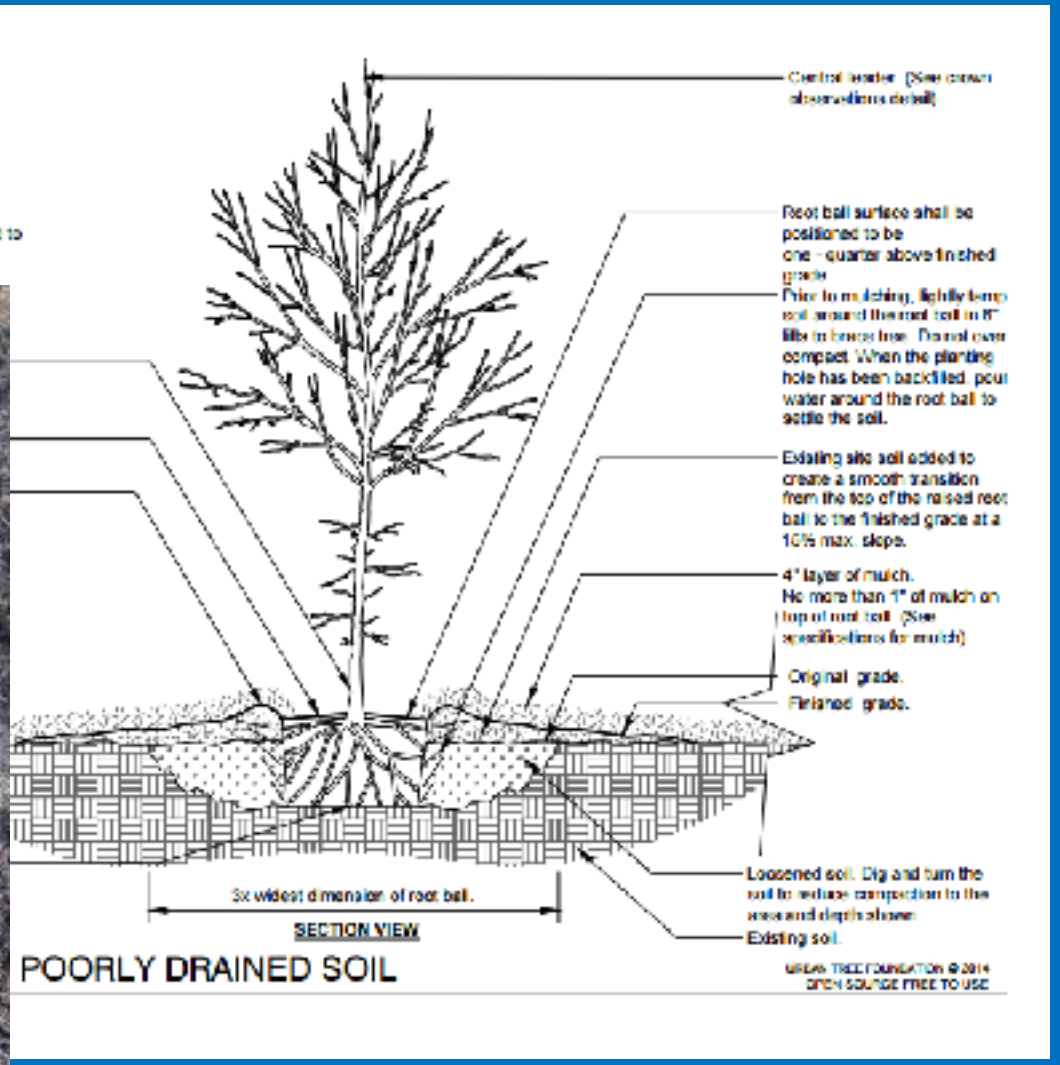
Benefit	Quantity	Unit	Value
STORMWATER: Reduction of Runoff	1,792,333,232	gals.	$10,753,999
ENERGY: Savings from Avoided Cooling	31,677,030	kWhs	$3,484,473
PROPERTY: Increases in Property Values	-	$	$4,469,333
HEALTH: Less Incidents of Adverse Health	1,204	incidents	$6,871,291
AIR: Carbon Monoxide (CO) Removed	12,740	lbs.	$8,471
AIR: Nitrogen Dioxide (NO_2) Removed	116,690	lbs.	$34,684
AIR: Ozone (O_3) Removed	193,610	lbs.	$1,217,940
AIR: Sulfur Dioxide (SO_2) Removed	54,640	lbs.	$7,616
AIR: Dust, Soot, Other Particles Removed (Particulate Matter, PM_{10})	150,900	lbs.	$471,292
Carbon Sequestered	41,683	tons	$807,130
	Total Annual Benefits		**$28,156,229**
Carbon Storage Over Canopy's Lifetime *(not an annual benefit)*	1,292,522	tons	$25,027,531
	Total Benefits Overall		**$53,183,760**

The Cleveland Tree Plan

The Way Forward: **Action Steps**

- Action #8: Institute policy changes supportive of urban forestry





The Cleveland Tree Plan

The Way Forward: **Action Steps**

- Action #9: Plant with a purpose: trees for neighborhood equity

The Cleveland Tree Plan

How Can You Make a Difference?

❖ Select Qualified Arborists

CERTIFIED ARBORIST ISA

BOARD CERTIFIED MASTER ARBORIST ISA

MEMBER INTERNATIONAL SOCIETY OF ARBORICULTURE ISA

asca | RCA Registered Consulting Arborist®

ACCREDITED TREE CARE INDUSTRY ASSOCIATION

Tree Steward Training

Western Reserve Land Conservancy
OUR LAND. OUR LEGACY.

HOLDEN FORESTS & GARDENS

Tree Steward Program

Curriculum focused on:

- Urban Forestry
- Tree Biology
- Tree Identification
- Tree Stress
- Root and Soil Management
- Planting, Pruning and Care
- Community Forestry

Tree Steward Program

Process (four parts)

