



# Tall Pot Tree Nursery Program



# What are Tall Pots?

- Plants grown in a long container
- Various sizes
- 30" long; 6" diameter



# Background

- USDA Forest Service
- South Eastern United States
- David Bainbridge, researcher from San Diego State University - arid land tree species
- Joshua Tree National Park
- Arizona Game and Fish Department
- Center for Native and Urban Wildlife at Scottsdale Community College





# Background

- Theresa Pinto, FCDMC Planner, advanced the idea for use on a mitigation site in 2001
- Nursery was established at the Durango Complex in 2002



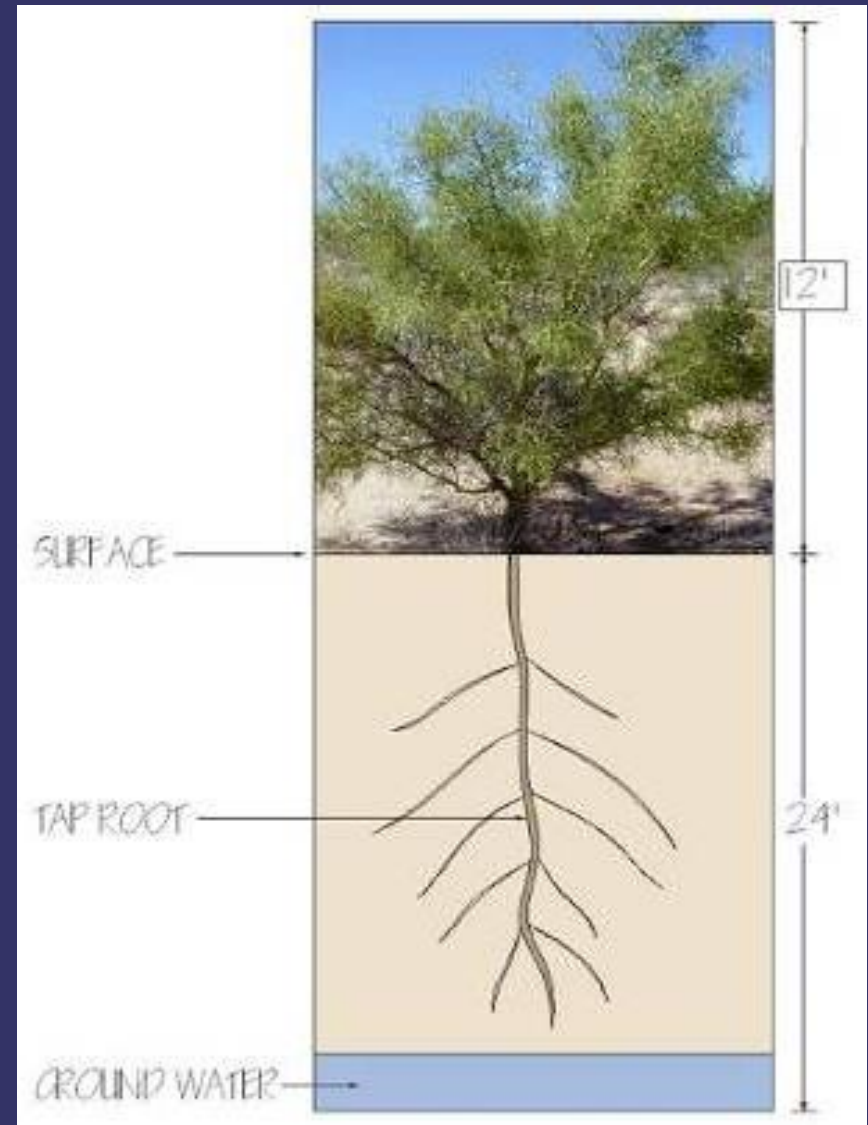
# Advantages

- Do not require supplemental irrigation
- High Survival Rates
- Tree locations are 'predetermined' and 'more immediate' vs. native hydroseeding
- Less costly than traditional landscape container plant materials and irrigation



# Why they work

- Tall pots mimic the growth characteristics of native desert trees
- Most desert species have long tap roots
- Higher 'root to shoot' ratio helps survivability



