We invite you to partnership and cooperation in the revitalization of trees.

HERBAFERTIL®
Tree Revitalization with Ecological Irrigation

Data extracted from research conducted by the ‘Faculty of Forestry and Wood Technology’, University of Zagreb, Department of Ecology and Forest Cultivation, ref. Prof. Ivica Tikvić.
‘Herbafertil’ was patented in 2017. The product is a proven soil improver applied through the use of biodegradable cylindrical jute bags inserted within the tree's root system. ‘Herbafertil’ assists trees that are struggling to thrive by promoting root growth and development leading to improved canopy cover and crown definition. The product enhances soil conditions and helps to restore the compromised vitality of new and established trees.

‘Herbafertil - Mouth of the Tree’ was patented in 2022.

Since 2015 ‘Herbafertil’ has been introduced to the root plate structure of numerous urban trees and tree-lined avenues in cities across Croatia, Slovenia, Serbia, and Denmark, yielding exceptional results.

From 2021 to 2023, the ‘Faculty of Forestry and Wood Technology’ at the University of Zagreb, Department of Ecology and Forest Cultivation, carried out research into the "Revitalization of Urban Trees through the use of ‘Herbafertil’ and Ecological Irrigation." In 2023, they published their professional research paper findings demonstrating the effectiveness of ‘Herbafertil’.

www.herbafertil.com
Problems associated with Urban Trees

- Limited space for urban tree growth due to urban infrastructure (e.g. sub-surface interventions)
- Insufficient space for tree root-system development
- Mechanical damage to tree trunks (e.g. vehicular traffic, etc.)
- Increasing air temperatures, precipitation pollution, and insufficient rainfall – climate change modifications
- High levels of salt and polluted water – surface water run-off
- Changes in ecological factors – climate change modifications
- **The most common morphological indicators of reduced tree vitality include (but not limited to):** branch damage and dieback; crown tip dieback; thinning of the entire canopy or upper parts of the crown; leaf and needle drop; which leads to weakened trees susceptible to various pests, fungi, and other diseases.
How to Re-establish or Achieve Vitality in Urban Trees? 
Our Solution: HERBAFERTIL® + Ecological Irrigation

- Restoration of the natural composition of dead organic matter and nutrients in the soil around the root plate
- Improvement of the physical, chemical, and biological properties of the soil structure and composition
- Ecological irrigation introduced for urban tree pits
- Introduction of ‘HERBAFERTIL®’ nutrients to the tree pit
- Creation of a favourable microclimate in and around urban tree locations
- Preservation of the optimal space for urban trees in appropriately prepared tree pits

Ecological Irrigation of Urban Tree Pits

Principles of ecological irrigation for urban trees:

• The urban tree ecosystem is irrigated during periods of insufficient natural rainfall.

• Irrigation targets the soil surface beneath the rhizosphere of urban trees.

• The amount of water applied for irrigation purposes is equivalent to the natural precipitation per unit area.

• Soil is irrigated to the depth of optimal root development.

• A specific volume of soil is irrigated to the depth of optimal root development (limiting wastage and over-watering).

• Soil is irrigated in accordance with the optimal soil moisture-air conditions.

• Harvested rainwater is used for irrigation purposes.

‘Herbafertil’ is a patented soil improver with proven effectiveness, developed and refined through years of practical experience in tree and shrub planting and successful horticultural preparation, planting, and maintenance.

‘Herbafertil’ is created by blending a variety of nutrient-rich organo-mineral components (natural humus-peat-minerals) known for their rapid, targeted, and efficient impact on tree vitality.

The results of ‘Herbafertil’ applications have been demonstrated through scientific research and the publication of findings by scientists from the ‘Faculty of Forestry and Wood Technology’ at the University of Zagreb, Department of Ecology and Forest Cultivation.

The application of ‘Herbafertil’ has produced positive, evidenced results that have surpassed all previously available commercial planting substrates.
Function and Application of ‘Herbafertil’:

• ‘Herbafertil’ improves the health and vitality of trees via the root structure and surrounding soil, restoring natural relationships and conditions that are optimal for tree growth, development, and recovery, and improving the soil microbiome.

• ‘Herbafertil’ assists the development of the root mass under optimised aerobic conditions, strengthening the root plate and resulting in a visible reinvigoration of the tree canopy.

• ‘Herbafertil’ can be applied for both preventative and curative purposes. This is essential when existing trees are not thriving or when they begin to show signs of reduced vitality, poor growth, and dieback.

Application of Herbafertil:

• A cylindrical jute bag filled with a blend of natural substrates is installed in the area where the tree roots are most dense, specifically around the margins of the canopy projection.

• The nutrients are absorbed by the intricate network of fibrous roots with minimal damage to the thicker root structure.

