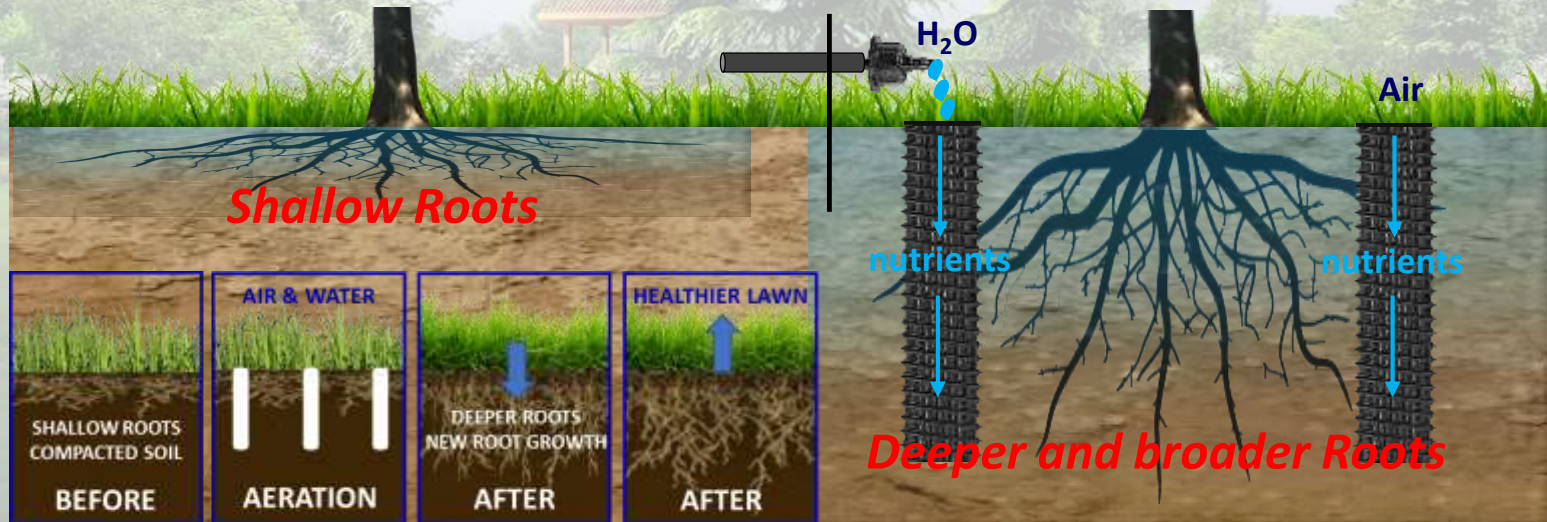




ECO-MESH

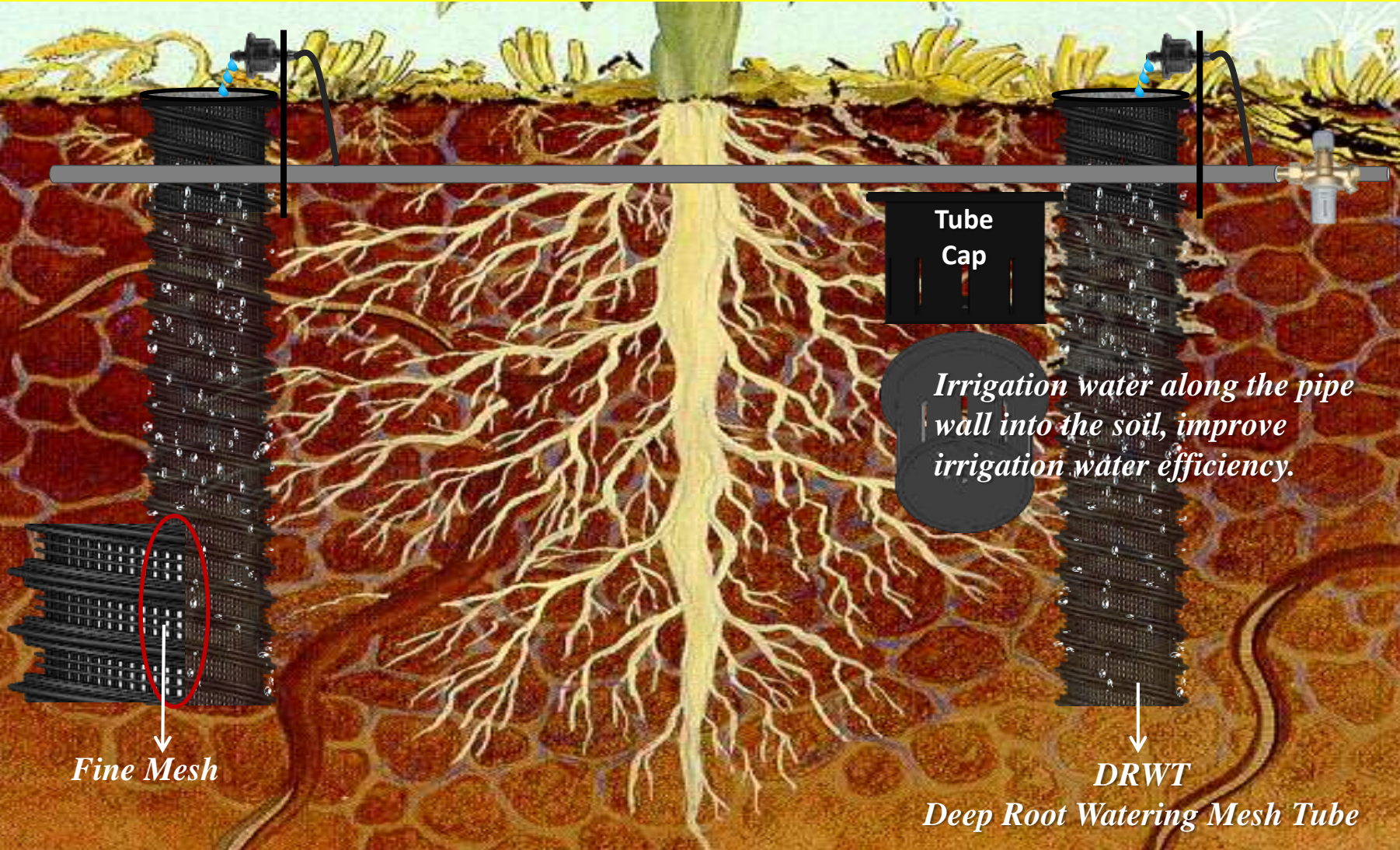
Green Infrastructure Programs-Water Saving Irrigation
Root Aeration Tubes and Deep Root Tree Watering Systems
DRWT - Deep Root Watering Mesh Tube





Root Aeration & Deep Root Tree Watering Tubes

DRWT - Deep Root Watering Mesh Tube



DRWT - Deep Root Watering Mesh Tube enables vital water, oxygen, and nutrients to bypass compacted Soil and directly reach tree and shrub root zones to improve tree and shrub investment protection, Watering efficiency and landscape aesthetics through deep root growth and tree development.

Root Aeration & Deep Root Tree Watering Tubes

DRWT - Deep Root Watering Mesh Tube

DRWT-Deep Root Watering Mesh Tube - Structure

DRWT Mesh Tube sidewall structure – Anti-Clog design to minimize soil entry. The tube cap is filled with gravel to filter groundwater and ventilation. The tube cap design of irrigation water to seep into the soil along the inner edge of the tube, improve the efficiency of irrigation water.



Tube Cap Design

Irrigation water along the pipe wall into the soil, improve irrigation water efficiency.





Root Aeration & Deep Root Tree Watering Tubes

DRWT - Deep Root Watering Mesh Tube

DRWT-Deep Root Watering Mesh Tube - Tube Cap Design
Tube Cap design that irrigation water along the pipe wall into the soil, improve irrigation water efficiency.





