

DEVICE TO INCREASE THE INFILTRATION AND RETENTION OF WATER IN THE LAND AND AGRICULTURAL YIELD

Technology for Licensing

Keywords:

Infiltration, irrigation system, biochar, oasisification, hidroeficiency, agricultural performance, olive tree, oil.

Description:

Water is a limited resource, so it is necessary to make the most of it. Currently, various systems and methods are used for the use of rainwater in crops but they end up presenting important limitations.

In this way, this new device is buried or semi-buried in the land surrounding the crop and facilitates the deep infiltration of rainwater, irrigation, or runoff in a significant way, also favoring the incorporation of nutrients and the increase of the production and quality of the agricultural product. The device consists of a mesh-like envelope filled with biochar; Biochar (international term to refer to charcoal) is obtained by pyrolyzing biomass from crops, forest stands, or organic waste from the agri-food industry. This material has been shown to have positive effects on the fertility (physical, chemical, and physicochemical) of the soil.

It has also been developed the optimal procedure for device field installation, as well as some suitable handling methods that allow its function and efficiency to be fully exploited.

This technology has been proven in field trials, specifically in olive tree crops, showing a significant productivity improvement. Surprisingly, using this procedure allows to increase the yield of olive trees by more than 74% and to increase the average oil production above 280% in areas with low rainfall.

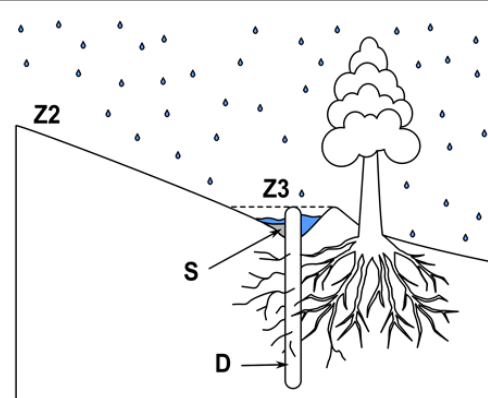
Actuación en el marco del Proyecto ILIBERIS: Actuaciones Singulares de Transferencia de Conocimiento en el CEI BIOTIC. Objetivo prioritario OP.01 "Potenciar la investigación, el desarrollo tecnológico y la innovación"

A device allows better water infiltration and water deeper deposition into the subsoil. It also facilitates the irrigation and localized fertilization in the plant root zone for optimal crop use.

Current irrigation systems have large used water amounts lost due to solar evaporation. Through an optimal water use and a chemical soil improvement, the device has many applications: improve crop yield, reforestation, or maintain the ornamental plants and solve waterlogging problems on the surface, etc.

Advantages and Benefits

- » Economical, versatile, and easy installation
- » Greater rainwater use, irrigation, and runoff
 - Efficient infiltration and deposit of water on the ground throughout the year.
 - Increase in the agricultural yield of the crops in terms of quantity and quality.
 - Recharge of the aquifers of the region.
 - Prevents waterlogging of the ground surface.
 - Reduction of water erosion of the soil and the loss of fertile land.
- » Biochar physically and chemically improves the soil in a localized and lasting way
- » Helps mitigate climate change
- » Promotion of sustainable management of agricultural waste



Schematic representation of the invention system

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Also applied in USA, Chile, Mexico and Honduras.

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