- Classroom Parts I&II (curriculum)
- Outdoor Parts III&IV (planting/care

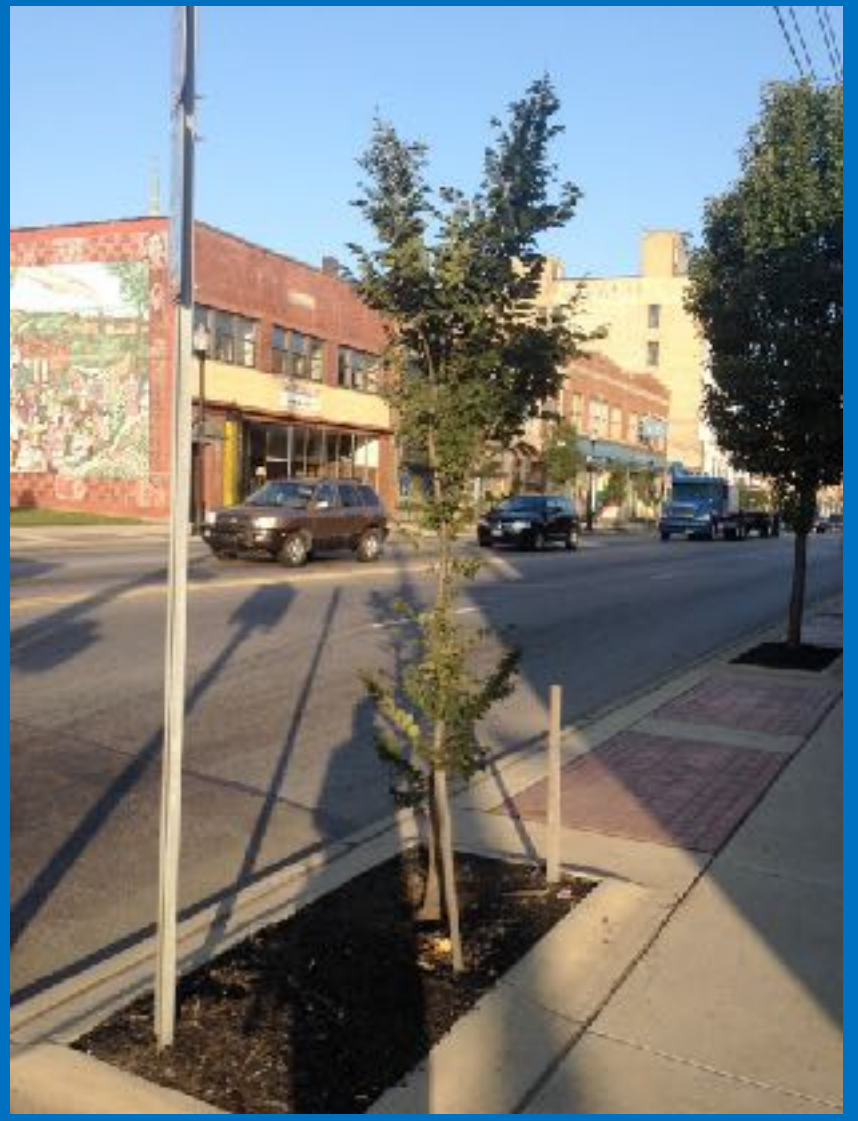
Tree Steward Program

Learning Objectives

1. Increased awareness of trees and the benefits they provided

2. Basic ability to plant and care for trees in the community

3. Willingness to organize and participate in community forestry events



Regional Initiatives and Partnerships

Cleveland Tree Plan

Cleveland Tree Coalition

Public/Private Grants and Partnerships

CLEVELAND TREE COALITION

Alliance For Community Trees®
An Arbor Day Foundation Program

AMERICAN FORESTS

Planting

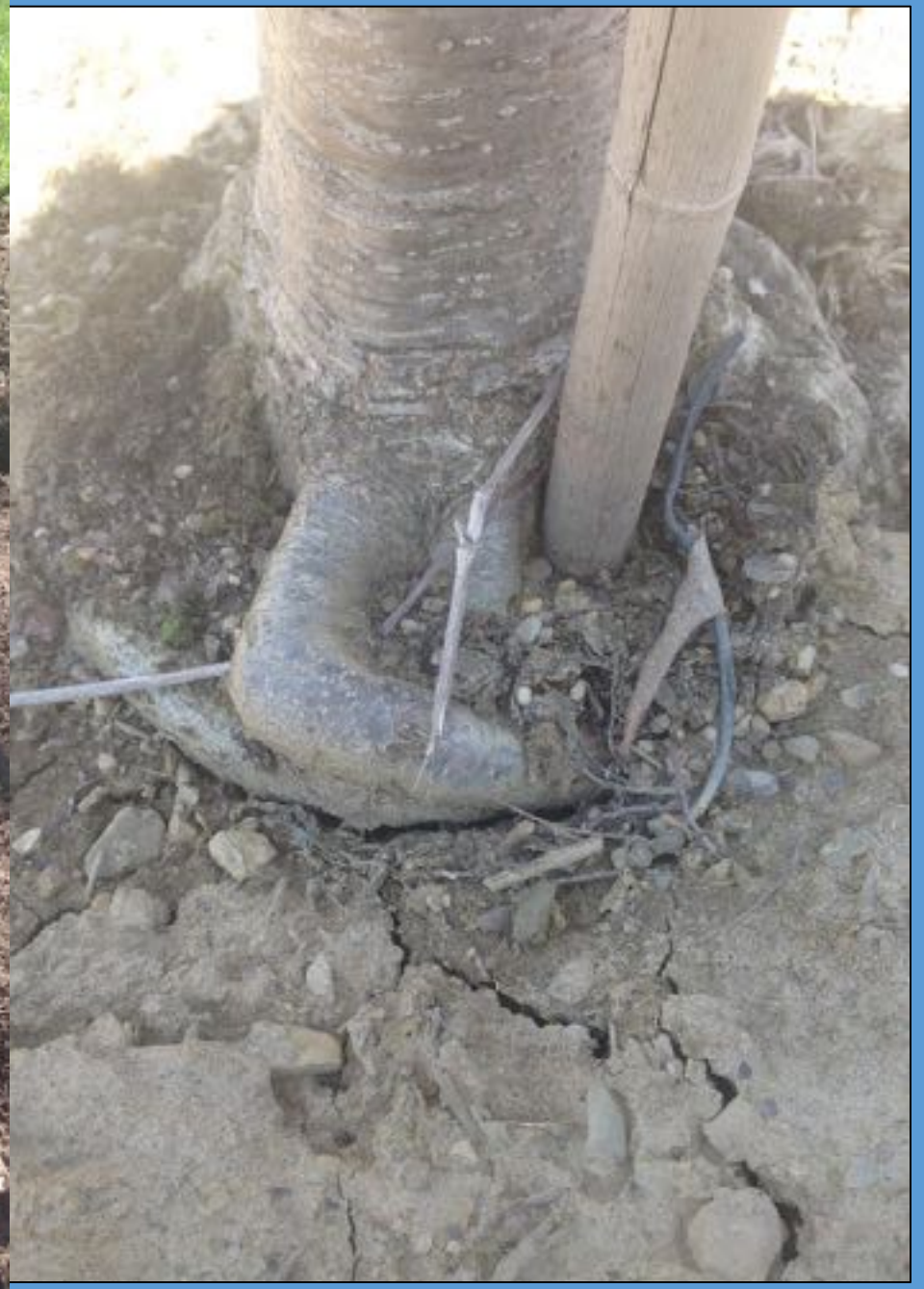
- Inspect your trees before planting!
- Tree planting is short
- Tree lives are long
- Do it right the first time – tag your trees!

Plant Selection

- Match the tree to the site
- Select healthy/quality trees
- Inspect the **root ball**

Plant Selection

- Inspect branches, trunk, and roots
- Look for circling roots
- These can lead to **girdling roots**

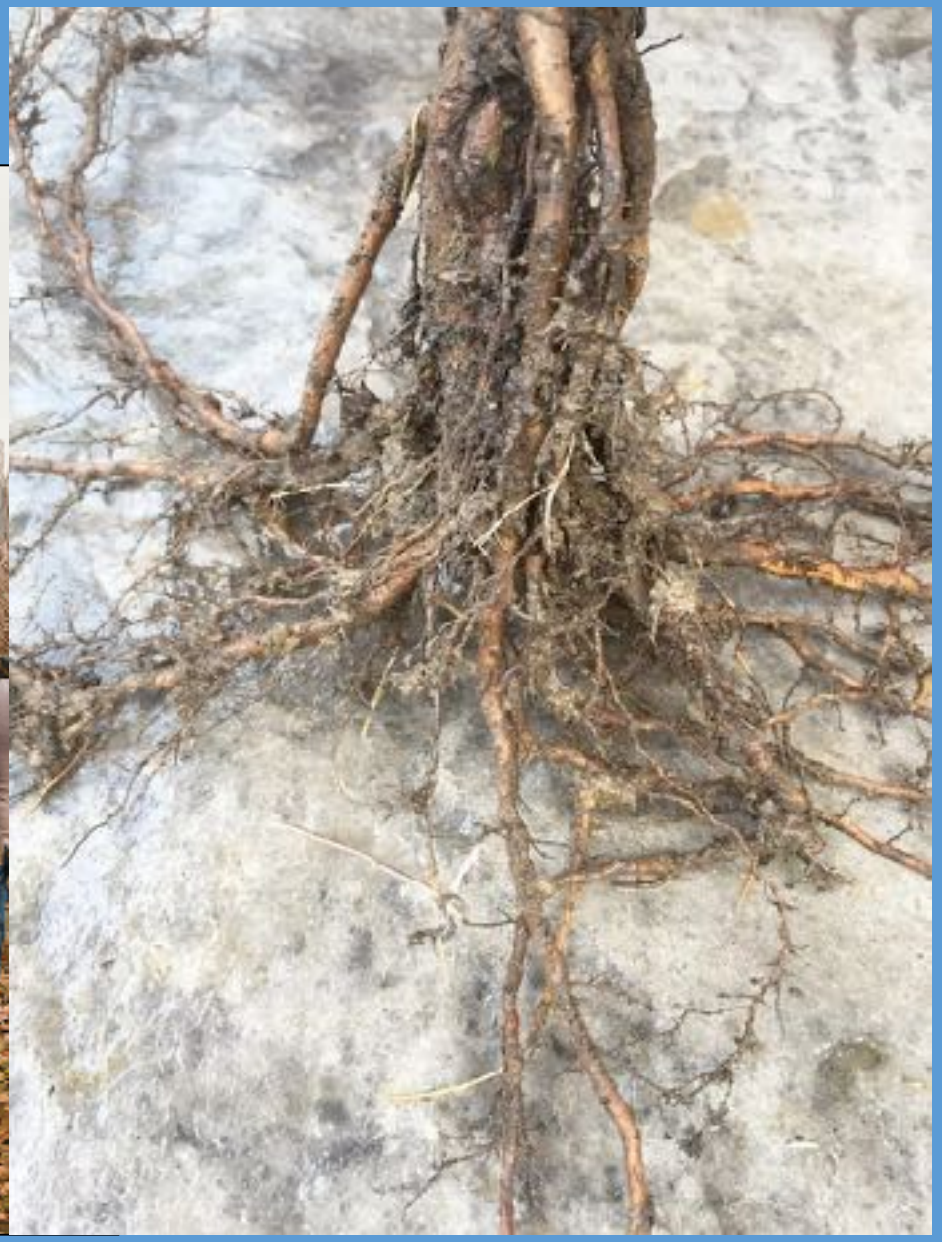


Plant Selection

- Inspect structure (central leader)
- Look for pests/diseases
- No injuries to trunk or root collar

Stock Type

- **Bare root**
- Pro: small/light/ see all roots
- Con: dry out easily/dormant planting season



Stock Type

- **Containerized/container grown**
- Pro: easy to move/ relatively light
- Con: **Substrate** grown/ circling or girdling roots

