

ENVIRONMENTAL IMPACT of Using Natural Fiber in Landscaping

BROUGHT TO YOU BY



WATER IS LIFE

﴿ وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ حَيٍّ ﴾

- سورة الأنبياء

and made from water every living thing

- Surat Al-'Anbyā'

WATER IS LIFE



ENVIRONMENT OF SAUDI ARABIA

Desert climate

Extreme heat during the summer months

High humidity on both coastal regions

Dry conditions in the central region

Minimal rainfall during the winter

QUALITY OF LIFE

Our quality of life is associated with the general well-being of a person/society.

It is defined in terms of health and happiness, rather than material wealth our surroundings play a big part in that.

We all want:

Better and more efficient homes

Pure fresh air

Cleaner roads

Beautiful landscapes

QUALITY OF LIFE

Surrounding yourself with trees and plants has been proven to boost the immune system, lower blood pressure, improve mood, increase energy levels, and improve sleep.⁽¹⁾

Greener landscapes help the environment by absorbing CO2 emissions in the air, purifying it and helping reduce gaseous pollutants by absorbing them with normal air components. ⁽²⁾

(1) New York State Department of Environmental Conservation | Immerse Yourself in a Forest for Better Health
(<http://www.dec.ny.gov/lands/90720.html>)

(2) Urban Forestry Network | Trees Improve our Air Quality
(<http://urbanforestrynetwork.org/benefits/air%20quality.htm>)



QUALITY OF LIFE

A study published in the Journal of Psychological Science has revealed the benefits of green landscapes on the mental & physical health of city dwellers.⁽³⁾

The study took place over the course of 17 years, and gleaned data from over 5,000 households. ⁽³⁾

The effect is dubbed “**Green Space Effect**”, and most notably it stated that individuals surrounded by greenery had significantly reduced mental distress, and reported higher life satisfaction than their counterparts. ⁽³⁾

The research proves invaluable and provides insight for psychologists, public health officials, and city planners to take into consideration. ⁽³⁾

(3) BBC | Green Spaces Boosts Wellbeing of Urban Dwellers
(<http://www.bbc.com/news/health-22214070>)

QUALITY OF LIFE

We can positively impact our quality of life in Saudi Arabia and beautify our surroundings, by implementing urban green spaces using the most water efficient means possible.

THE AIM

- ▶ To increase our quality of life

THE AIM

GREEN MAT™

Emirati Company develops new method to reduce water consumption in landscaping.

THEY CALL IT THE GREEN MAT

WHAT IS GREEN MAT™ TECHNOLOGY

Green Mat is made up of natural fiber derived from the husk of the coconut (coir) and with a backing of jute lining.

Coir has balanced pH levels with high cation exchange capacity (a measure of soil fertility, nutrient retention capacity).

With its high moisture retention, strong porosity and aeration, balanced pH, coir can be used in all landscape and garden applications.

HOW IT WORKS

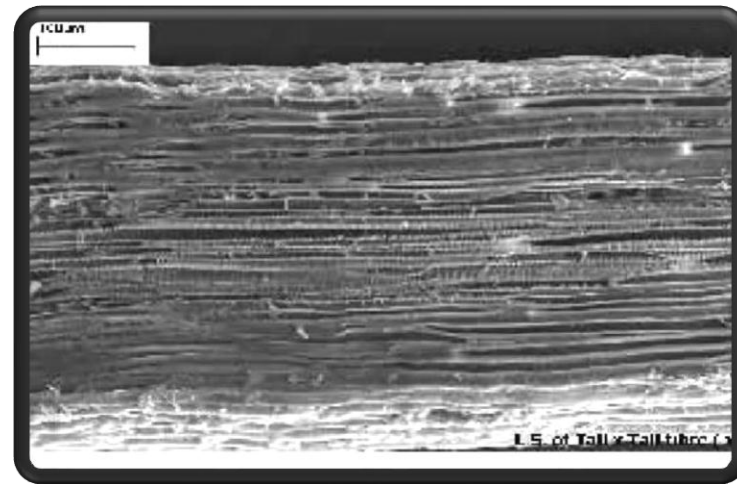
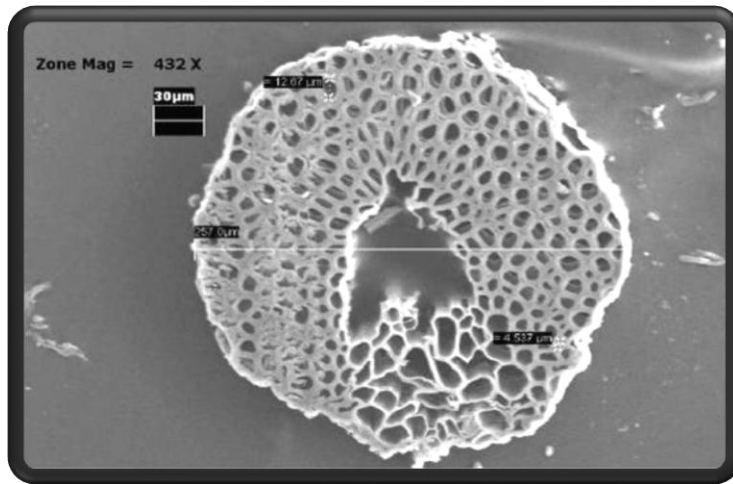
Consisting of 100% natural fibers, Green Mat has a high water retention capacity, coupled with a slow release system.

