

TURNING INFORMATION INTO PROFITS

A STUDY CASE IN RUSSIA **POTATOES AND FARMVIEW**

The global production of potato crops is projected to grow at a CAGR of 1.06% during the forecast period (2019-2024). In fact, less than 50% of potatoes grown worldwide are consumed fresh. The rest is consumed by the food processing industry, which acts as a major driving force behind the growth of the potato market. Moreover, it also acts as a strict demand for product standardization.



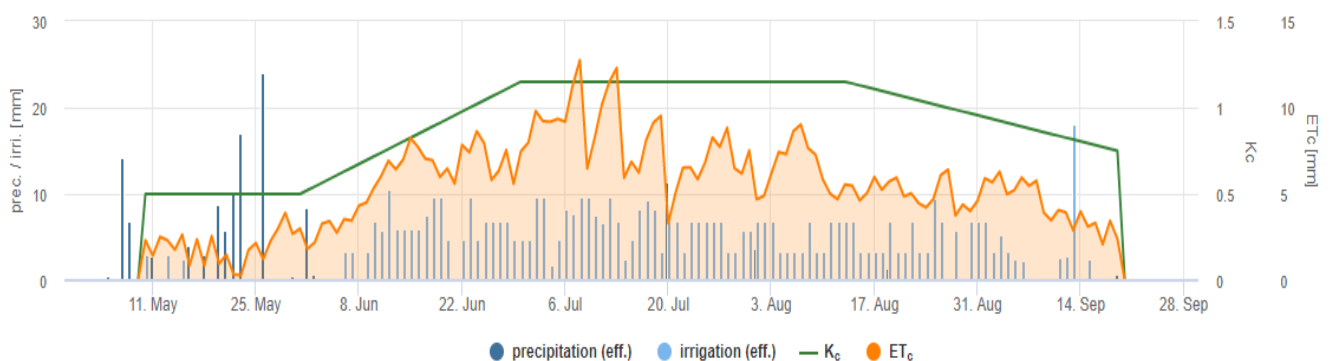
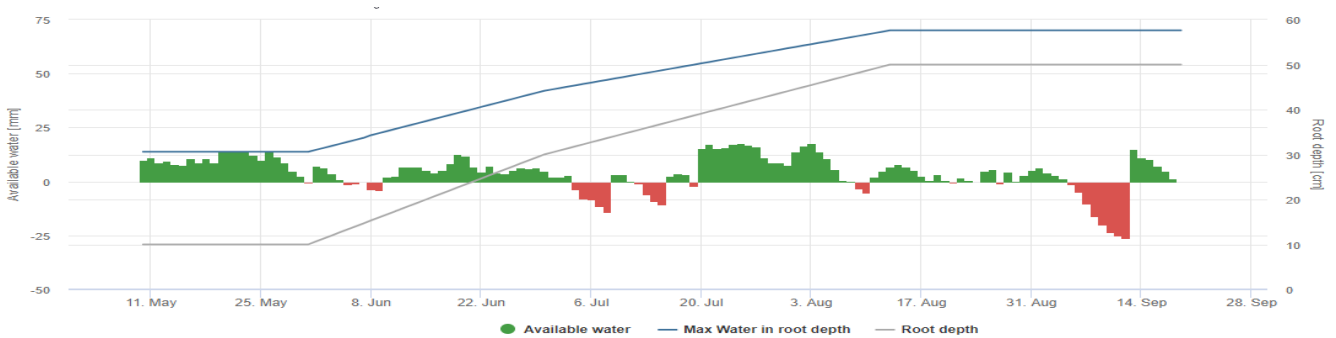
POTATO GROWER USING METOS SOLUTIONS

- Farm size: 400 hectares with potato + 10.000 Ha of irrigated maize and other crops
- Types of crop: potato variety BP 808
- Sensor types: Sentek SE 600 + ET0 station
- Main applications: Farmview Irrimet for irrigation decisions and satellite imagery to track crop development
- **Benefit out of FarmView: under water-stress conditions while in drought events, the grower was able to see which moments required wise use of water, with overall increased yield from 37 to 44 tonnes/ha.**

CHALLENGES OF GROWING POTATOES

*“The year of 2020 was very difficult due to drought scenarios in Russia. If earlier we irrigated no more than 4.5 thousand m³ / ha, then last season we used almost 6.5 thousand m³ / ha both on potatoes and corn. At the same time, automatic sensors and programs still recorded a lack of moisture, that is, we could not even always reimburse the transpiration costs of plants. **Despite all this, it worked effectively to tell us that even if you prepare year by year with expected irrigation predictions, the only reliable solution is to have sensors on the ground to measure real-time data, with daily control.**”*

- In order to meet French fries industry’s criterias, potato tubers must equally meet standards of size and quality.
- Irrimet graph evidences a rainfed initial sowing, followed by very little rain from end-May to September. To face drought challenges, irrigation events have taken place since June.
- Since mid-season, irrigation thresholds were kept around 1/3 of field capacity values (upper blue line), although increased in the number of days - as shown on the second graph below.
- Potato is a sensitive crop where a 12-24h water stress during stages of vegetative phase may lead to 20% yield loss or diminishing of tuber quality. Whereas excessively wet soils can trigger tuber-rotting pathogens, such as blights or rot.
- **To control soil water balance allows growers to tailor water levels in accordance with crop development, in all types of situations, including droughts. When under water stress, growers need to rely on irrigation water. Therefore, every single water drop out of reservoirs counts to achieve desirable yields.**



“The year of 2020 was a complicated transition where we had to learn how to use more water in order to keep the crop healthy and alive...before, this was never a big issue for us. Despite all the challenges of fighting against unstable weather, the support from Irrimet data helped us to enhance yield (from 37 to 44 tonnes/ha, with an increase of ~ \$1500/ha).”

Using Satellite LAI-Dynamics to control vegetation dynamics

- Satellite shows a potato culture in a rectangle shape as a portion of the full cropzone, with terraced structure. **Data zonation provided by cropzones helps users to act locally with more precision, avoiding equal application of chemicals, water irrigation, nutrients, etc.**
- Mean biomass reached 2.6 on July 6th.
- In potato fields, different tuber varieties are commonly planted at the same time.
- Images below show two parallel cultures within the same cropzone: one potato crop with biomass development from 06/07 until 01/09 ready for harvesting (greener range); while the other shows bare soil with field preparation for sowing (pink rectangle).