- C
- C
- S

Stock Type

- **Balled and Burlapped (B&B)**
- Pro: soil-based root ball
- Con: heavy/lose 90% of roots/deep roots/ hidden issues

Stock

- **Balled and B (B&B)**
- Pro: soil-base
- Con: heavy/l roots/deep r issues

Wire basket

Stoc

- **Balled and (B&B)**
- Pro: soil-ba
-
- Con: heavy roots/deep issues

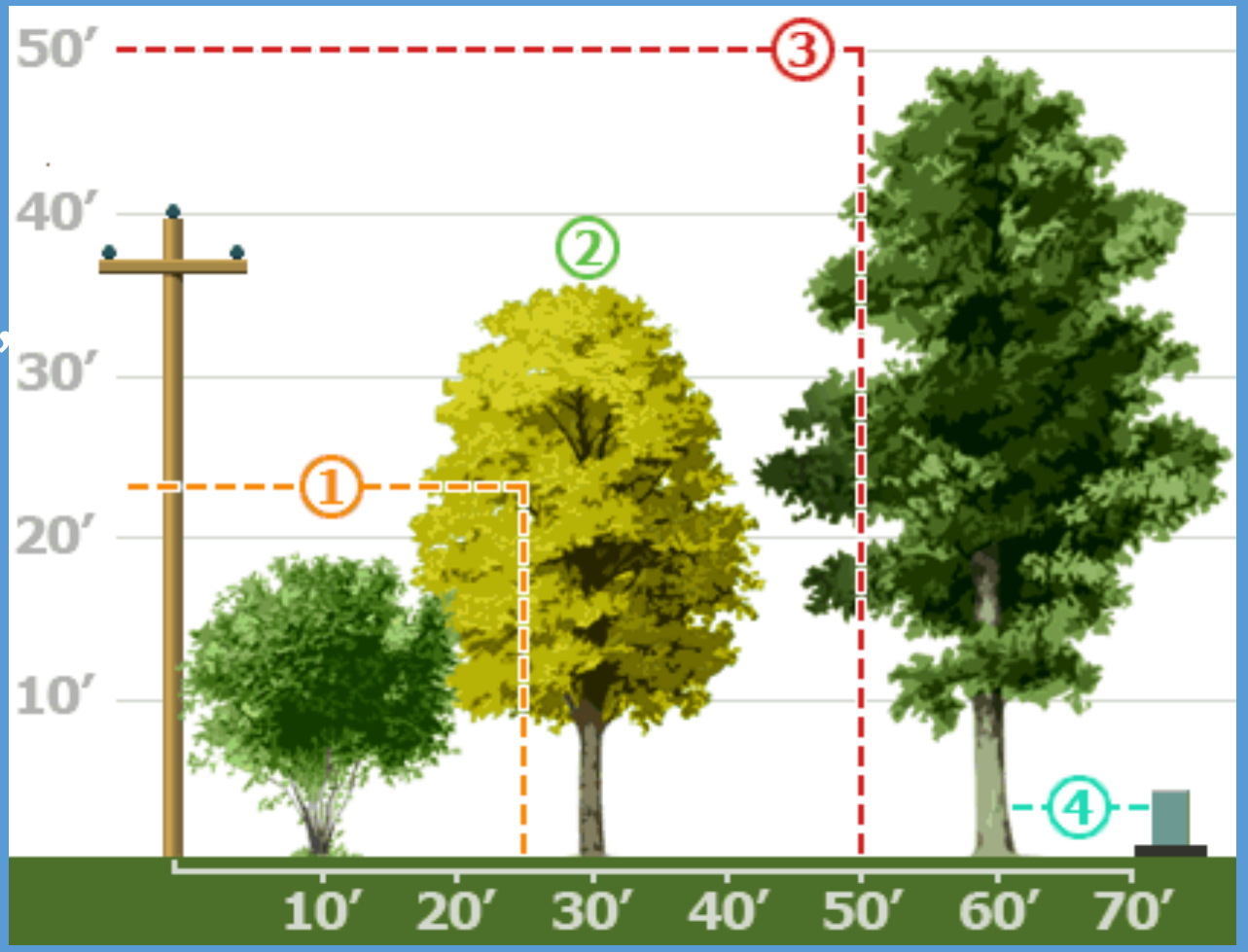
Deep roots

S

- **Ball**
  (B&
- Pro:
-
- Con
  root
  issu

Planting Techniques

- Locate utilities
- Above and below ground
- Practice ‘Right Tree Right Place’



