



# **Green Legacy**

Water-retaining granules for greener Cities

# Content



## Water-retaining granules for greener Cities

1. Current situation: climate change & heat islands
2. Mitigation: urban greening
3. Challenges to urban greening
4. Our solutions to urban greening challenges
5. Case studies / validation /references
6. About us
7. Questions



## GLOBAL WARMING

### Urban heat islands:

areas in cities where temperatures are significantly higher due to human activities and infrastructure





## SOLUTION: URBAN GREENING

Establishing more green spaces:

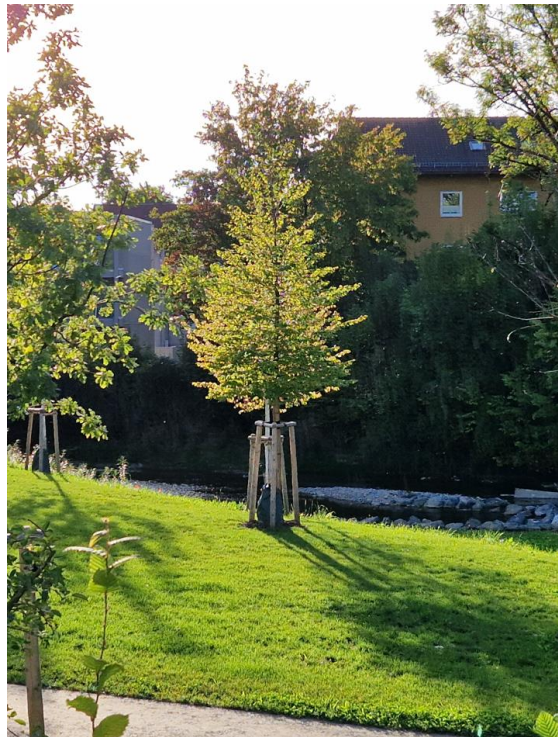
- Parks
- street trees, and
- green roofs / vertical greening





## CHALLENGES TO URBAN GREENING

- Heat and Drought
- Water Management Issues
- Pest and Disease Proliferation
- Maintenance & Operational Costs





## **SOLUTION: WATER-RETAINING GRANULES**

Absorb, store and efficiently release water and nutrients:

- Reduced risk of draught damage
- reduced irrigation by up to 50%
- Improved vegetable growth rates



# PRODUCTS AND APPLICATION AREAS



## Products

### Water and Nutrient Storing - granules

- Store up to 200 times own weight in water
- Long active life in soil: 3-5 years



## Application areas

- Forestry
- Fruit and Viticulture
- **Garden/Landscaping**
- Vegetable & Crop Farming
- Special crops

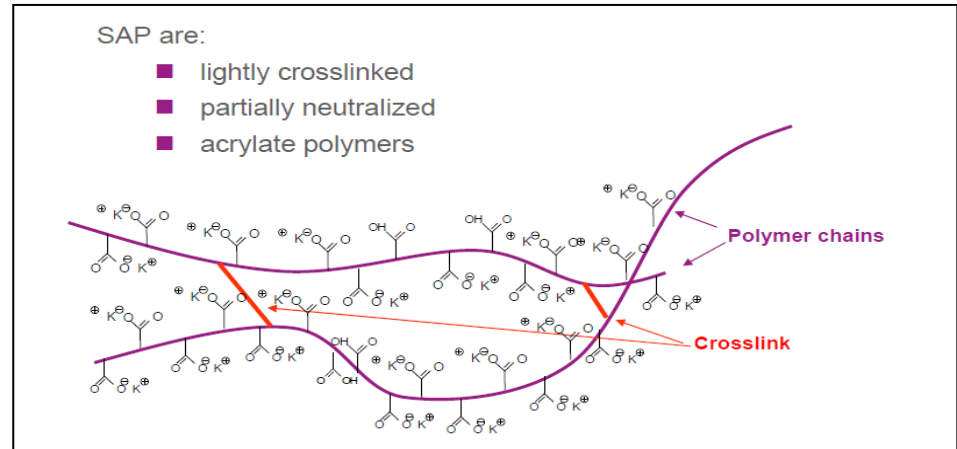
100% biodegradable products



# COMPONENTS

- ▶ Mostly natural polymer = **cellulose**
- ▶ with a **synthetic polymer** element for longer life & performance
- ▶ Plus a starter balanced **fertilizer**