# Tall Pots vs. Standard Container





# Propagation

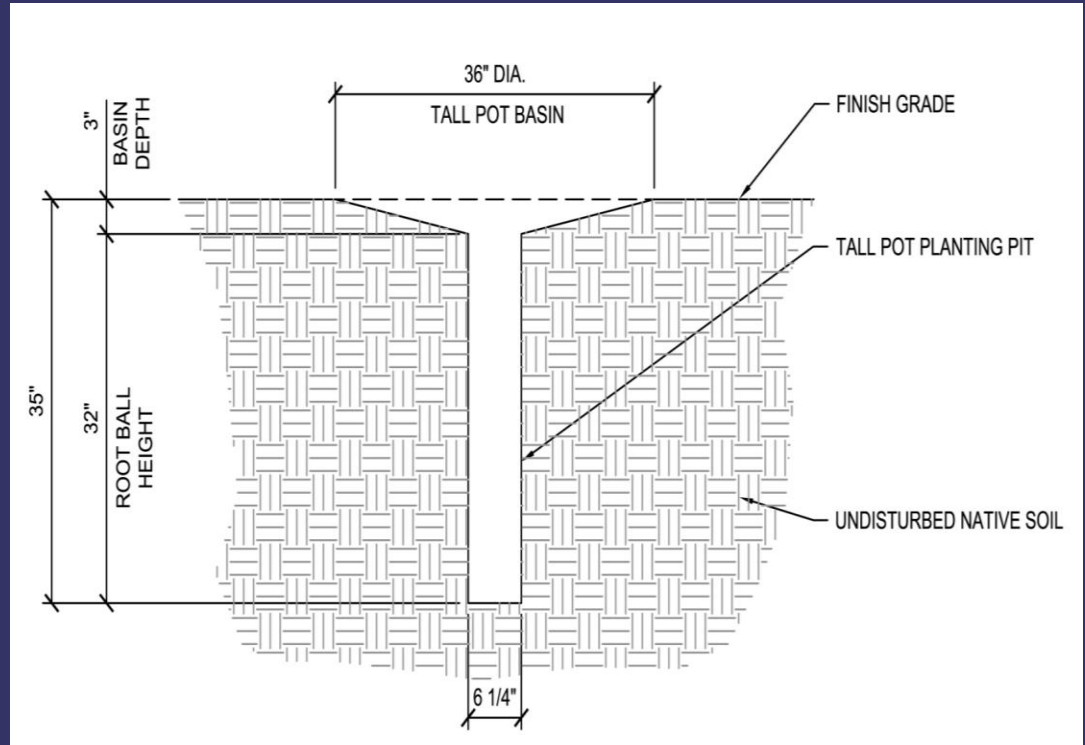




# Standard Tall Pot Installation

## Step 1

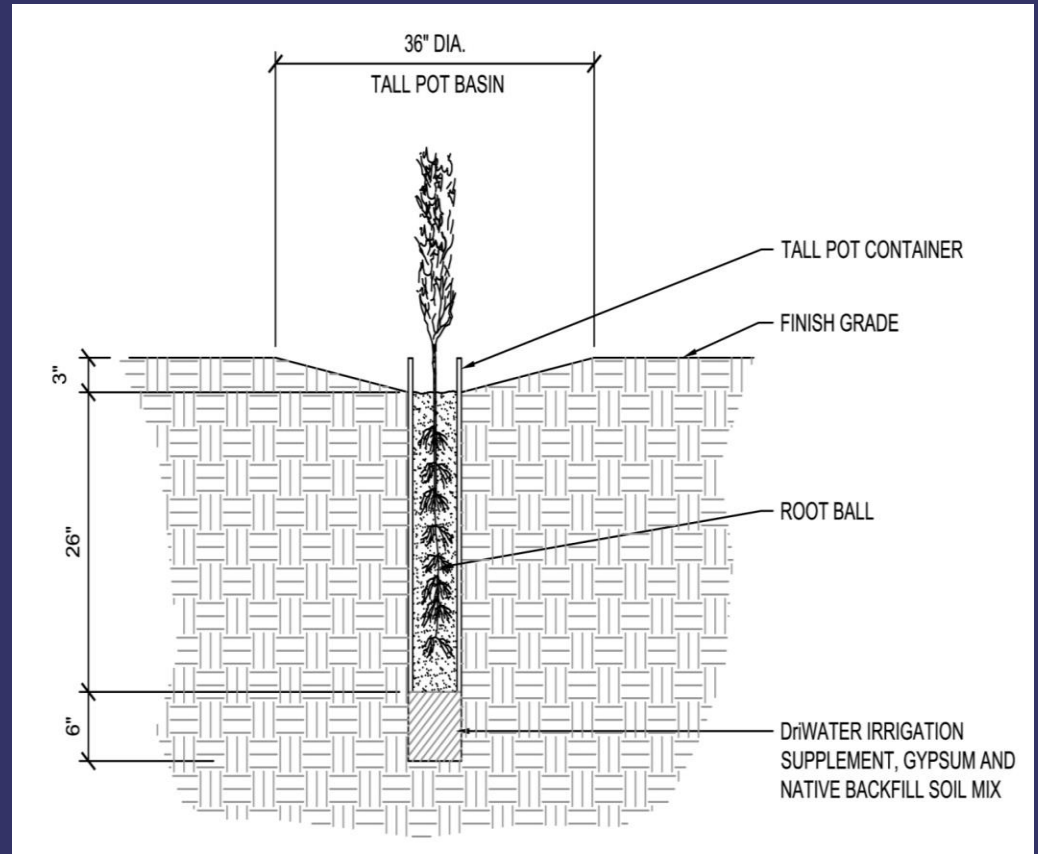
- Auger tall pot planting pit to 6-1/2 inches
- Fill pit with water
- Allow to drain completely
- Repeat above two steps
- Inspect pit for proper depth



