The Irrigation Manager Solution

Real-time Field Monitoring

Growers of all crop types can improve their production and reduce their water consumption with the use of real-time field monitoring applications. Field monitoring stations integrate soil moisture, irrigation system, plant health, and weather sensors that can be placed at strategic locations throughout a grower’s farming operation.

PureSense’s field monitoring stations support:

- A variety of soil moisture sensors, including Sentek soil moisture probes of 0.5-, 1.0-, and 1.5-m depths and individual soil moisture sensors from Decagon with the ability to measure temperature and salinity.
- Weather stations complete with in-canopy temperature and humidity, solar radiation, and evapotranspiration measures.
- Irrigation system sensors using pressure switches for on/off status indicator, rain gauges for sprinkler operations, and pressure sensors to indicate irrigation system “health”.
- Leaf wetness sensors to detect and manage disease potential during crop productions.
- Flow meter monitoring that provides instantaneous and totalized flow measures for those pump stations delivering irrigation water to the field. Pressure monitoring can also be deployed at these stations to provide growers with real-time trends in pressure maintenance at pump stations.

Data is captured from all sensors every 15-minutes and delivered wirelessly to grower’s Irrigation Manager tools, whether accessed on their laptop, iPad, or iPhone.

Trouble-Shooting Equipment

Growers can keep their field monitoring stations in good operation by these simple actions:

- Keep sensors and communication system from being obstructed by crop canopy;
- Keep the solar panel surface clean (annually);
- Remove debris from the rain bucket (annually);
- Clean the solar radiation sensor (annually);
- Check all cables and enclosures for damage from field activities.

Build Farm to Maximize Value

Working with PureSense’s support team, growers can build their farms in the Irrigation Manager application so as to better manage and schedule their irrigation operation.

This also serves to provide growers their field information in a single place; namely:

- Mapping of fields, irrigation sets, and pump station locations;
- Crop information including crop type, varietals, planting and harvest information;
- Irrigation system design data such as method, application rate, distribution uniformity, total field flow, and emitter density;
- Ability to assign field monitoring stations to fields and sets so that the moisture conditions, irrigation operations, and scheduling can all be tracked over time.

By building your farm in the Irrigation Manager application, growers can receive standard reports that track irrigation hours, applied water, and irrigation forecasts at the field level. Further, growers can plan and track their water management program each year.
The 5 Step Management Program

1) Create a Water Budget
Growers can create a water management plan for each field to guide their irrigation operation. The water management plan uses historical, crop-specific evapotranspiration estimates for crop water demand within the time periods defined by the water plan. Growers can modify these estimates to produce their own unique water plans, and track their performance throughout the year against their plan.

2) Assess Infiltration Performance
Track soil moisture trends to know...
- Whether your operation is able to replenish moisture for crop uptake (increasing soil moisture);
- Likelihood that standing water and surface runoff may be occurring in your fields (little to no change in soil moisture at the upper depths of the soil profile during and following irrigation events);
- Your ability to land your irrigation water in the active root zone of your vines (infiltration depth).

3) Track the Active Root Zone
Know where your roots are most active...
- Stair-step pattern shows root uptake during the day and resting at night
- Depth increases throughout the production season;

4) Determine Crop Water Demand
Crop water demand is forecasted for growers using climate and soil moisture data to assist with on-going irrigation scheduling operations. PureSense’s forecast reports provide estimates of up-coming crop water demand and the irrigation hours needed to meet that demand. Using these forecasts, and adjusting for your local water resource availability, growers can quickly and easily schedule their irrigation events.

5) Track Field Applied Water
Using the irrigation system monitoring units and flow monitoring systems at irrigation pump stations, growers can track their field applied water levels throughout the growing season.
These data can be used for (1) reporting to local and state agencies; (2) optimizing water resource use; and (3) tracking the consistency of irrigation operations.