Structural formula of cross-linked potassium polyacrylate





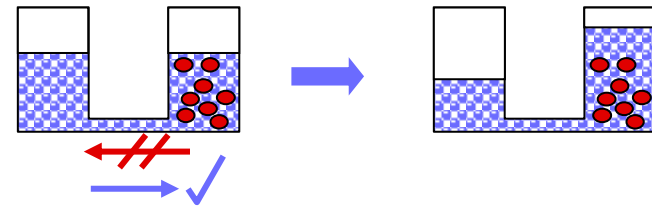
# ABSORPTION, RETENTION AND RELEASE MECHANISMS



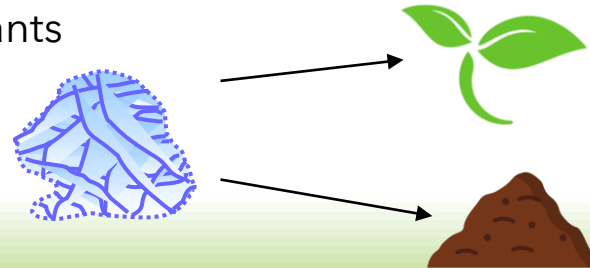
- ▶ Penetration of water along the polymer strands due to capillary forces



- ▶ Water absorption due to the osmotic pressure



- ▶ By reverse: Water release to soil and plants



# ABSORPTION, RETENTION AND RELEASE MECHANISMS



# GRANULES INTERACTION WITH THE ROOTS



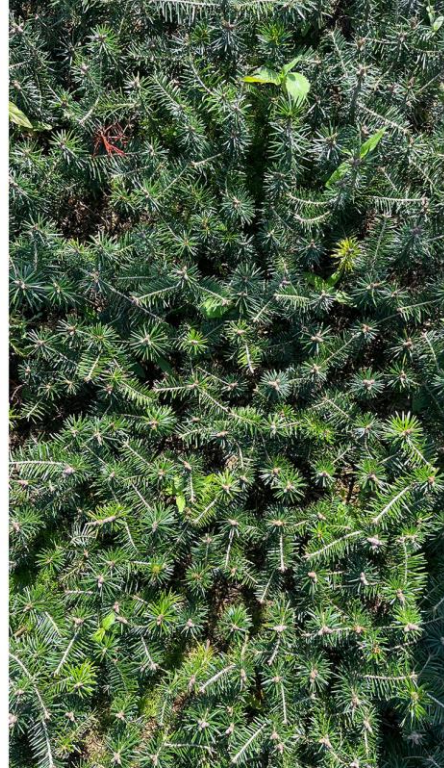
## **Fine Roots + Hydrogel**

Stored water  
and nutrients  
are plant  
available

# USE CASE: PRODUCTION OF TREE SEEDLINGS



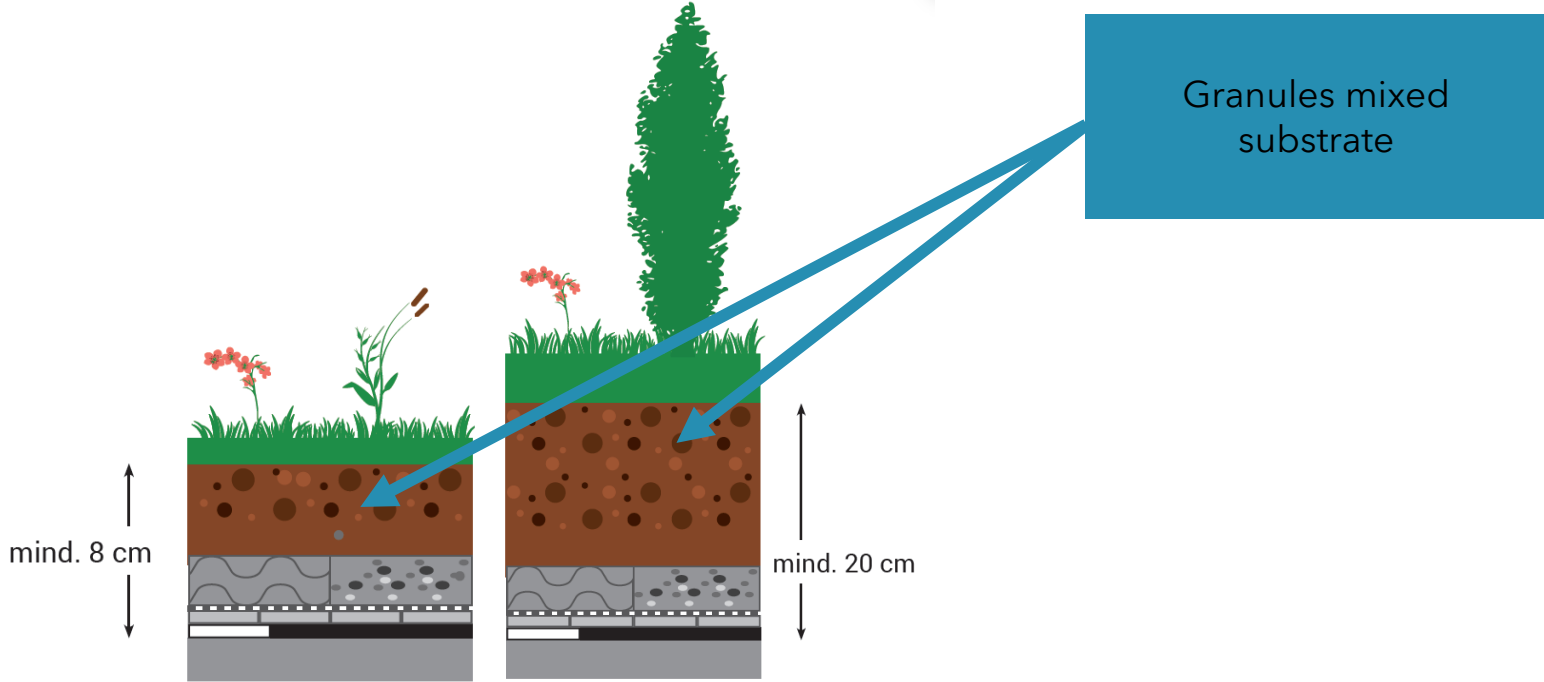
# USE CASE: PRODUCTION OF TREE SEEDLINGS



Control

Hydrogel

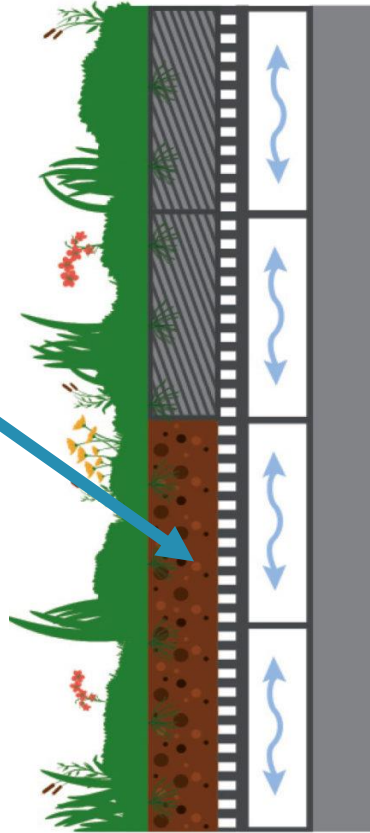
# ROOF GREENING



Source: GrünstattGrau

# VERTICAL GREENING

Granules mixed in the substrate



Source: GrünstattGrau



# USE CASE: REVITALISATION OF STREET TREES



## APPLICATION OF GRANULES AS A HYDROGEL

### e.g. VOGT Geo Injector

- ▶ Lance with pneumatic hammer and hydraulic pump
- ▶ soil is aerated with compressed air, the cavities created are subsequently filled with hydrogel
- ▶ Excellent cost-benefit ratio



Source:

[https://www.vogt-tec.de/files/ugd/d9256f\\_1be48782d8d549f6b163cdf1da6958e.pdf](https://www.vogt-tec.de/files/ugd/d9256f_1be48782d8d549f6b163cdf1da6958e.pdf)



# PARTNERSHIPS



## Tested & validated





# Green Legacy GmbH



Established: 2016  
Private investor growth phase: 2023



Relocation to Hollabrunn/Lower Austria 2023



Multidiscipline  
Diverse      Highly motivated team with roots in local community  
International



Long-standing hydrogel + agriculture experience



Strategy for sustainable global growth

# Team



# Questions?



Many thanks for your attention

**Green Legacy** GmbH

[www.greenlegacy.at](http://www.greenlegacy.at)

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