DRWT-Deep Root Watering Mesh Tube Field Experiment



DRWT-Deep Root Watering Mesh Tube Model Experiment

Anti-Clog Mesh Tube - Features

- The sidewall has T-type thread design & high compressive resistance.
- The sidewall openings are fine mesh design.
- Mesh Tube sidewall Anti-Clog design minimizes soil entering without extra filter material, such as non-woven fabric.
- Mesh tube caps filled with gravel in order to filter groundwater and anti-debris into the tube, irrigation water along the sidewall into the soil.
- The caps is designed for ventilation and easy maintenance.

DRWT- Deep Root Watering Mesh Tube - Benefit

- Tree & Shrub Investment Protection
- Deeper and broader root growth
- Irrigation water decrease
- Fertilizer efficiency increase
- Ventilation
- High watering efficiency
- Transplant shock minimization

Root Aeration & Deep Root Tree Watering Tubes

DRWT - Deep Root Watering Mesh Tube



*The same period of planted beech, after 10years,
The size of the trees showing amazing difference.*

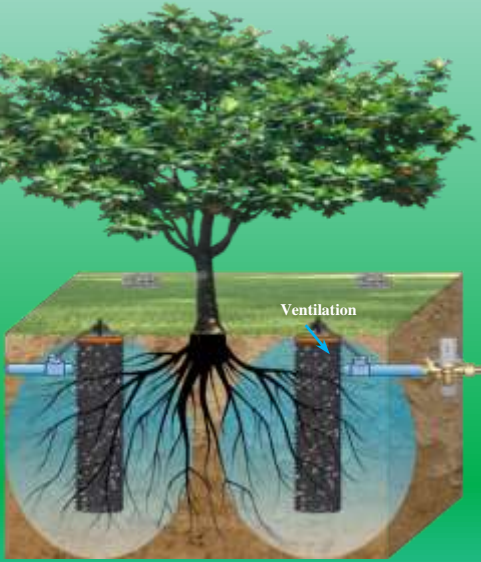
This figure is the comparison of planted beeches with and without DRWT for the same period. The right row was planted with DRWT. After ten years, the size of the trees showing amazing difference. The left row was planted without DRWT shows the poor growth conditions and began to wither. To avoid this situation, DRWT should be added. Subsurface and deep root watering and aeration ensures tree health and promotes accelerated growth. DRWT deep root growth and tree development promotes tree and shrub investment protection, watering efficiency and landscape aesthetics.



Root Aeration & Deep Root Tree Watering Tubes

DRWT - Deep Root Watering Mesh Tube

The data was collected when trees were harvested 3, 8 and 13 months after transplanting.



ROOT MASS WITHOUT DRWT

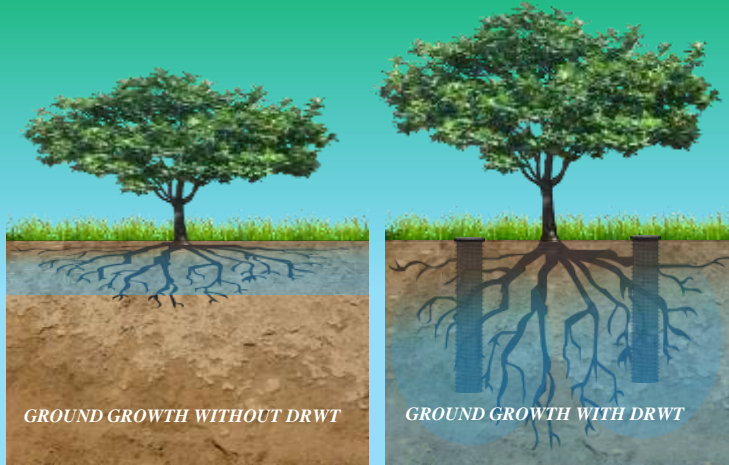


ROOT MASS WITH DRWT

*48% More deep-root growth
3 months after planting*

*11% More above-ground growth
8 months after planting*

*18% Greater root mass
13 months after planting*



GROUND GROWTH WITHOUT DRWT

GROUND GROWTH WITH DRWT



DEEP ROOT GROWTH WITH DRWT



DEEP ROOT GROWTH WITH DRWT

Trees with DRWT grow better and healthier than the trees with surface-watering systems.