Maintains moisture and humidity levels at the base of plant growth.

Effectively enhances the growth of grass, shrubbery, palms, and ground-covering ornamental plants.

A CLOSER LOOK

An x-ray investigation of stretched and un-stretched coir fibers revealed a pattern similar to that of cotton.



Micro-pores within the **coir's** natural fibers support:

Water absorption

Water retention

Systematic release to surroundings

CHARACTERISTICS

100% natural.

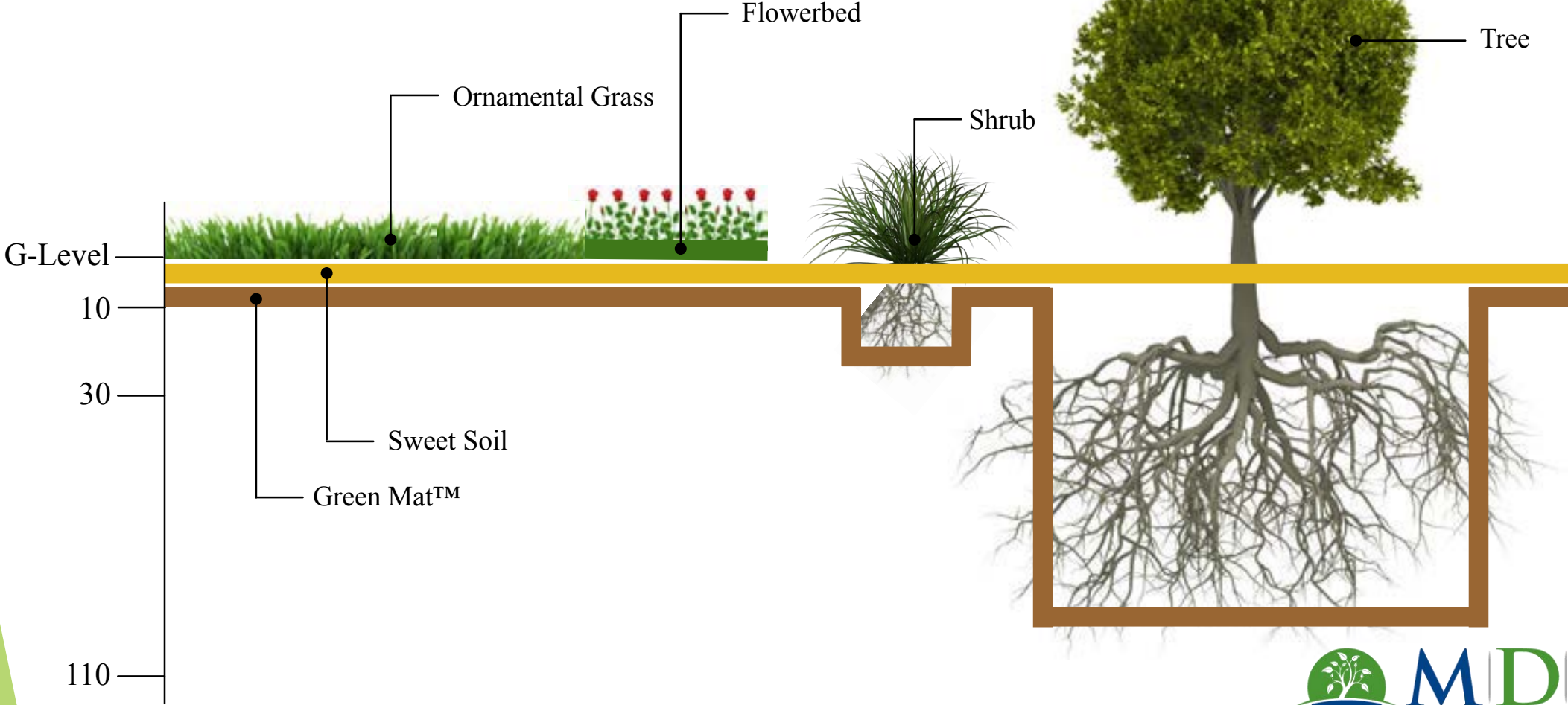
Saves water consumption significantly.