# Standard Tall Pot Planting

## Step 2

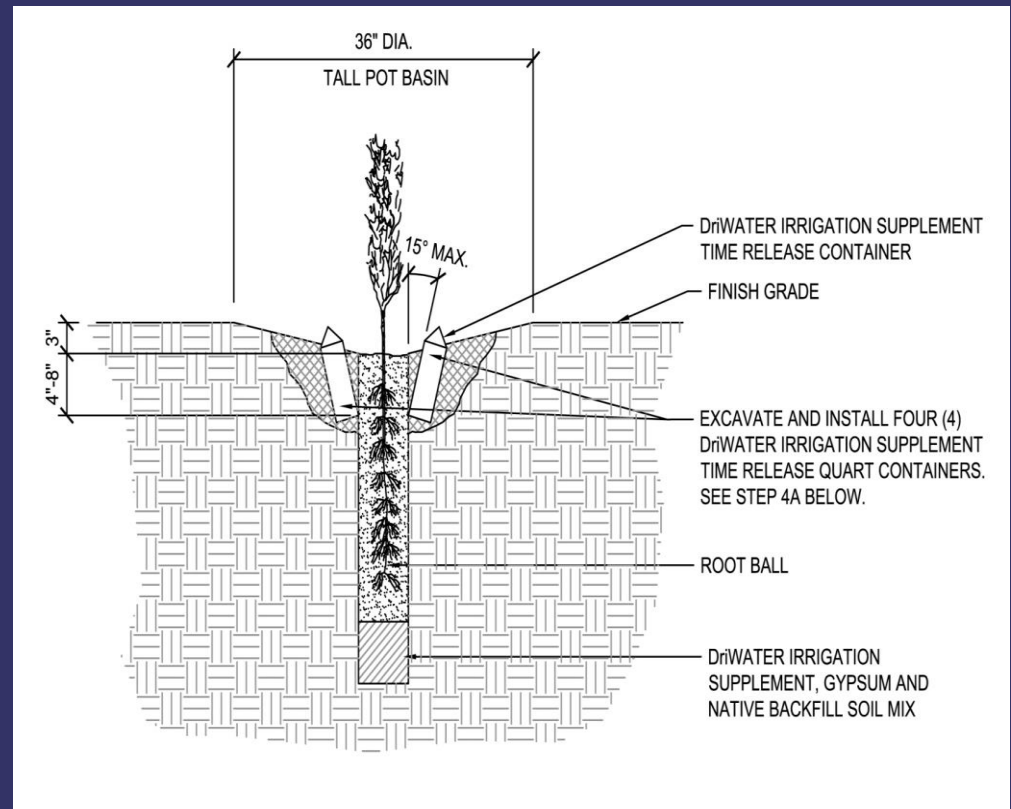
- DriWater + gypsum + native backfill soil mix to fill bottom 6 inches of pit
- Remove wire screen from bottom of tall pot container and install container in the pit
- Container is raised leaving the tall pot plant in the pit
- Backfill around rootball as container is raised