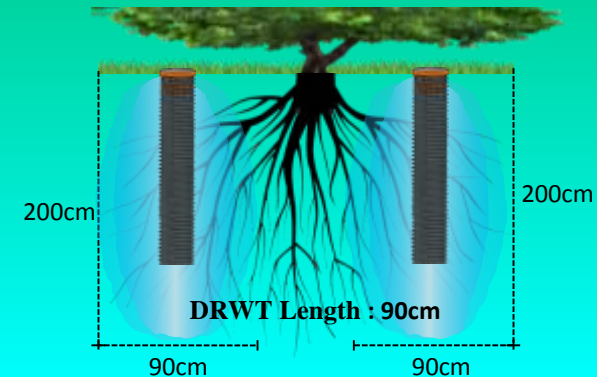
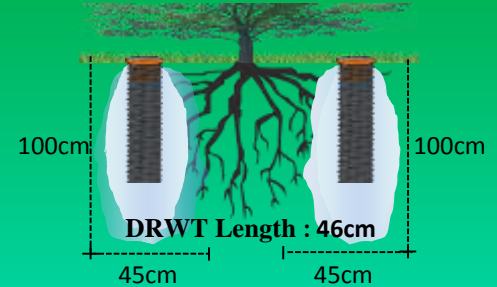
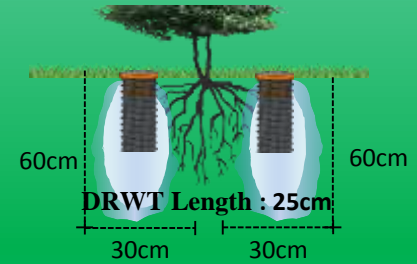
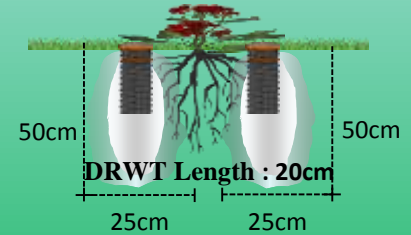
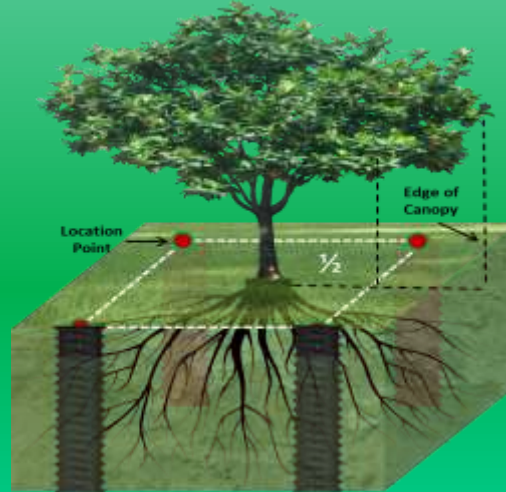
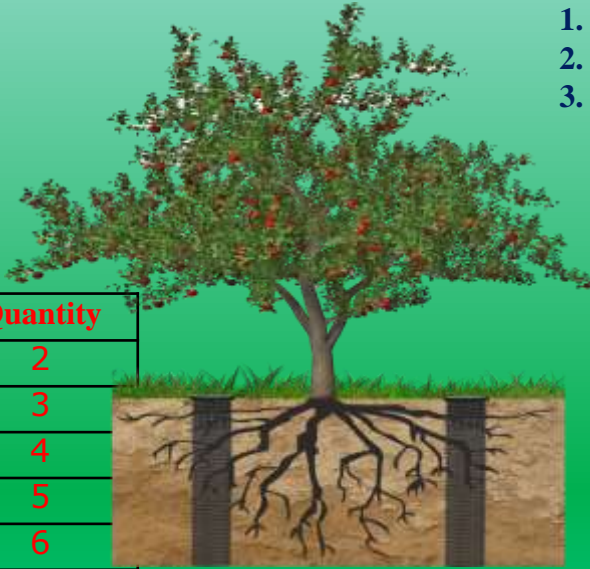
Root Aeration & Deep Root Tree Watering Tubes

DRWT-Deep Root Watering Mesh Tube - User's Guidance

Deep Root Watering Mesh Tube diameter and length User's guide

1. Planning marked tube hole location.
2. Mesh Tube position is Shade and trunk 1/2.
3. Determine the number and diameter of the tube holes based on the size of the trees and the amount of water required.