Possesses very high water & nutrition holding capacity, with a slow release system.

Provides excellent aeration for root growth via strong air porosity.

Blends exceptionally well with other types of growing mediums due to being purely organic & natural.

GREEN MAT™ APPLICATION | For Landscaping



CASE STUDY

HATTA Project Under Dubai Municipality

HATTA Project | Under Dubai Municipality



HATTA Project | Under Dubai Municipality



HATTA Project | Under Dubai Municipality





3 Months Later...

HATTA Project | Under Dubai Municipality



BENEFITS

Reduces water consumption

Reduces use of agricultural materials such as compost, mulch, and soil

Enhances growth

Enriches soil with its nutrient holding capacity

Promotes equal water distribution

100% biodegradable and eco-friendly

Wide-range application

SOIL STRENGTHENING & ENRICHING

REDUCED CONSUMPTION OF MATERIALS

CASE STUDY

Green Mat™
Dhahran, Saudi Arabia

CASE STUDY | Dhahran, KSA



CASE STUDY | Dhahran, KSA

Two test plots were prepared in Dhahran to compare green mat technology with existing soil preparation.

On June 18, 2013 two plots were planted with grass seed and pampas ornamental grass.

Zone 1 was prepared with the standard gardening soil preparation.

Zone 2 was prepared with green mat covered with 10cm of sweet soil.

Both areas received identical watering for the first 10 days.

CASE STUDY | Dhahran, KSA



10 days after planting | Conventional

CASE STUDY | Dhahran, KSA



10 days after planting | Using **Green Mat**™



CASE STUDY | Dhahran, KSA

[JUNE 28, 2013]

10 DAYS AFTER PLANTING

Zone 1:

Continued watering at 7 minutes 3 x per day (304 GPD)

Zone 2:

Watering reduced to 5 minutes 3 x per day (220 GPD)

CASE STUDY | Dhahran, KSA



6 weeks after planting...

CASE STUDY | Dhahran, KSA



6 weeks after planting | Conventional

CASE STUDY | Dhahran, KSA



Using 28%
Less water



6 weeks after planting | Using **Green Mat**™  **MDH**
FOR A GREENER LIFE

CASE STUDY | Dhahran, KSA

[SEPTEMBER 9, 2013]

3 MONTHS AFTER PLANTING

Zone 1:

Watered at 7 minutes 3 x per day (304 GPD)

Zone 2:

Water reduced to 3 minutes 3 x per day (132 GPD)

CASE STUDY | Dhahran, KSA



3 months after planting | Conventional

CASE STUDY | Dhahran, KSA



Using 56%
Less water



3 months after planting | Using **Green Mat**™  **MDH**
FOR A GREENER LIFE

CASE STUDY | RESULTS

Landscape using Green **Mat**[™] propagated as well as conventional soil preparations.

Visual evidence of a healthier more connected greener grass.

Green **Mat**[™] was able to reach a 56% reduction in water consumption, using 40% less growing media and sweet soil.