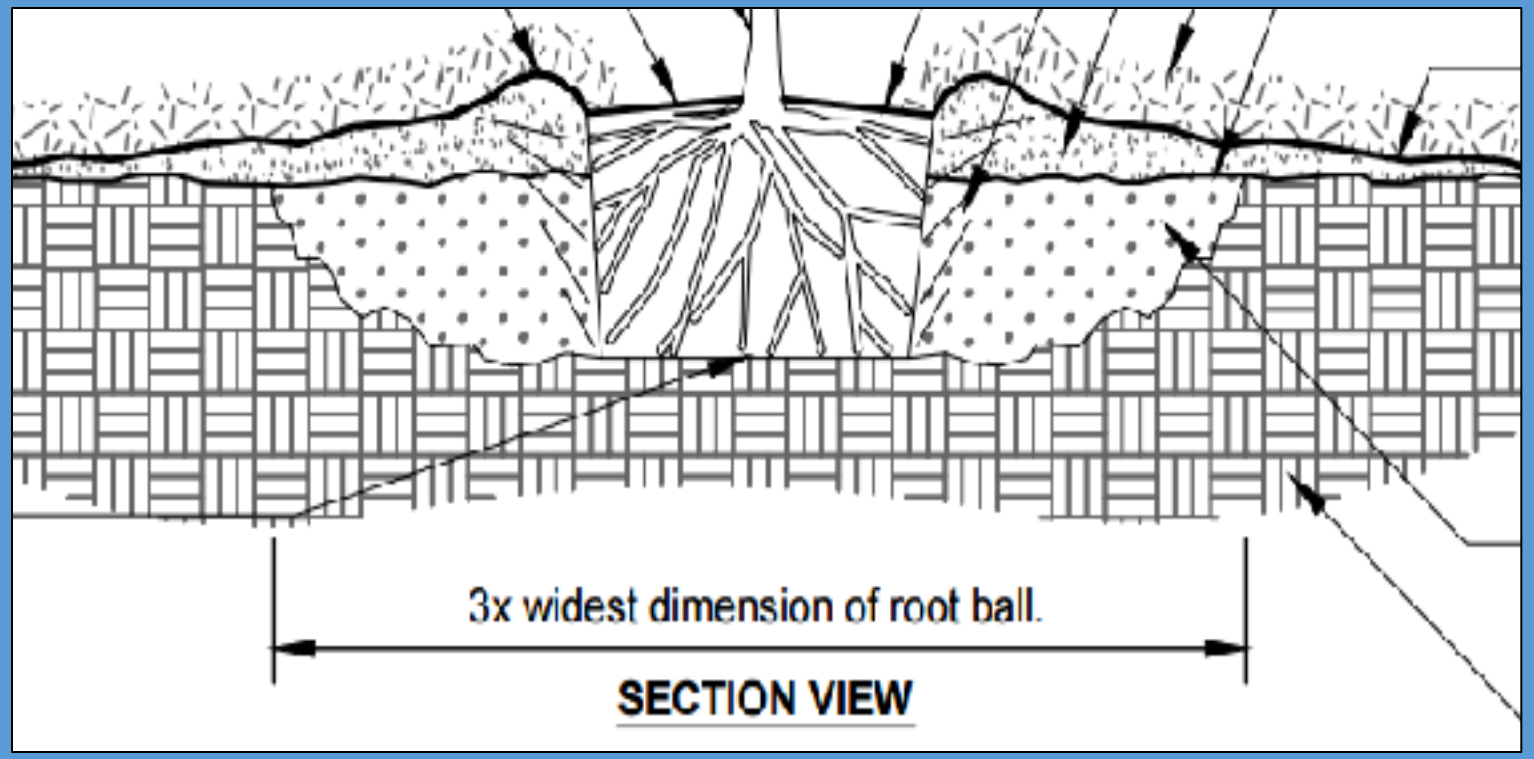
Ohio Utilities Protection Service

Call 811

before you dig

Planting Techniques

- Shallow/Wide planting hole



Planting Techniques

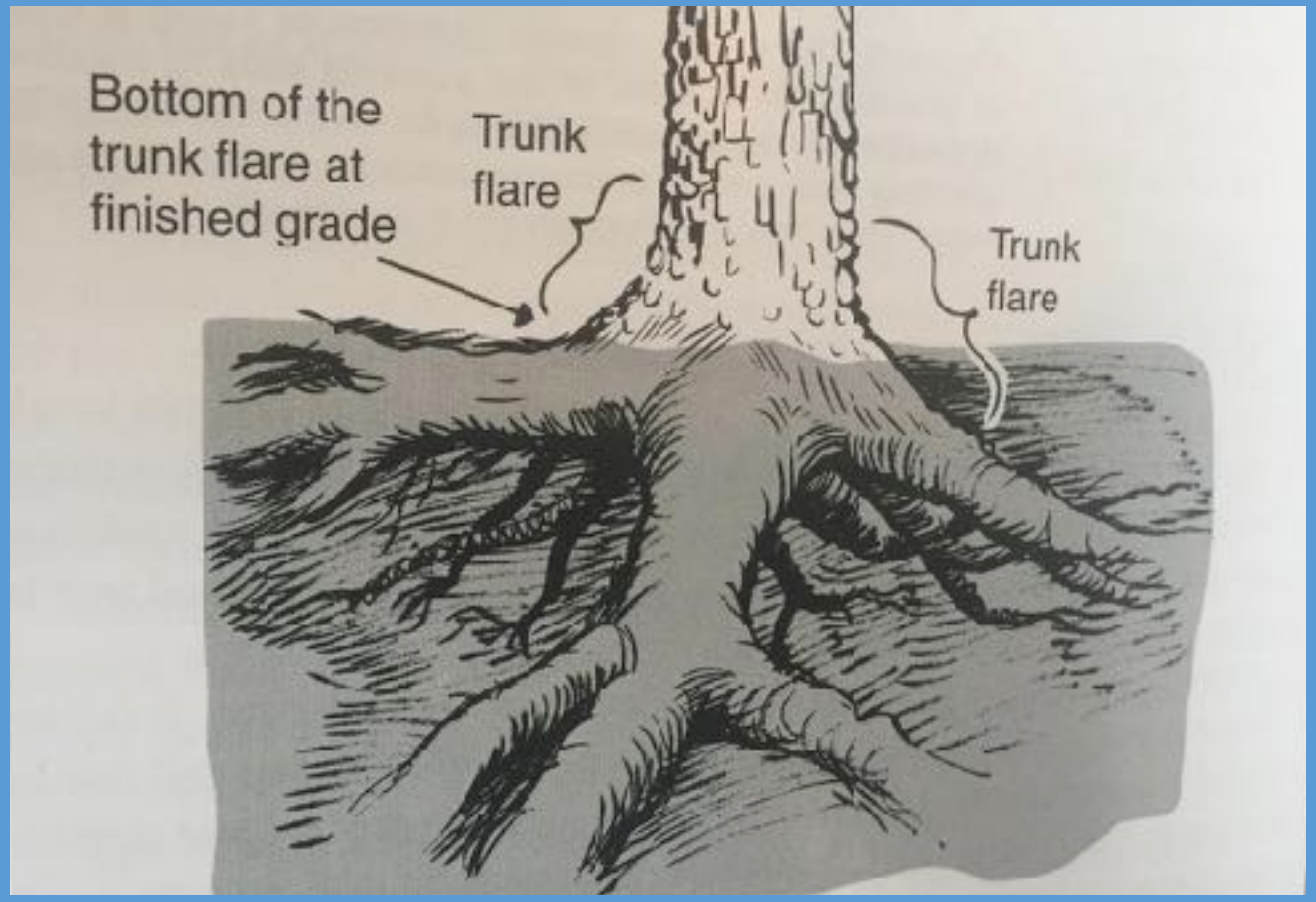
- Too deep!

Planting Techniques

- To

Planting Techniques

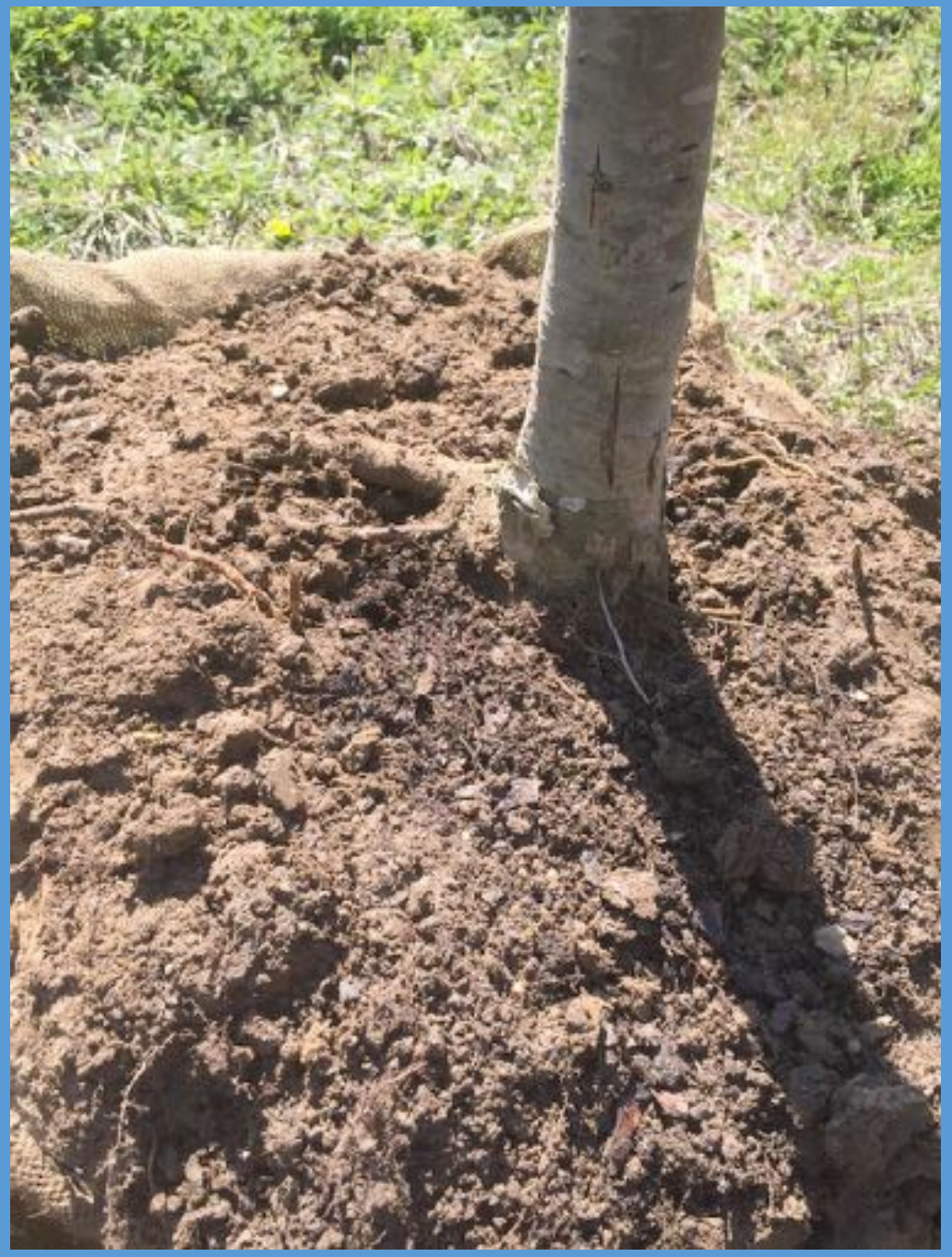
- Root flare near grade



Planting Techniques

Planting Techniques

- Do not over-dig!