Trunk Ø	Quantity
50mm	2
75mm	3
100mm	4
125mm	5
150mm	6



Greater than 150mm place 75cm~100mm evenly apart in a circular manner. The upper lip of the cap is flush on the ground to allow the mowing gap.



The diameter and length of the anti-clog mesh tubes are based on the root mass and root depth of the trees.

DRWT-Deep Root Watering Tube -Applications

Transplant

Anti-Clog Mesh Tube installation Guide for Transplanted Trees

Install DRWT Mesh Tubes evenly spaced and positioned on the edge of root ball or root mass. The minimum of 2 to 4 Mesh Tubes per tree is recommended. The amount of DRWT Mesh Tube varies depending on the size of the tree and watering requirements.

- For All Tree Species.
- Trees with a 100mm diameter or greater will require additional Anti-Clog Mesh Tubes.



Place Anti-Clog Mesh Tube units evenly around the root ball half way between the outside edge of the planting pit and the root ball. Prepare pit to specified guidelines.

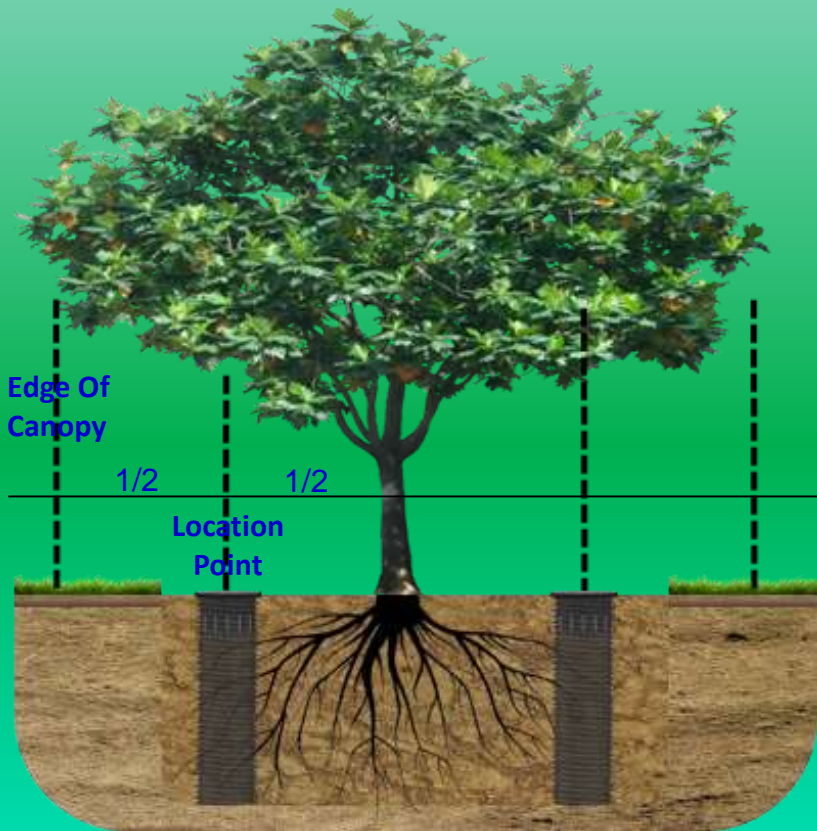
Place the Mesh Tube in the ground so the soil is even with the lip ring at the top.

Remove as much shipping and containment materials from the root mass as possible.



DRWT-Deep Root Watering Tube -Applications

Existing Trees Underground Irrigation



DRWT tube cap design of irrigation water to seep into the soil along the inner edge of the tube, improve the efficiency of irrigation water.

