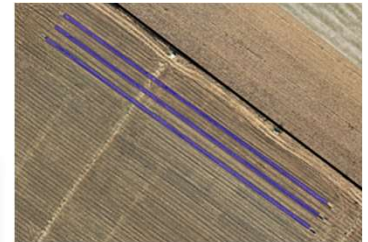
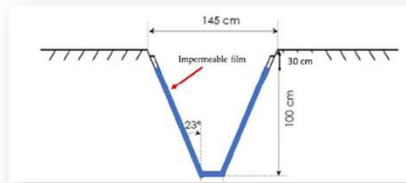


Introduction

Agricultural activities depend heavily on irrigation in arid and semi-arid climates, which are one of the most water-limited areas, reducing agricultural productivity. As the climate changes, the lack of precipitation is expected to aggravate in these areas, requiring careful management of water use. Subsurface water retention technology (SWRS) may hold promise as a management tool to save water use and improve crop drought resistance. CREA has developed a machinery that creates SWRS systems in a single pass and in the framework of MIDAS project an experimental trial was performed in Spain in collaboration with ITAP to test the efficacy of that system on Guayule (*Parthenium argentatum*) used for producing rubber.



Installation profile



Lines with a density of 40,000 pl/ha



Lines with a density of 20,000 pl/ha

Installation of the prototype

The installation was carried out in April 2023 in five bands within the plot, separated into two groups:

A group of three lines, prepared for planting two lines of Guayule within the prototype, with density of 40,000 pl/ha.

A group of two lines, prepared for the planting of a central line of Guayule, with a density of 20,000 pl/ha.

Planting of Guayule was carried out in autumn 2023.



Installation of sensors at two depths (30-60 cm).



A high-precision rain gauge has been installed on the plot.

Provisional results

The data obtained so far do not allow conclusions to be drawn as to whether the installation of the prototype has a positive effect on the guayule plant. However, the sensor measurements obtained show that at least the soil contains more moisture in the plants above the prototype, with a 2% difference in moisture in the sensor at 30 cm compared to the one at 60 cm, the latter having the highest percentage of moisture.

Soil Monitoring

After planting of Guayule crop, soil sensors were installed to monitor soil moisture content and temperature at different gradient of SWRS influence and in control areas.