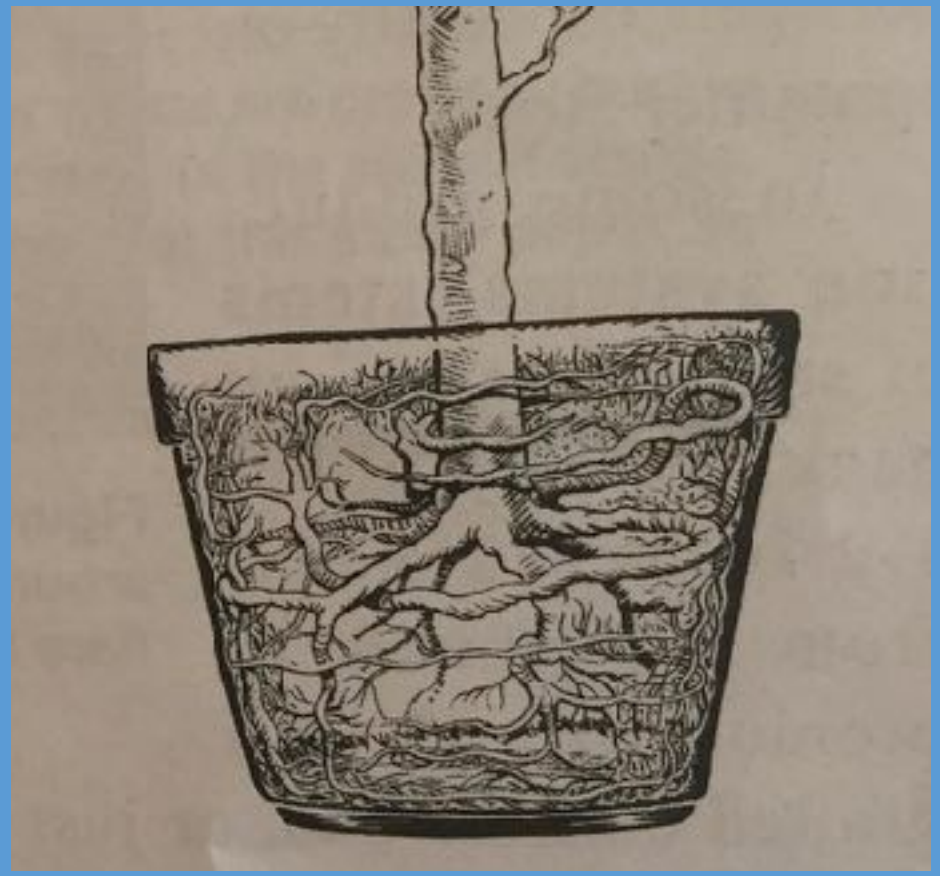


Planting Techniques

- Remove planting materials

Planting Techniques

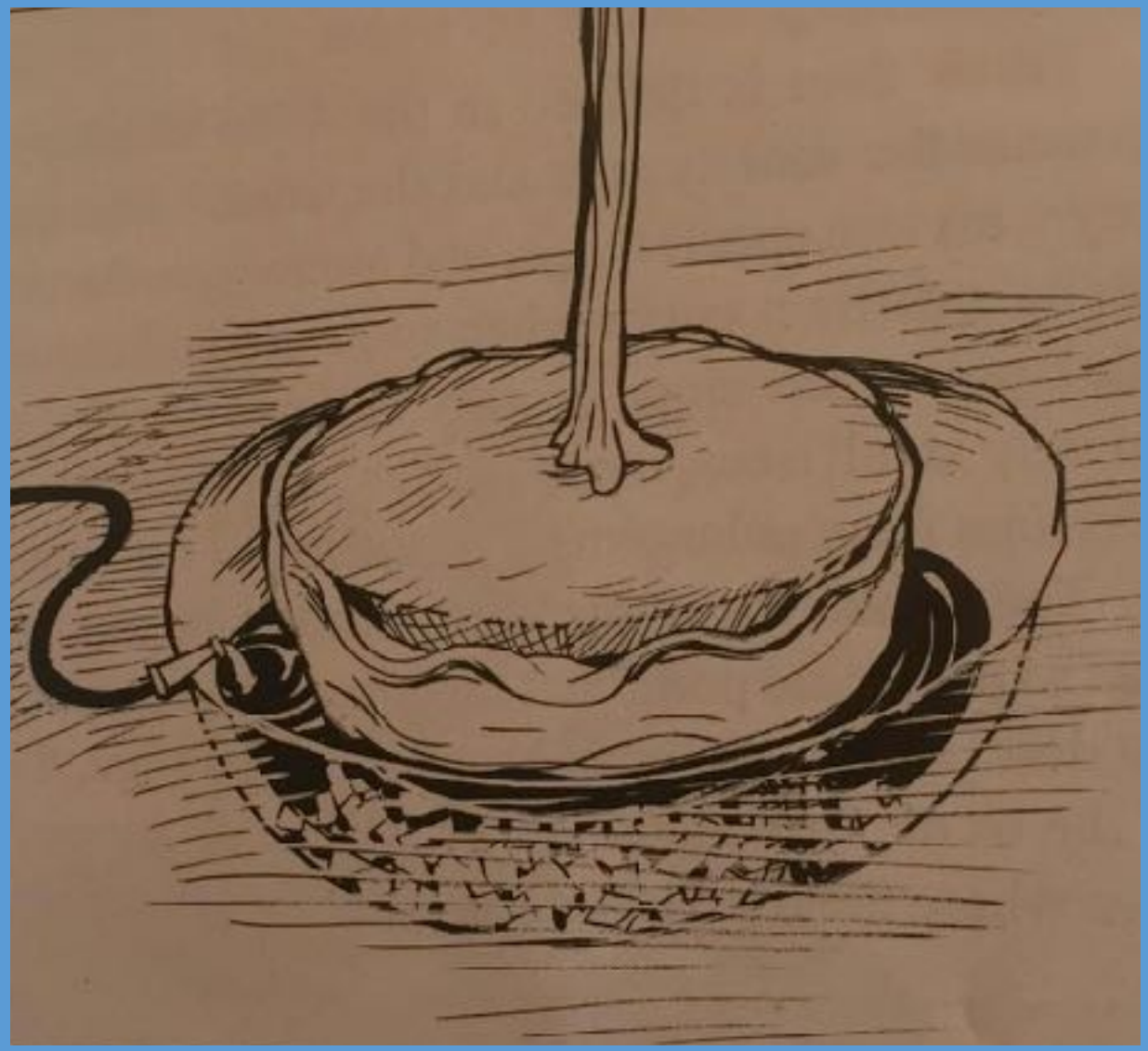
- Correct root defects



Planting Techniques

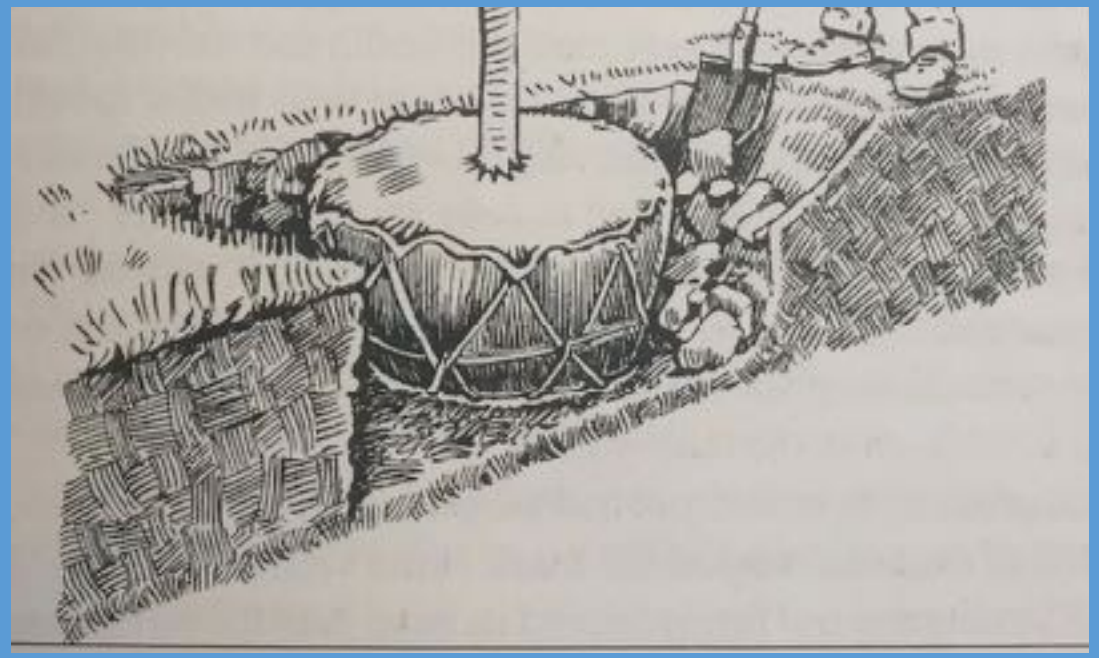
Planting Techniques

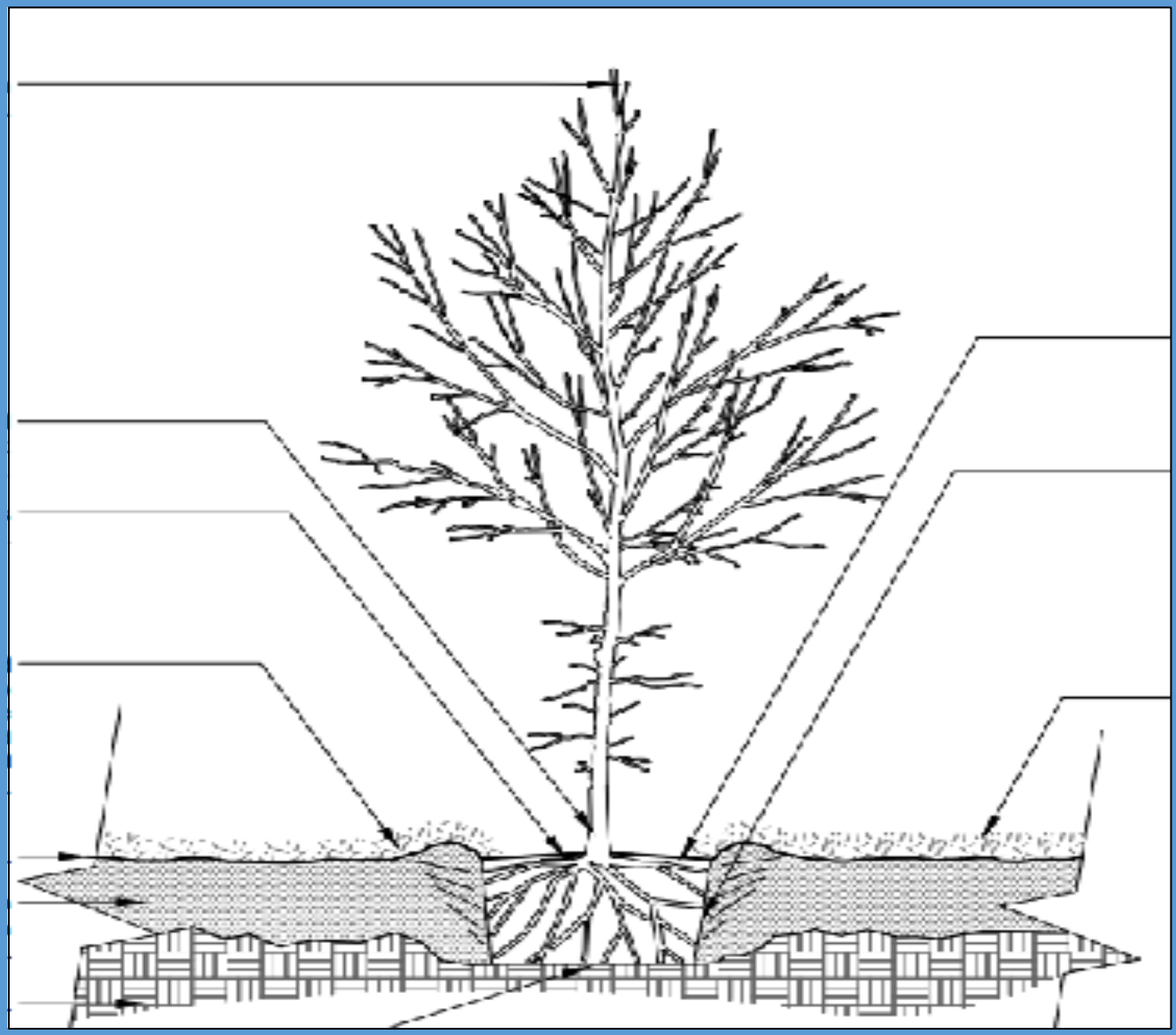
- Check drainage/no gravel (**perched water table**)



Planting Techniques

- Fill in with site soil
- 2-3x root ball

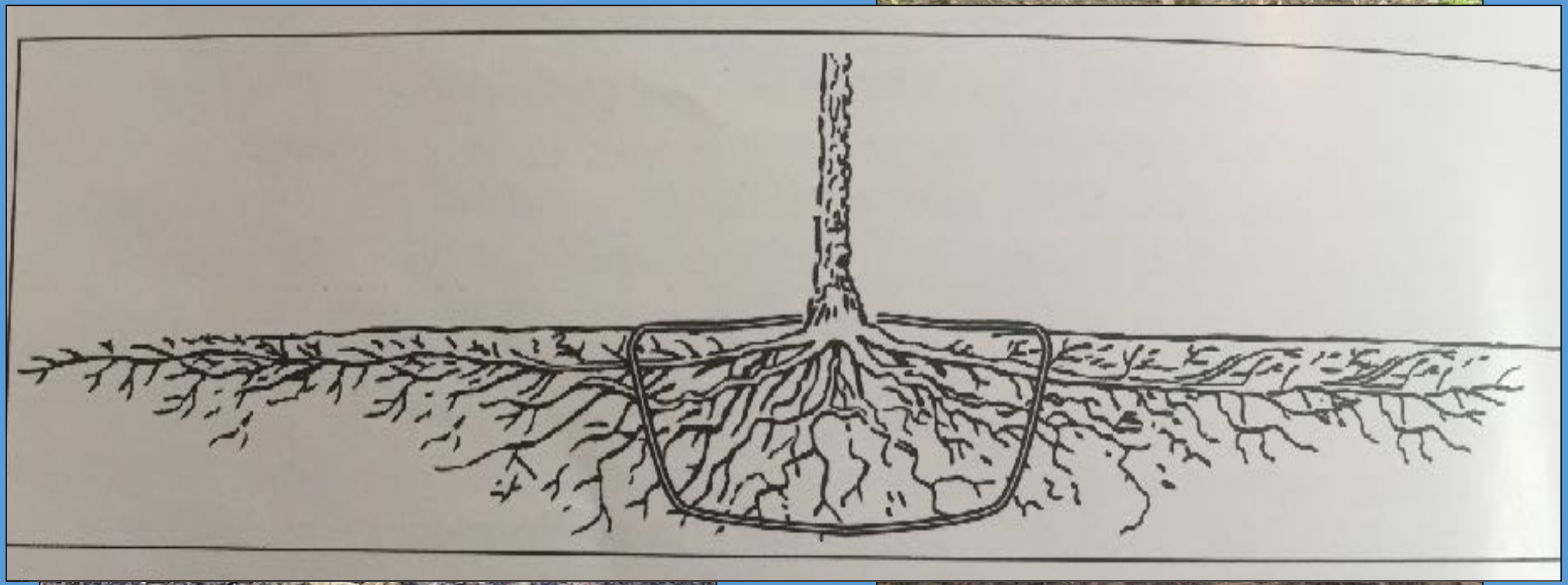




Planting Techniques

- Top-dress with compost/woodchips

Planting Techniques



Transplanting

- **Root pruning**
- Trees can be **hardened off** to help acclimation
- **Drum lace** large root balls

Photos courtesy GardenWeb and Tree PGH

Tra

- Roo
- Tre
off
- Dru
ball

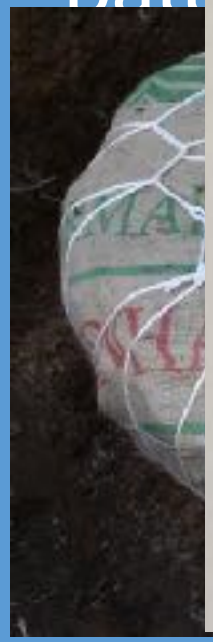


Table 2. Examples of recommended minimum root ball sizes for field-grown nursery trees. The European standard is based on trunk circumference (cm). The American standard (ANSI Z60.1) is based on trunk diameter. Some values have been rounded to merge the two standards into one table. Smaller root balls recommended in the European standard may be explained by frequent transplanting during nursery production and measurement higher on the trunk.

Maximum Trunk Size				Times Transplanted[3]	Minimum Root Ball Diameter			
Caliper[1]		Girth[1,2]			European Standard		American Standard[4]	
in	cm	in	cm		in	cm	in	cm
1.0	2.5	3.1	8		10	25	16	40
1.5	3.8	4.7	12	3	14	35	20	50
2.0	5.1	6.3	16	3	18	45	24	60
2.5	6.4	7.9	20	3	22	55	28	70
3.0	8.0	9.8	25	4	24	60	32	80
4.0	9.6	11.8	30	4	28	70	42	105
4.5	11.1	13.8	35	4	31	80	48	120
5.0	12.7	15.7	40	5	35	90	54	135
6.5	15.9	19.7	50	5	47	120	65	165
7.5	19.1	23.6	60	6	51	130	75	190

Transplanting

- **Tree spade** used for digging
- Take care when transporting
- Protect your investment

