

Plant use in a textile based system for vertical greening

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Objectives

- attractive + all season plant image
- simple installation
- cost efficient
- low maintenance
- large scaled wall greening
- input: „future city“
- test plants on their suitability
- high plant diversity

Materials and methods

- textil vegetation layer: polyester-spunbonded fabric, no substratum
- april-june 2017: pre-growing in the greenhouse on tables (horizontal)
- july 2017: hanging the green-textile vegetation layer on the wall
- 3 variants + control, 4 repetition
- 4 walls, exposed: north, south, east and west
- plant choice: moist or wet habitat; for sun, semi-shaded, shaded

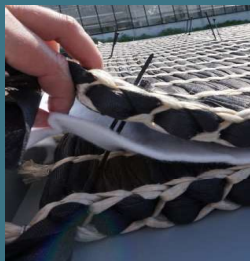


fig.1: Textil vegetation layer

Measurements

- photos
- LAI 2200 (cover)
- rating (ability, attractiveness)
- plant height
- plant weight (after cutting)
- water consumption/ -content
- temperature

Contact

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Experimental wall



fig.2: One Experimental wall, exposed to west, with the variants: sowing, cascade, ground cover and control (without plants); closed irrigation system with nutrient solution stored in a cistern

Plant-mix variants

sowing

- Sowing in April 2017
- marsh area mix: e.g.: *Achillea millefolium*, *Centaurea cyanus*, *Plantago lanceolata*, *Lycopus europaeus* s. str., *Cynosurus cristatus*, *Anthoxanthum odoratum* s. str.



fig.3: sowing, picture west-wall, 2017-08

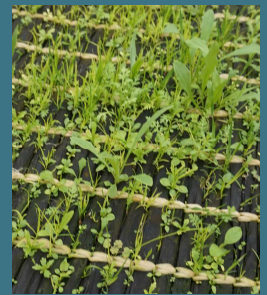


fig.4: one month after sowing, 2017-05

cascade



fig.5: cascade, picture west-wall, 2017-08

<i>Hemerocallis cultorum</i>	<i>Iris foetidissima</i>	<i>Asplenium scolopendrium</i>	<i>Hakonechloa macra</i>
<i>Asplenium scolopendrium</i>	<i>Hakonechloa macra</i>	<i>Carex muskingumensis</i>	<i>Polystichum setiferum</i>
<i>Carex dolichostachya</i>	<i>Polystichum setiferum</i>	<i>Hemerocallis cultorum</i>	<i>Carex dolichostachya</i>

fig.6: cascade, planting scheme: craning growth, height: 40-50cm

ground cover



fig.7: ground cover, picture west-wall, 2017-08

<i>Ajuga tenorii</i>	<i>Ajuga tenorii</i>	<i>Lysimachia nummularia</i>	<i>Waldsteinia ternata</i>	<i>Waldsteinia ternata</i>
<i>Ajuga tenorii</i>	<i>Ophiopogon japonicus</i>	<i>Lysimachia nummularia</i>	<i>Lysimachia nummularia</i>	<i>Waldsteinia ternata</i>
<i>Pachysandra terminalis</i>	<i>Ophiopogon japonicus</i>	<i>Liriope muscari</i>	<i>Polypodium vulgare</i>	<i>Glechoma hederacea</i>
<i>Pachysandra terminalis</i>	<i>Pachysandra terminalis</i>	<i>Liriope muscari</i>	<i>Glechoma hederacea</i>	<i>Glechoma hederacea</i>

fig.8: ground cover, planting scheme: creeping growth, height: <20cm