DRWT - Deep root watering and aeration ensures tree health and promotes accelerated growth. DRWT minimizes the total water volume required to irrigate trees and reduces water loss due to evaporation, wind and edge control losses.

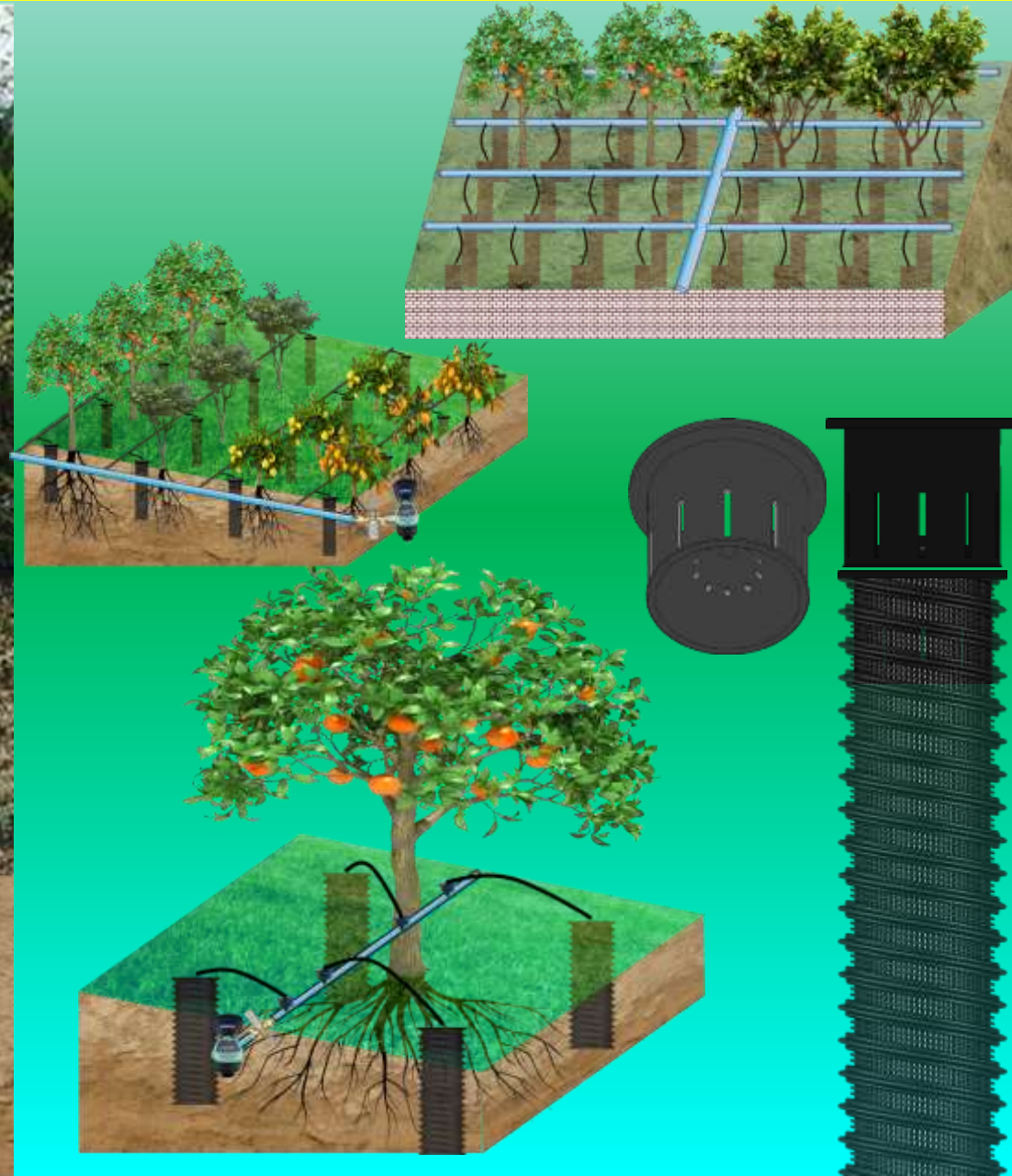


DRWT-Deep Root Watering Tube -Applications

Hillside Tree Irrigation



DRWT hillside underground irrigation
Easy watering and fertilizing. Water saving more than 80 %.
It allows the roots to grow deeper and broader resulting in greater tree stability, higher survival rates and healthier long-term growth.