Transplanting

- **Tree**
  diggi
- Take

Early Care

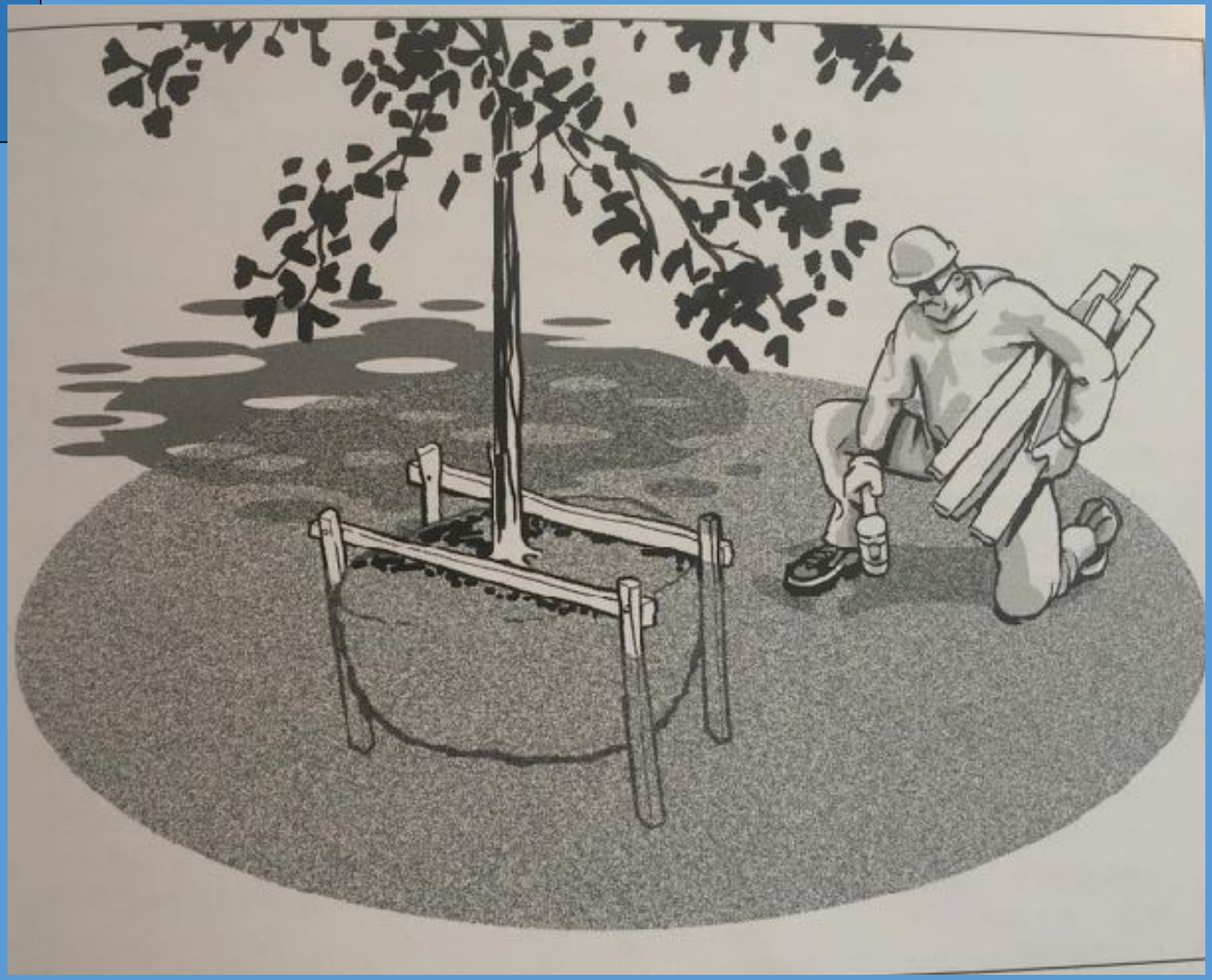
- Planting is just the start!
- **Transplant shock** can cause increased mortality

- Just add water!

Be sure to repeat

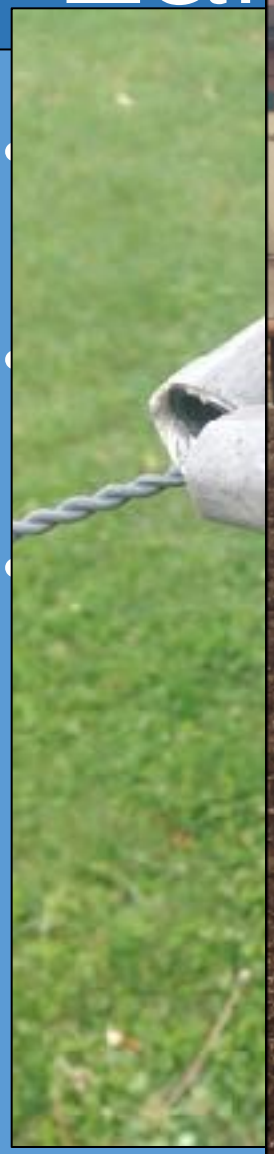
Early Care

- Fertilization
- Mulching
- **Staking** or **Guying**



Early Care

Ear



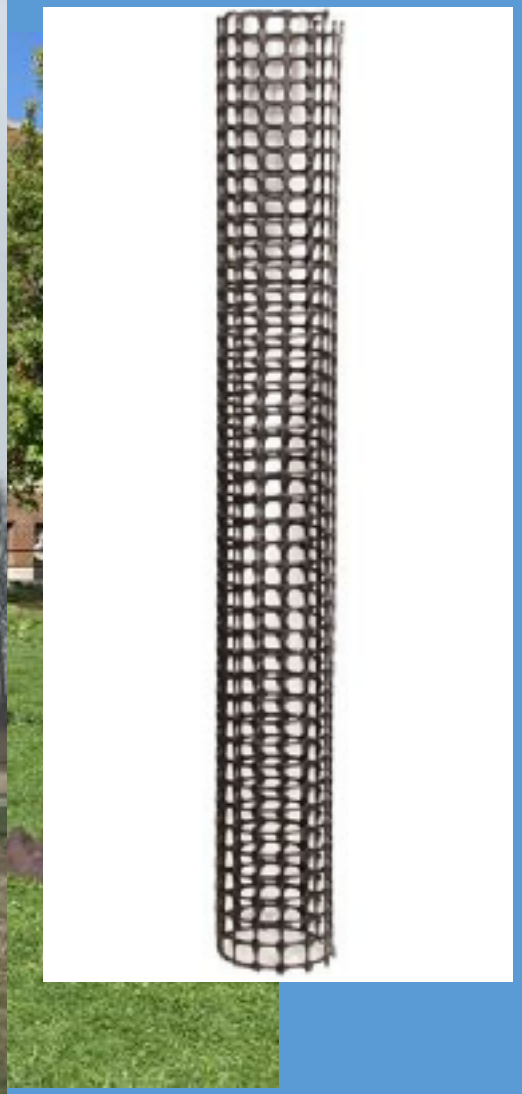
Early Care

- **Tree wrap**
- Root collar guards

Photos of wraps/guards courtesy A.M. Leonard

Early C

- **Tree wrap**
- Root collar g



ourtesy A.M. Leonard

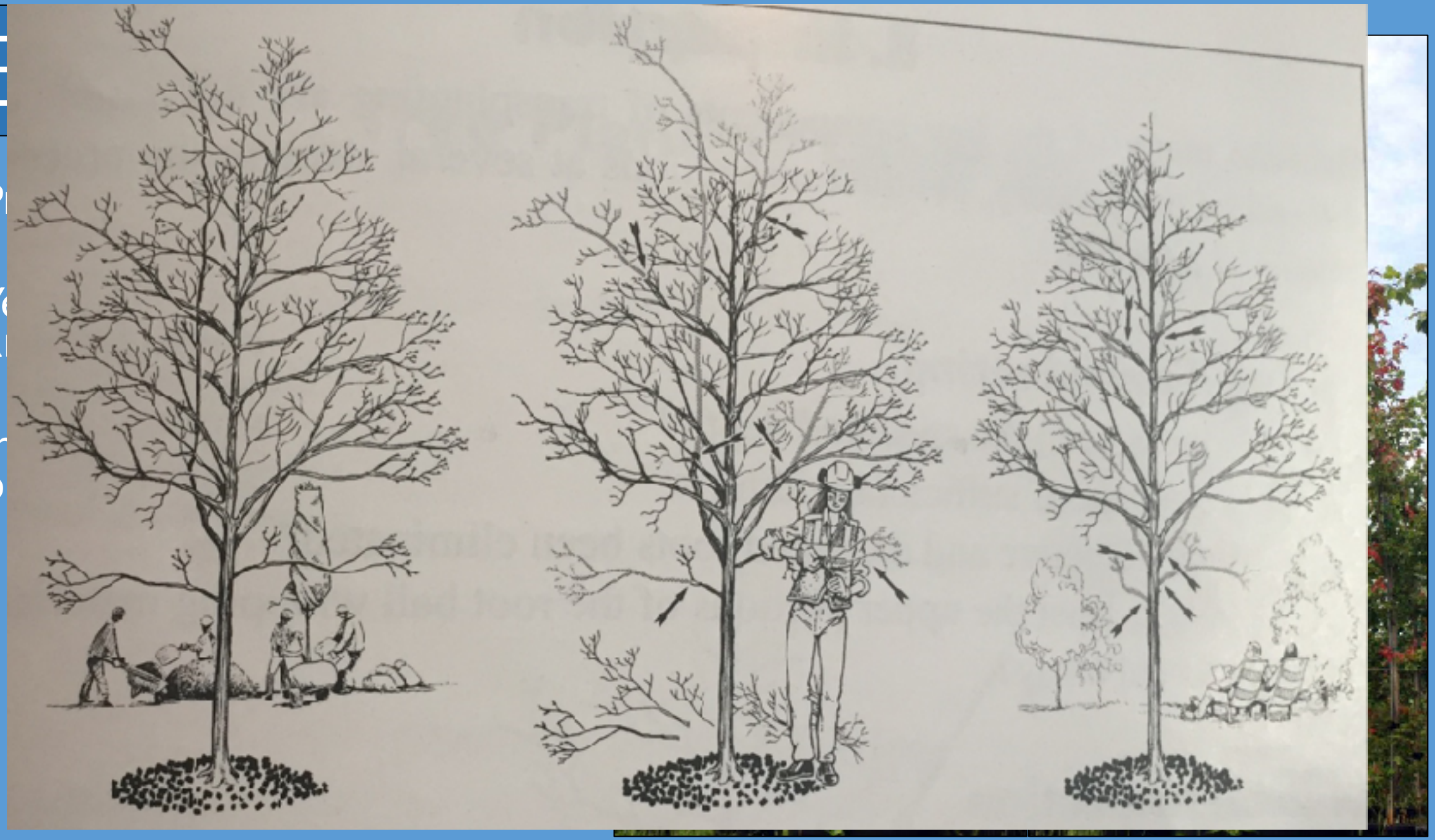
Early Care

- Pruning
- Yes, just a small amount at planting
- Include dead or broken branches too

