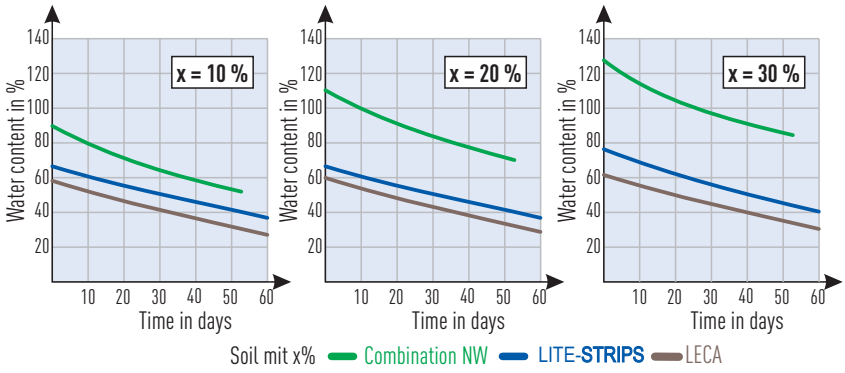
The water absorpion and water storage capacity of soil mixtures with LITE-STRIPS

The goal of the investigation was to determine, to which extent LITE-**STRIPS** (cut from a thick water storage nonwoven) can improve the water absorption ans storage capacity of soils, thereby increasing the stability against erosion. For comparison reasons, also expanded clay beads (LECA) and combination nonwovens (LITE-**STRIPS** with integrated biological superabsorbants, substrate and fertilizer) were mixed into different types of soil and tested.

Test Performance

The soil mixtures were filled into planting pots which were fully saturated with water, and placed on a grid for 24 hours to allow surplus water to run off. Then the water content was determined. For the following weeks, no additional water was applied and the specimen were weighed daily. The water contents over time are illustratedin the diagrams below.



Test Results (Extract)

- The **water absorption capacity per volume** of LITE-**STRIPS** is more than **50% higher** that that of LECA. The values achieved with combination mats are even up to **17 times higher** compared to LECA
- The **water absorbtion capacity per kg** of LITE-**STRIPS** is approx. **8 times higher** than that of LECA. The combination mats exceeds the resuts of LECA even by the **50-fold**
- A 10% content of combination mat increses the water content by 47%

After a drying period of 30 days:

- The **water content** of the humus from approx. **37%** remains ualmost nchanged when LECA is (36-40%). The LITE-**STRIPS** however increase the water content to **41-51%**, the **combination mats** even up to **59-94%**
- Per volume of inserted elements, an approx. **60 - 80% higher water absorption of LITE-STRIPS** is achieved compared to LECA. When weight is taken into account (which is important for flat roofs), 1 kg of nonwoven strips can store approx. **8 times more water** than 1 kg LECA

LITE-**SOIL**
All in ONE: Air-Soil-Water

Lite-Soil GmbH
Neustiftgasse 94/23
A-1070 Vienna
T +43 1 5227310
office@lite-soil.com
www.lite-soil.com

Summary

The water storage capacity of nonwoven strips (Lite-Strips) mixed with soil is approx. 8 times hgher than that of expanded clay beads (LECA).

Humus mixed with Lite-Strips

Performed by:

University of Natural Resources and Applied Life Science, Vienna
- Departement of Civil Engineering and Natural Hazards
- Institute of Geotechnical Engineering