DRWT-Deep Root Watering Tube -Applications

Potted Cultivation



Potted planting is recommended 1 ½" ϕ DRWT-Deep Root Watering Tube, with automatic drip irrigation system, saving water, fertilizer, ventilation, increase production, and high efficiency.



DRWT-Deep Root Watering Tube -Applications

Vineyards Cultivation



Grape tree cultivation is recommended
2"φ x 18"
DRWT-Deep Root Watering Mesh Tube



DRWT-Deep Root Watering Tube -Applications

Avocado & Pomelo Cultivation

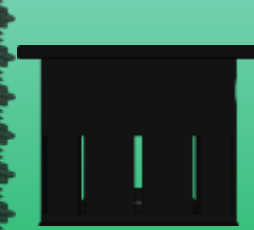
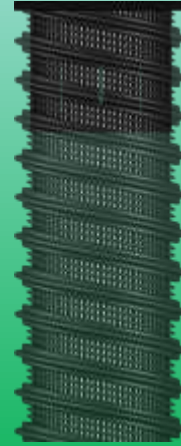


*Avocado & Pomelo cultivation is recommended
3"φ x 18"
DRWT-Deep Root Watering Mesh Tube*



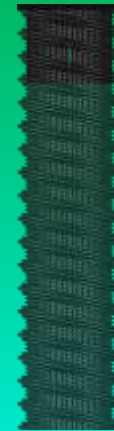
DRWT-Deep Root Watering Tube -Applications

Fruit Plants Cultivation



*Large fruit planting is recommended
4"φ x 24"*

DRWT-Deep Root Watering Mesh Tube



*Medium-sized fruit tree planting is recommended
3"φ x 18"*

DRWT-Deep Root Watering Mesh Tube



DRWT-Deep Root Watering Tube -Applications

Date Palm Tree Cultivation



*Date palm cultivation is recommended
4"φ x 18"
DRWT-Deep Root Watering Mesh Tube*



DRWT-Deep Root Watering Tube -Applications

Street Tree Root Guide Mesh Tube



DRWT-Deep Root Watering Tube is embedded around the trunk to guide the roots to grow downward. The green area is embedded with DRWT-Deep Root Watering Tube to guide the roots to the green area.

Large tree planting is recommended

4"φ x 36"

DRWT-Deep Root Watering Mesh Tube

Medium-sized tree planting is recommended

3"φ x 24"

DRWT-Deep Root Watering Mesh Tube

Surface Watering VS Subsurface Watering ➡ Aeration Deep Root Watering Tube

Trees need protection against frost cracks, sunscald, lawn mowers, and weed wackers. Frost cracking is caused by the sunny side of the tree expanding at a different rate than the colder shaded side. This can cause large splits in the trunk. Sunscald can occur when a young tree is suddenly moved from a shady spot to a spot with direct sunshine. DRWT "Bark Protector" tree wraps can be used to protect the trunk from sunscald and do not entrap moisture which will harm the tree bark.



Shallow Roots

Water remains on the surface
No oxygen exchange
Mold and bark decay
It's a matter of life and death for your trees.

Deeper Roots

DRWT - Deep Root Watering Tube enables vital water, oxygen, and nutrients to bypass compacted soil and directly reach tree and shrub root zones to improve tree and shrub investment protection, watering efficiency and landscape aesthetics through deep root growth and tree development.