• The resultant ‘Herbafertil’ application produces a cluster of young roots known as: ‘MOUTH OF THE TREE®’
A single ‘Herbafertil’ jute sack produces 6-7 kg of young roots (‘Mouth of the Tree’) stimulating healthy tree growth.

Average increase in the circumference of treated trees compared to untreated ones is 35%.

Ecological Irrigation - Water Savings with ‘Herbafertil’: 84 m³ or €241.16 per one hundred trees per week.

‘Mouth of the Tree’®

Anchoring tree roots in the soil and resist potential wind damage.
The research found an increase in tree vitality of approximately 40% during the first year of the experiment using ‘Herbafertil’ and ecological irrigation.

In 2023 the research assessment of tree vitality after the application of ‘Herbafertil’ and ecological irrigation evidenced an increase in tree vitality ranging from 64% to 86%.

(The core research images of Catalpa spp. and Tilia spp. trees from 2021 and 2022 recorded a low to moderate vitality range from 20% to 43%.)

This highlights that stressed or damaged trees in urban environments can be assisted and their vitality increased with an appropriate intervention of ‘Herbafertil’, rather than merely monitoring their decline and ultimate failure.

Results of the Scientific Research Project of the ‘FACULTY OF FORESTRY and WOOD’, University of Zagreb*:

‘HERBAFERTIL’® INCREASES TREE VITALITY >40%

Revitalisation of *Catalpa bignonioides* ‘Walter’ (SOUTH side)
In front of the Faculty of Forestry and Wood Technology, University of Zagreb


Revitalisation of *Catalpa bignonioides* ‘Walter’ (WEST side)
In front of the Faculty of Forestry and Wood Technology, University of Zagreb

Revitalisation of *Tilia cordata* 1 (SOUTH side)  
In front of the Faculty of Agriculture, University of Zagreb


Revitalisation of *Tilia cordata* 1 (NORTH side)  
In front of the Faculty of Agriculture, University of Zagreb


Revitalisation of *Tilia cordata* 1 (WEST side)  
In front of the Faculty of Agriculture, University of Zagreb

Revitalisation of *Tilia cordata* 2 (WEST side)
In front of the Faculty of Agriculture, University of Zagreb


Revitalisation of *Tilia cordata* 2 (NORTH side)
In front of the Faculty of Agriculture, University of Zagreb

*Before* 24.06.2022.
*After* 30.06.2023.

Revitalisation of *Tilia cordata* 2 (EAST side)
In front of the Faculty of Agriculture, University of Zagreb

*After* 01.09.2023.

### CANOPY VITALITY OF TILIA CORDATA 2 BEFORE AND AFTER REVITALIZATION

<table>
<thead>
<tr>
<th>Tree Location</th>
<th>2021</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilia sp. <em>2</em> WEST</td>
<td>95</td>
<td>78</td>
</tr>
<tr>
<td>Tilia sp. <em>2</em> NORTH</td>
<td>99</td>
<td>89</td>
</tr>
<tr>
<td>Tilia sp. <em>2</em> EAST</td>
<td>99</td>
<td>78</td>
</tr>
</tbody>
</table>
Revitalisation of *Tilia cordata*, Krško, **Slovenia**, 2021-2022

Revitalisation of *Fagus sylvatica pendula*, Belgrade, **Serbia** 2015-2018
‘HERBAFERTIL’®
Examples of potential future interventions and uses...

‘Herbafertil’ is also successfully used for:

• **Revitalising trees with root damage caused during construction work** (due to its ability to encourage trees to regenerate roots).

• **Revitalising valuable, vintage historical/heritage trees** (e.g. with tree stability challenges) – successful ‘Herbafertil’ implementation examples: Zagreb, "Dedek" Oak, 600+ years-old; Split, “Morus ‘Hajdukova’” 120+ years-old.

• **Revitalising trees in tree-lined avenues.**
Will we work together on projects to revitalize trees?

ABOUT US:

Maks Udov
mag.ing.silv.

Tin Udovč,
mag.oec.

We would like to take this opportunity to thank Prof. Dr. Ivica Tikvić from the Faculty of Forestry and Wood Technology at the University of Zagreb, Department of Ecology and Forest Cultivation, for his significant scientific and professional support.

Herbafarm-magnolija d.o.o.
Ulica Antuna Vramca 10
10000 Zagreb, Croatia

Mob: 00385 97 794 0279
herbafarm.magnolija.zg@gmail.com
herbafarm.hr@gmail.com
www.herbafertil.com

We are Maks and Tin, father and son.

Our company, Herbafarm - magnolija Ltd., was founded in Zagreb in 1994. Since then, we have been successfully resolving problems and introducing innovations in the field of urban forestry and horticulture for almost 30 years.