

Tension controlled plant watering system

watering system, plant cultivation, agriculture, gardening, hydrology, water management, water supply, precision watering

DESCRIPTION OF TECHNOLOGY

Sustainable and efficient watering strategies are more important than ever in view of current and future climate developments. In addition to known factors such as nutrient supply, soil characteristics and plant development status, water supply is crucial for optimal growth and yield performance of the plant.



Known watering systems do not take into account the variable water needs of the plant, but those of the soil and are based only on timers and soil moisture sensors.

Each soil has a fixed tension value that reflects the suction tension for liquid. This value is influenced by the water consumption of the plant, as well as environmental conditions. By measuring the tension, the watering system recognizes the actual water demand of the plant and, with the help of a sophisticated water system, maintains a constant tension. This allows the optimal assimilation rate to be maintained under a wide range of conditions.

By focusing on the actual water requirements of the plants, optimal watering can be ensured for a wide range of varieties and development stages. Especially in drought regions, untargeted water consumption can be limited.

The device consists of a porous plate connected to a water reservoir on which a rootable substrate is placed.

AT A GLANCE ...

Applications fields

- gardening
- industrial agriculture
- sports and green areas
- grazing land- and field areas
- cities/communities /private households

Business

- agriculture & forestry
- Market gardens

USP

- tension-controlled
- constant irrigation on demand-based on tension
- water-saving
- adaptable to different soils, plants and cultivation methods

Development status

- prototype
- next step: scale-up

Patent status

European Patent will be granted in 2022

ADVANTAGES OVER THE PRIOR ART

- Consideration of the variable water demand of the plants.
- Tension controlled, with constant tension depending on the setting (season, plant size, etc.)
- Provides optimal germination conditions
- Adaptability to different substrates and plants
- Porous plate can be of different materials
- Targeted fertilizer/herbicide application possible
- Avoidance of under- or over-watering, as well as sensible watering by eye when deficiency is already prevalent

STATE OF THE PRODUCT DEVELOPMENT

A prototype has been developed and the next steps should aim towards scale-up.

Addition for existing systems as well as extension with other devices are possible.

MARKET POTENTIAL

According to the German Chamber of Commerce and Industry (IHK), the market share and sales of watering systems have been increasing constantly for several years.

Changing climate patterns and environmental conditions (long periods of drought, soil degradation, higher temperatures and humidity, lack of rainfall, etc.) as well as ever increasing yield/yield requirements will continue this trend worldwide.

Worldwide, about 43.6% of all agricultural land is located in drylands (Statista). Existing yield areas can be optimized and new yield areas can be developed with the system. Variations in the structure as well as in the materials used allow a wide range of applications with regard to the area and location of use. Exemplary applications would be, among others, in industrial horticulture or as a technology demo in entrance areas or at communal places.

COOPERATION OPPORTUNITIES

On behalf of the Technische Hochschule Mittelhessen, TransMIT GmbH is looking for cooperation partners or licensees for the implementation and/or further development.

A TECHNOLOGY OF



Contact

TransMIT Gesellschaft
für Technologietransfer mbH
Kerkrader Straße 3
35394 Gießen
GERMANY
www.transmit.de

Contact Person

Dr. Andreas Fuß
Tel: +49 (0) 641 9 43 64 58
Fax: +49 (0) 641 9 43 64 55
E-Mail: Andreas.Fuss@transmit.de