Root Aeration Tubes and Deep Root Tree Watering Systems

DRWT-Deep Root Watering Mesh Tube

DRWT Mesh Tube Prevent Soil into the Tube Experiment



Experiment Apparatus



Test Material Silica Sand

Test Tube (5 Type)



Mesh Tube
NSO

Mesh Tube
MSO

Netting
Pipe

Corrugated
Pipe

PVC
Pipe

Test Result



Mesh Tube-NSO : There is no sand phenomenon

Mesh Tube-MSO : There is no sand phenomenon

Netting Pipe: Sand collected phenomenon **7.5cm**

Corrugated Pipe: Sand collected phenomenon **2.4cm**

PVC Pipe: Sand collected phenomenon **3.6cm**

Experiment Steps

Experimental tube is 3"Ø x 25cm length. The Bottom wrapped with non-woven fabric and the tube was buried in the silica sand. The top of the tube covered with tube caps which was filled with gravel. The outlet was blocked. After water was full, the water was turned on. The experiment was observed for continuous 3 times.

DRWT Mesh Tube sidewall structure Anti-Clog design to minimize soil entry without extra filter material, such as non-woven fabric is the best Deep Root Watering System materials.

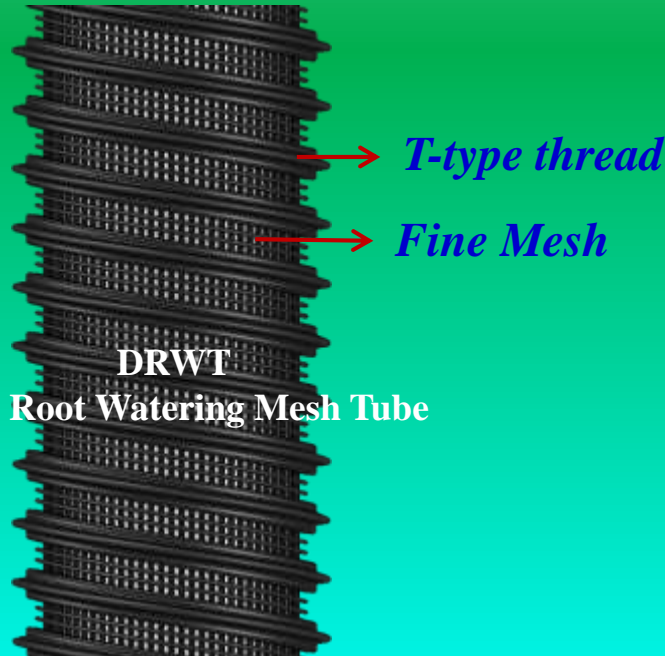
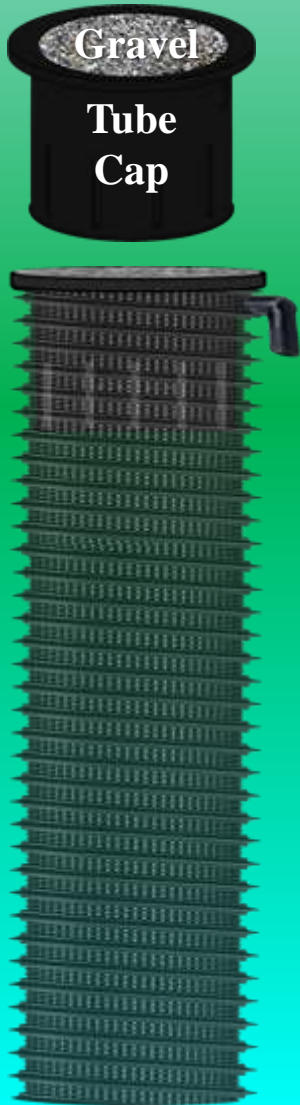


Root Aeration & Deep Root Tree Watering Tubes

DRWT - Deep Root Watering Mesh Tube

DRWT-Deep Root Watering Tube (MSO) Specifications

DRWT		ID*OD ±3.0%mm	Pitch ±3.0%mm	Length m	Cut Length cm
Size	Code				
2"	MSO-50A	48.5*61	11.5mm	5m	25cm, 36cm, 46cm, 60cm
3"	MSO-75A	77*89	12.5mm	5m	36cm, 46cm, 60cm, 90cm, 120cm
4"	MSO-100A	98*114	12.5mm	5m	46cm, 60cm, 90cm, 120cm



DRWT-Tube Cap