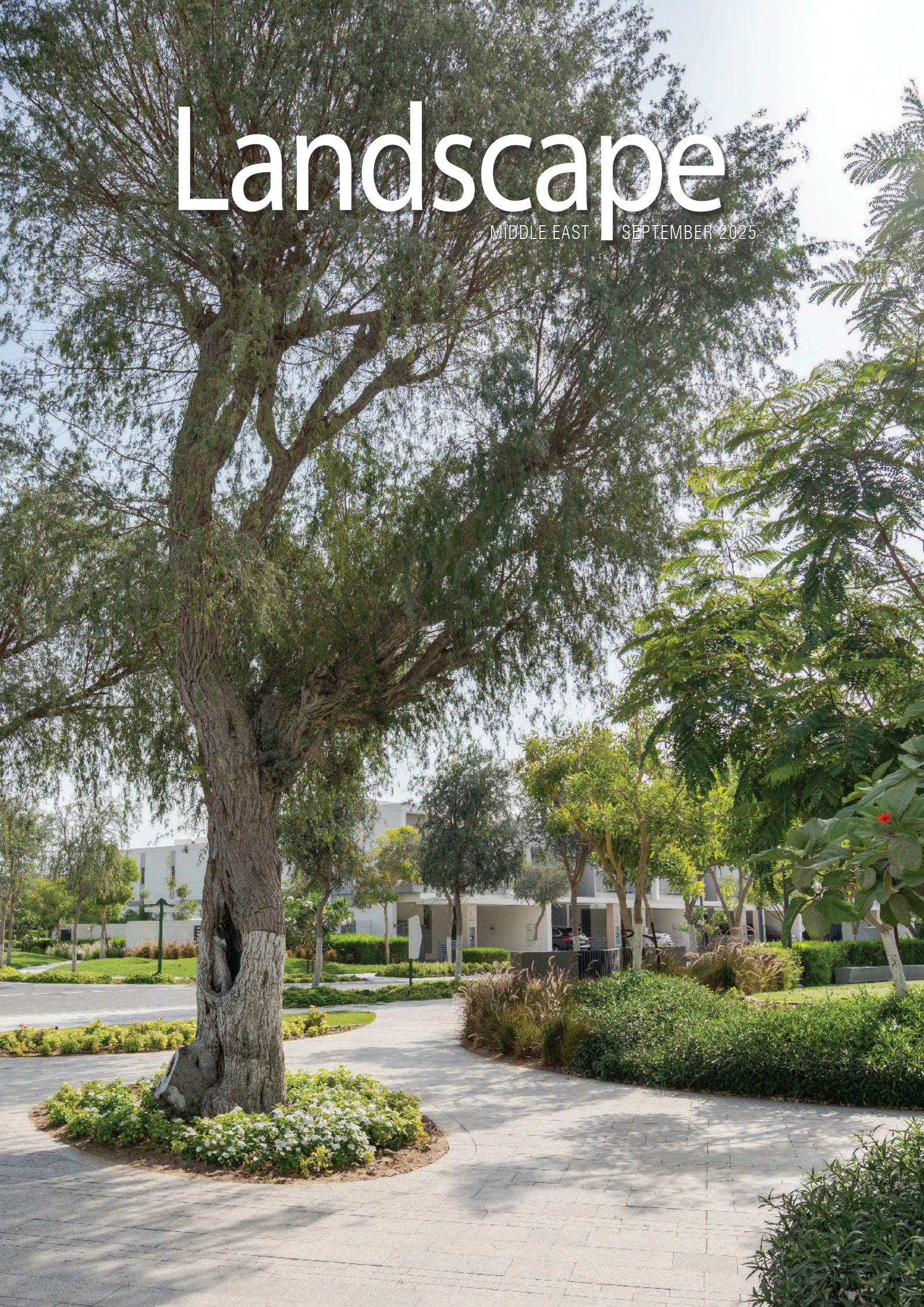


Landscape

MIDDLE EAST SEPTEMBER 2025



A large, leafy green tree with a thick, textured trunk is growing out of a mound of dark brown soil. The soil is being held in the palm of a person's hand, with fingers visible at the bottom. The background is a soft, out-of-focus green, suggesting a natural setting. The overall image conveys a sense of nurturing and growth.

WHAT LIES BENEATH: RETHINKING URBAN TREE CARE WITH DEEP ROOT INNOVATION

By Maks Udov
Arborist and Inventor of the DRILL 2 FILL Method



Trees have always fascinated me not just as living organisms, but as adaptive systems. In the wild, they survive extremes, sending roots deep or wide in search of water, anchoring themselves against wind and time. But in our cities, where soil is compacted, water is controlled, and concrete dominates, even the strongest trees begin to suffer.

