Extended Practice Abstract Nº 8

Rice straw mulching to increase water efficiency in citrus production

Challenge

Citrus cultivation takes place in areas where water can be a scarce resource, especially given the current climate change situation. Therefore, good management of this resource is essential.

Solution

One practice that allows water saving is the use of mulching, in this case, rice straw from the Albufera Natural Park in Valencia (Spain). However, it is possible to use straw from any crop, prioritising those that do not have a circular use in the area of application.

Benefits

- We avoid the evaporation of water.
- With the decomposition of the straw, we provide organic matter to the soil.
- We control the appearance of weeds, avoiding the use of herbicides.
- In the case of the rice straw, due to its characteristics, is not the best for animal feed and is traditionally burnt. Thanks to its use as mulching, we can avoid burning it.

Applicability box

Theme
citrus; adaptive management; water-use efficiency

Context
Citrus production area, especially with risk of water availability in the future

Application time
September/October

Required implementation time
1 month

Period of impact
Immediately after applying the mulching

Equipment
No specific equipment is required

Practical recommendation

- It is necessary to wait for the rice to be harvested and then acquire it from companies that manage it.
- Beforehand, the field must be prepared, eliminating weeds and levelling the ground if necessary.
- Distribute the rice straw uniformly over the surface of the soil around the trees.
- Avoid placing the straw directly in contact with the tree trunks to prevent humidity and disease problems.
- Regularly monitor and recalibrate irrigation, as it will almost certainly be necessary to reduce the previous water allocation.

Furthermore, to monitor water needs and achieve more efficient irrigation, capacitance probes, satellite information and/or drone flights with thermographic cameras can be used.
With the data obtained through one or more of these systems, together with a platform to display the data, it is possible to know the optimal time for irrigation, as well as the amount of water to provide.

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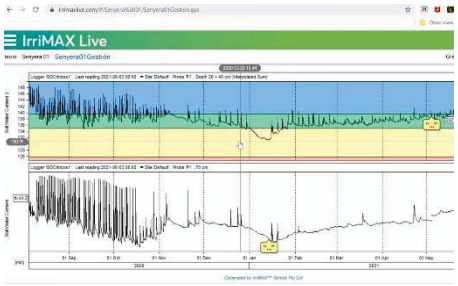
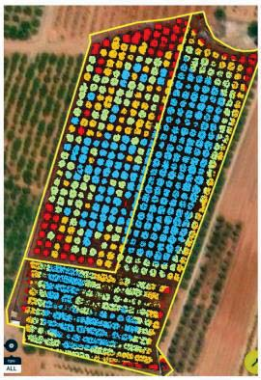
Picture 1. Rice straw applied in field 1

Picture 2. Rice straw applied in field 2

Picture 3. Capacitance probe



Picture 4. Digital platform with results obtained from the capacitance probe



Picture 5. Digital platform with results obtained from satellite/dron

Further information

Web links

Project website: https://gocitrus.eu/
Social network (*Spanish*): https://twitter.com/Gocitrics

Further reading

- Manual of maintenance of irrigation communities and installations on plots (*Spanish*)
- Manual of precision agriculture in irrigation and fertilization (*Spanish*)

Contact information

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