Saves Water

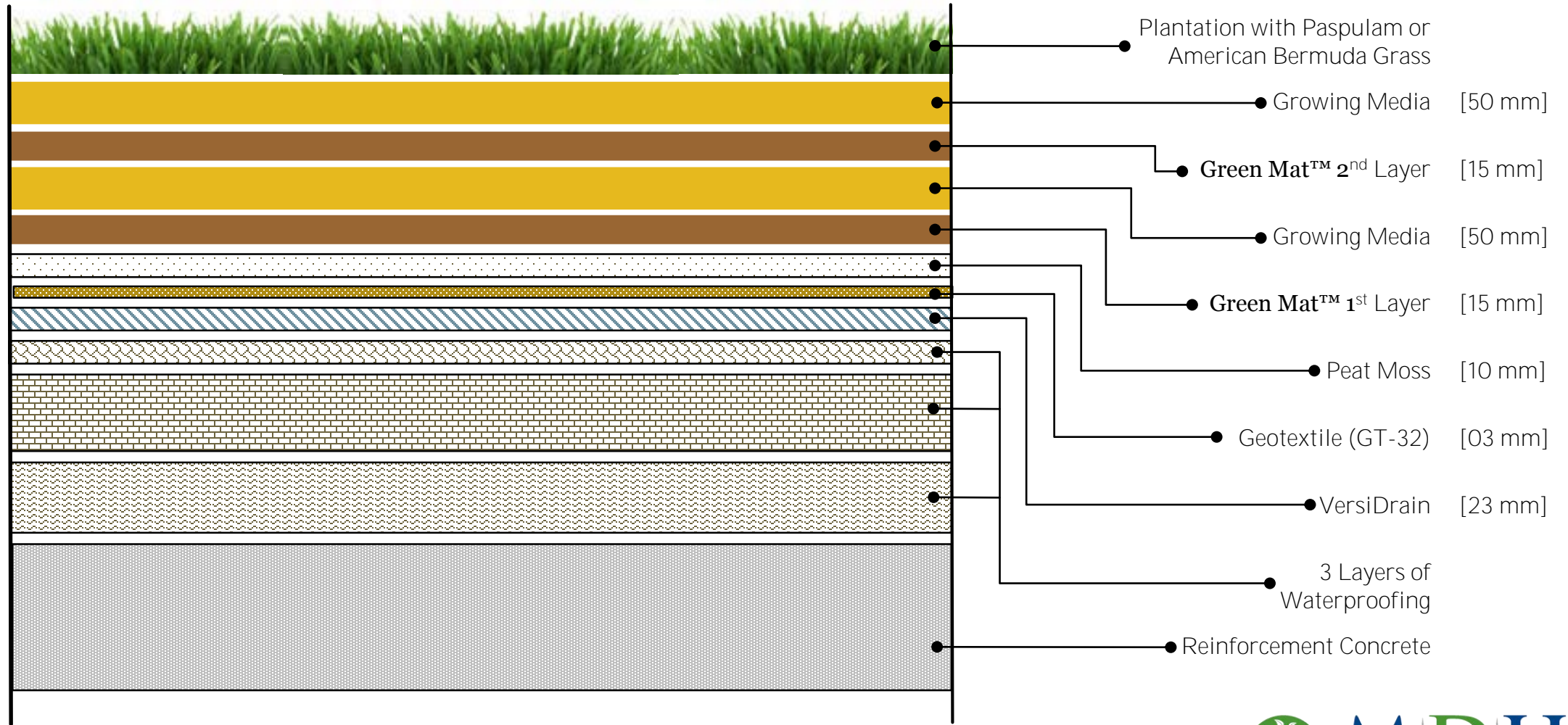
Saves Energy

Saves the Environment

GREEN ROOF
with GREEN MAT™



GREEN MAT™ GREEN ROOF TECHNOLOGY



GREEN MAT™ GREEN ROOF



Two layers of Green Mat are spread on top of the drainage layer with growing media in between. Irrigation pipes are also installed.

GREEN MAT™ GREEN ROOF



Planting and drip irrigation installed

GREEN MAT™ GREEN ROOF



Using 10 minutes of water daily compared to the conventional 40 minutes of water a day.

BENEFITS OF A GREEN ROOF

Environmentally friendly

Provides energy reduction

Uses the least amount of water and materials

Acts as an excellent insulator

OVERALL IMPACT

Greener homes.

Greener cities.

Less water consumed.



QUESTIONS