



Climate resilient farming
and forestry systems
and water management

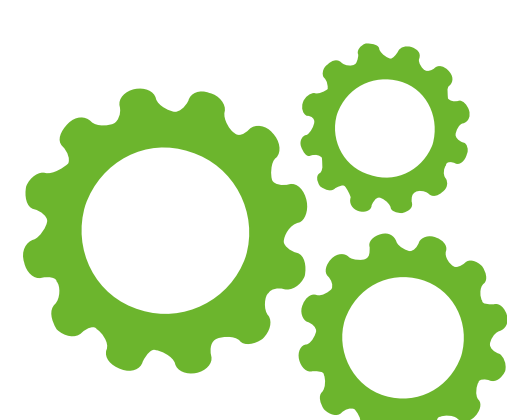


AGRI
Innovation summit 2019

Operational Group

Artichoke: Experimentation and development towards a new form of production that reduces the impact on the water resources

L'artichaut : Expérimentation et développement vers un mode
de production qui diminue l'impact sur la ressource en eau



Practical problem

Water overuse and pollution by gravity fed irrigation
in artichoke crops



Partners

SICA CENTREX (experimental station), CHAMBRE
D'AGRICULTURE 66 (technical institute), SUDEXPE
(experimental station), GIEE Acréphyl (farmer
association).



Calendar

Start: 15/04/2017
End: 31/12/2020



Budget

Total amount:
€112,600

Objectives of the project

The artichoke production has not changed much since the post-war period. In Roussillon, 90% of plots use gravity-fed irrigation. This annual crop uses significant amounts of water estimated at about 10,000 m³/Ha/year. Gravity irrigation generates risks of leaching nutrients and promotes the emergence of weeds and the use of herbicides to control them. The objective of the project is to develop a new water-efficient production by adapting the traditional production system. The goal is to test gravity-fed irrigation controlled by tensiometric probes, to compare it with drip irrigation (with and without mulching) and to measure impacts of this change of practices.

Main activities

- Compare water consumption between gravity-fed irrigation and drip irrigation (with and without mulching) and measure impacts on agronomic results (yields), pressure of bio-aggressors and weeds (number, incidence...), and economic results.
- Compare gravity-fed irrigation controlled by capacitive probes with gravity-fed irrigation piloted by the producer and measure the impacts (reduction of water consumption, yields, pest pressure...).
- Set up a network of reference plots controlled by tensiometric probes and diffuse collective advice for irrigation.

Expected results

The expected results are a reduction of water use and a reduction of time spent managing irrigation while keeping the same yield. An improvement of the products quality and a decrease of diseases.

Results so far/first lessons

The first results show that drip irrigation reduces water inputs by 63% but also reduces the yield, by 15% when there is no mulching. With the mulched part, there was a 33% yield reduction due to mole rats proliferation under the mulch that led to a high mortality of the artichoke plants. The artichoke heads were more affected by frost when watered with drip irrigation. Installation of drip irrigation costs around 2913 euros/ha of equipment and mulching costs 635 euros/ha. But it reduces by 36% the time spent for the watering of the crops.

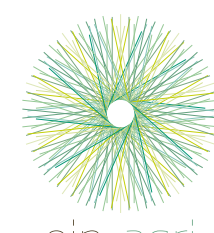
Who will benefit

This project will benefit to artichoke producers who will have access to an alternative to gravity fed irrigation.

Supported by:



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