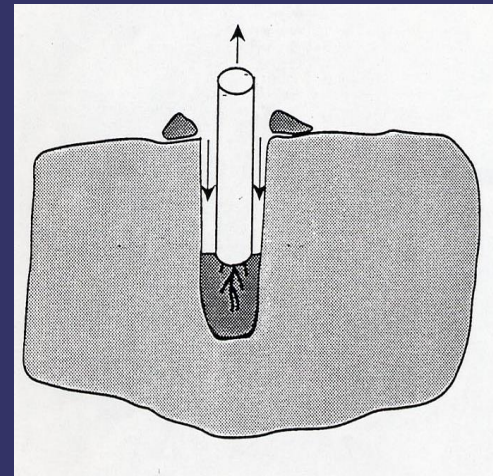
# Standard Tall Pot Planting

## Step 3

- Install 4 DriWater quarts/sleeves around the tree
- Backfill and reform tree well
- Water the plant again thoroughly
- Install protective devices
  - wire cages
  - deer/rodent repellent







# Accomplishments

- More than 10,000 tall pot trees planted since 2002
- Survival rates estimated to be above 80%\*



\* With limited monitoring





# Accomplishments



**Blue Palo Verde with just 3 years of growth!  
(Reems Road Channel and Basin)**





# Success Stories

Chandler Heights Mitigation Site  
2003 and 2004



# Success Stories

FCDMC Durango Complex  
2007





# Success Stories

FCDMC Durango Complex  
2015





# Success Stories

Spook Hill FRS – Loop 202/Red Mountain Freeway, 2009

(83% survival with five year monitoring results)



# Success Stories

## Urban Sustainability


## Best Practices/Case Studies (SOS 594/498) Workshop

### Tall Pot Trees

A Flood Control District of Maricopa County Program

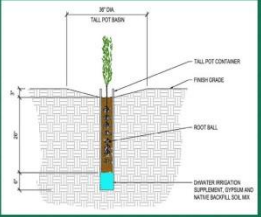
#### What are Tall Pots Trees?

Trees that are grown in 30-inch tall containers to encourage deep taproot growth for enhanced survival in arid climates.

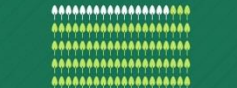


#### Benefits of Tall Pots Trees

With longer taproots, tall pot trees do not require irrigation after initial establishment.



Tall pot trees have higher survival rates than standard nursery trees, even when faced with minimal precipitation.



**83%** The average 1-year survival rate of tall pot trees across 13 FCDMC projects.

Using additional methods such as application of hydrogels, animal repellents, chicken wire, tree shelters, and tree basins can bring survival rates up to 99%.

Has the capacity to grow up to

# 8000

tall pot trees at a time, with an approximate cost between

# \$4.70-6.40

per tree (using pre-existing equipment).

**FCDMC Tall Pot Nursery**

### FCDMC Tall Pot Process

Nursery Transport



Placement Augering



Drivwater Inspection



FCDMC welcomes inter-agency collaboration and is open to providing training and other services relating to tall pot trees.

This infographic was produced in partial fulfillment of coursework requirements for ASU's School of Sustainability Graduate Program

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# Costs for Tall Pot Trees

- Growing:
  - *FCDMC Nursery* ~ \$6.40/tree\*
  - *Contract Growing* ~ \$17.50/tree\*\*  
\$20.00/tree
- Installation
  - *Bid Tab Average* \$79.50/tree
- Total Cost ~ \$86-100.00/tree
- Estimates of Probable Cost \$100.00/tree

\* 2009 figures with reuse of tubes and racks

\*\* 2009 figures 'from scratch'





# Summary of Benefits

## Tall Pots:

- Do not require supplemental water
- High survival rates
- Viable alternative to conventional landscape container stock for arid land restoration
- May play a key role in mitigating urban heat island effects, improving air quality, restoring disturbed landscapes
- Cost savings over nursery stock/irrigation
- Provides a “missing tool” in the land restoration kit



# Further Discussion

- Urban applicability
  - Street trees
  - Tree and shade master plans
  - Residential tree programs
- To irrigate or not to irrigate
- Long-term monitoring and survivability studies
  - Graduate research
- GI/LID applications
  - Use in microbasins, bioswales, urban arroyo restoration
  - Grant proposals
- Cooperative Agreements
  - Lower unit costs, higher use potential



# Questions?

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