

TURNING INFORMATION INTO PROFITS

CULTIVATION: Palto, North Peru

Agronomic issue:

Water and nutrient losses due to percolation and salinity problems

Climate - soil - plant relationship.

Crops are exposed to various climatic conditions. They determine the water requirements of the plant, so irrigation is carried out to meet these demands. However, irrigation is applied to the soil, which has its own physical, chemical and biological characteristics. Therefore, it is of utmost importance to understand the crop, the soil as the environment in which it grows.

Salinity problems

Avocado is one of the least tolerant crops to salinity in the Peruvian agroindustry. It should be noted that the maximum depth of avocado root growth in deep, well-drained soils varies between 1.2 to 1.5 m, with approximately 80% concentrated in the first 40 cm of depth. Therefore, it is essential to measure and monitor the movement of salts to avoid problems in the roots of the crop due to excessive accumulation of salts.



METOS® SOLUTIONS:

Soil profile monitoring for moisture and salinity

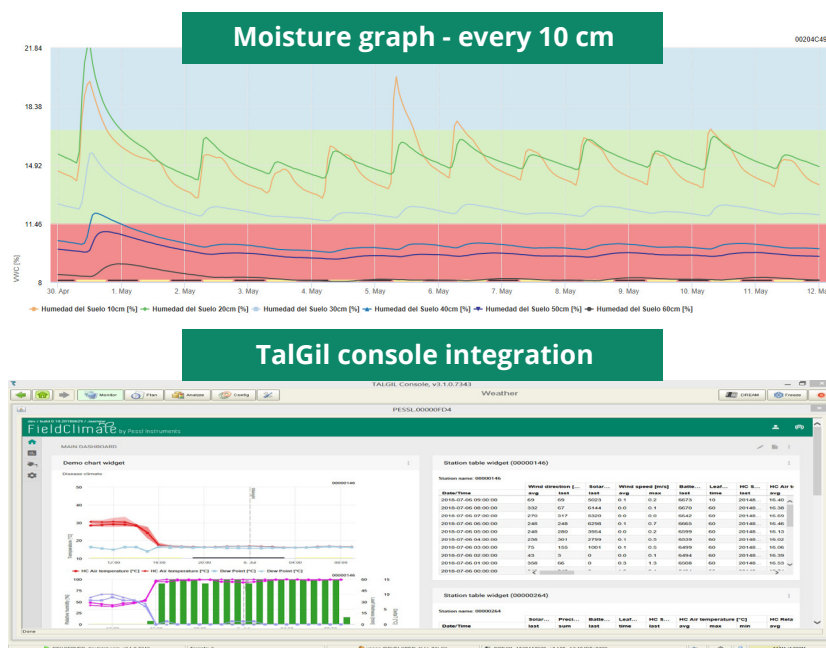
Root system monitoring. Real-time measurement and monitoring of water behaviour in the soil profile every 10 cm.

Irrigation accuracy. Determine the irrigation doses, ensuring that water is present in the root zone, thus avoiding percolation losses without causing water stress that would reduce production.

Fertigation management. Application of water and nutrients in the root zone taking into account soil characteristics to avoid nutrient and water losses due to excessive infiltration. Identify concentrations of salts that may react with fertilisers and alter water relations in the soil.

Irrigation scheduling. Adjust the irrigation shifts with greater precision based on the soil and climate conditions during each climatic season. Integration with the TalGil platform to visualise METOS® station data.

Crop management. Considering an optimal development of the crop, the volumes of water applied in irrigation events can be reduced. This also avoids salinity problems that could damage crop yields.



ROI - Return on Investment

Example from Northern Peru

- Real-time irrigation scheduling based on the climate-soil-plant relationship increases yield and production quality, as well as water efficiency.
- Reduce water use by 15 to 20 % compared to the commonly given dosage. This will mean a saving of 100 m³/ha per 3 days and 1000 m³/ha per month.
- Save 75 USD/ha in each month, when the water is a cost of 0.071 USD/m³. For example, on a 50 ha farm, the total saving is around 3750 USD per month.
- In one year, costs are reduced by USD 45'000 on the farm. This allows a **return on investment of 10:1**, i.e. for every USD 1 invested in the IoT solution, there is a return of approximately USD 10 in one year.

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