Photos courtesy Dr. Ed Gilman

E

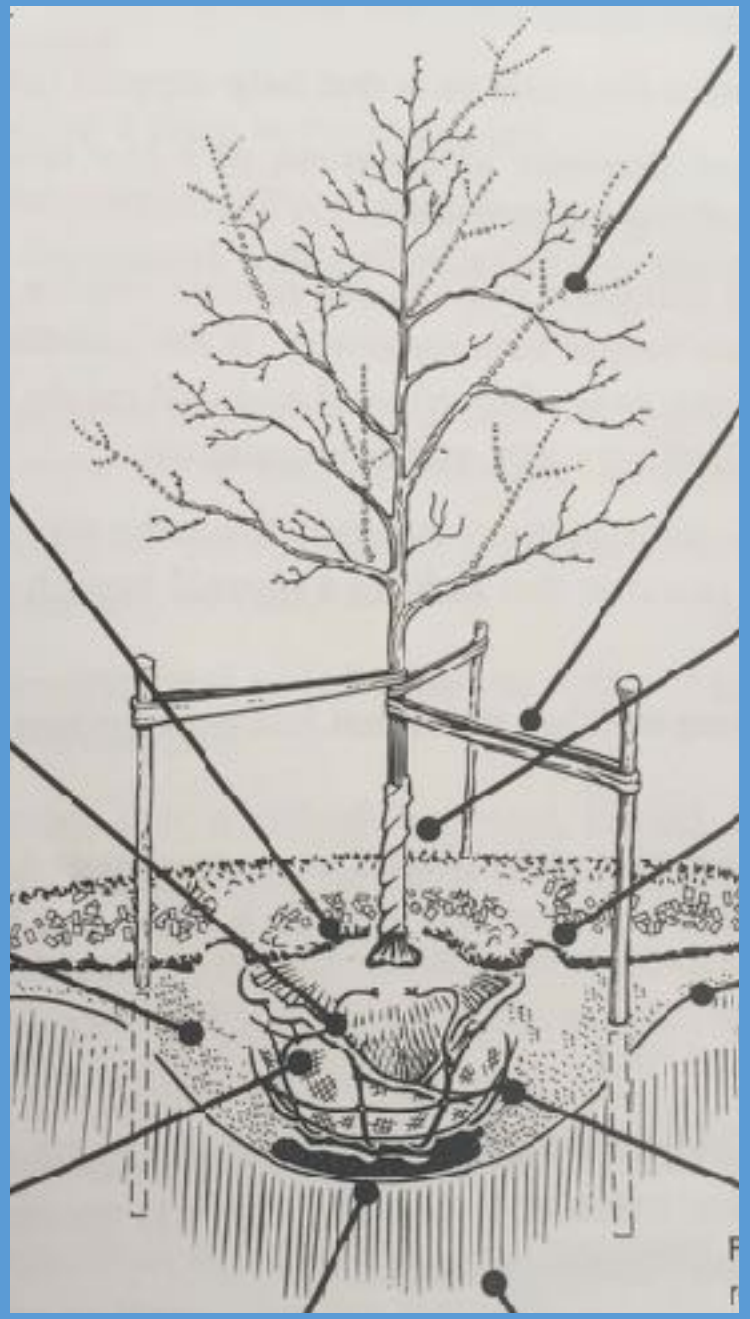
- P
- Y
a
- I
b

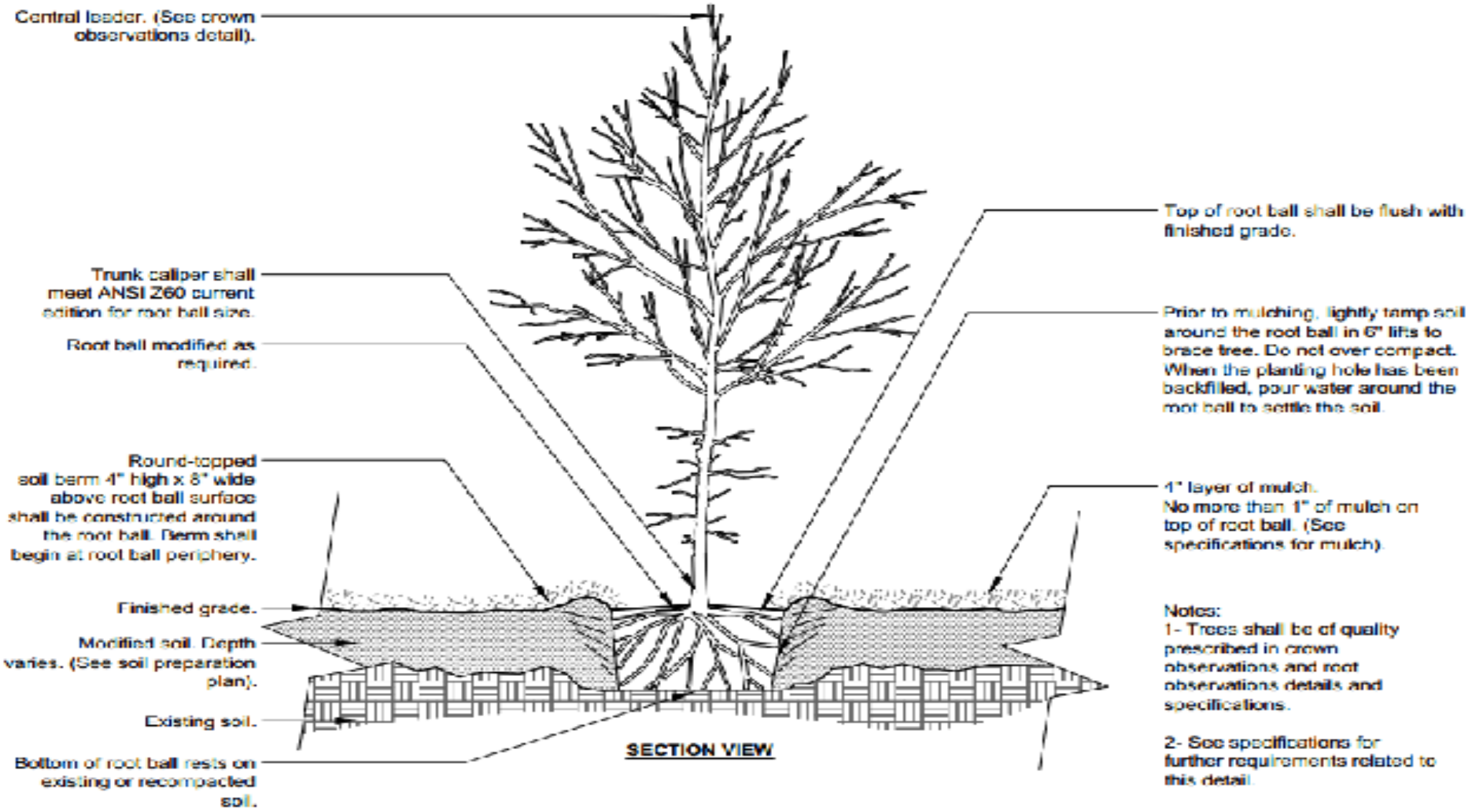


Early Care

- Use ANSI A300 for **planning specifications**
- Tree planting best management practices too!

- Include detailed drawings too




Central leader. (See crown observations detail).
Trunk caliper shall meet ANSI Z60 current edition for root ball size.
Root ball modified as required.
Round-topped soil berm 4" high x 8" wide above root ball surface shall be constructed around the root ball. Berm shall begin at root ball periphery.
Finished grade.
Modified soil. Depth varies. (See soil preparation plan).
Existing soil.
Bottom of root ball rests on existing or recompacted soil.
Top of root ball shall be flush with finished grade.
Prior to mulching, lightly tamp soil around the root ball in 6" lifts to brace tree. Do not over compact. When the planting hole has been backfilled, pour water around the root ball to settle the soil.
1" layer of mulch. No more than 1" of mulch on top of root ball. (See specifications for mulch).
SECTION VIEW
Notes:
1- Trees shall be of quality prescribed in crown observations and root observations details and specifications.
2- See specifications for further requirements related to this detail.
P-X
TREE w/ BERM (EXISTING SOIL MODIFIED)
URBAN TREE FOUNDATION © 2014
OPEN SOURCE FREE TO USE


CASE

Happy Planting!

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http://www.holdenarb.org/resources/communityforestry.asp