Over the past 15 years, I have worked across Croatia and the region, focusing on restoring and protecting urban trees. In this time, I've come to understand a natural structure that many arborists and city planners often overlook yet it holds the key to the longevity and stability of mature trees. I call it the Reinforced Root Plate.

The Hidden Architecture Beneath Our Feet

Imagine a 50-year-old tree growing in a flat urban lawn. Its canopy is full. Its trunk, stable. And the ground around it? Completely undisturbed. But when the tree is removed and the soil excavated, what we find is astonishing: more than two cubic meters of dense root mass beneath a surface that hasn't risen a single centimeter.

What has happened here is that the tree, over the course of decades, has compacted the surrounding soil as it

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grew. It displaces air, reduces pore space, and forms a stable, compacted root zone what I refer to as the Reinforced Root Plate. This is not just a root mass it's a self-made underground foundation, anchoring the tree against storm winds and saturated soil.

Yet, ironically, this strength becomes a vulnerability over time.

As gas exchange diminishes, the root zone becomes anaerobic. Pathogenic fungi and bacteria thrive. Beneficial microorganisms disappear. Trees begin to weaken, showing signs of crown dieback, hollowing, and diminished vitality. I've seen it again and again: trees that seem healthy on the outside but are silently failing underground.

Why DRILL 2 FILL Was Born

Common decompaction techniques, such as high-pressure air or water, are widely used in tree care. But for mature trees, I've found these methods often do more harm than good. They disturb the very root plate that trees have built to survive.

That's why I developed a different solution: DRILL 2 FILL. This method involves carefully drilling narrow shafts 15 cm wide, up to 90 cm deep directly into the reinforced root plate. These shafts are then filled with HERBAFERTIL®, a patented, bioactive soil amendment we created to restore life deep within the soil profile, without disturbing the structural integrity of the tree's foundation.

Why HERBAFERTIL® Works

HERBAFERTIL is more than just a fertilizer. It's a complete soil health solution designed for mature trees under urban stress. When applied through DRILL 2 FILL, it brings life back to the root zone in several crucial ways:



- Reintroduces oxygen into anaerobic zones, restoring gas exchange.
- Promotes beneficial microbial life, including aerobic bacteria and mycorrhiza, while suppressing harmful pathogens.
- Stimulates new root growth right where it's needed most within the reinforced plate.
- Improves water management, helping soils drain better in wet conditions while retaining necessary moisture.
- Contains zeolite and biochar, which bind nutrients and prevent them from leaching into deeper soil layers protecting both the plant and the groundwater.
- Strengthens plant defenses by supporting robust cell development, increasing resistance to disease and pests.
- Encourages flowering and fruiting, especially in ornamental and fruit-bearing species, by increasing vitality at the root level.

One of the most valued benefits of the HERBAFERTIL® and DRILL 2 FILL system especially in arid regions is the significant water savings it enables.

When water is delivered directly into the deep aeration and nutrient chambers reaching as far as 90 cm into the soil it reaches the root zone immediately. At this depth, evaporation due to solar heat is virtually eliminated, making irrigation 100% efficient. All the moisture is available to the roots, with no waste at the surface. This method allows for up to 80% less water usage while maintaining the same level of water absorption by the tree.

These chambers can also serve as a sustainable alternative to plastic tree watering bags. They provide the same precision delivery of water where it's needed most but with the added benefit of soil regeneration, microbial enrichment, and long-term support for the tree's overall vitality.



In addition, HERBAFERTIL® includes water-retentive components that hold moisture in the root zone until the tree needs it. Natural elements in the mix expand by approximately 15% when hydrated, eliminating air pockets and ensuring immediate contact between roots and substrate. This ensures that both nutrients and water are immediately accessible, boosting efficiency and promoting continuous root development.

Each drilled shaft becomes what I call a deep aeration and nutrient chamber a vertical lifeline into the core of the tree's survival system.

A New Chapter for Urban Trees

Trees are incredibly intelligent. Given the right conditions, they will heal and adapt. The DRILL 2 FILL method now used in cities throughout Europe offers a way to extend the life of trees that were once considered past saving. It allows us to act precisely, sustainably, and respectfully, restoring rather than replacing.



Urban greening is no longer just about planting more trees. It's about preserving the mature ones we already have; those that have stood for decades and shaped the identity of our cities.

Because in the end, the strength of every tree lies not in its branches, but in what lies beneath. ■

