# ConserWater Abridged Technological White Paper

One of the prime differentiators of ConserWater is its technology. ConserWater is the world's first artificial intelligence that can predict exactly how much water farmers need to give to their crops at any location around the world at any time. It uses NASA satellite data, weather data, topography and many other factors along with patent pending geospatial deep learning to predict irrigation water needs to the level of accuracy of soil moisture sensors. There is no ground hardware component and it is not just farm management software. ConserWater is a technology that provides farmers and irrigators with an irrigation efficiency that is on par with physical ground-based soil sensors and much better than other evapotranspiration-based irrigation scheduling, while remaining cost effective.

Several different trials have been performed to confirm the accuracy of ConserWater. One of them involves applying the ConserWater AI to project soil moisture value in to the future and comparing it to evapotranspiration-based irrigation scheduling predictions and the subsequently measured satellite data giving the true soil moisture. A case study involving this type of a trial is given in **Fig 1**.
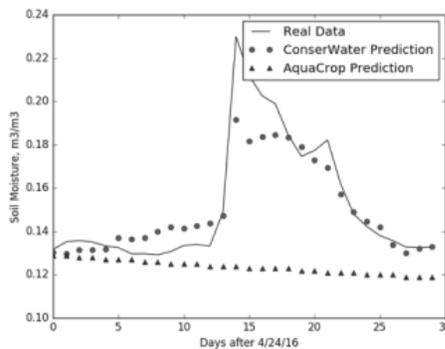


**Fig 1.** A case study of the application of ConserWater, and an evapotranspiration-based software (AquaCrop) to prediting soil moisture as directly measured from satellite data. Observe that AquaCrop fails to capture the peak around day 15, caused by some rain, whereas ConserWater is much more efficient in accounting for this phenomenon.

Another type of trial is a direct field trial comparing ConserWater's predictions to measurements from a physical soil sensor, as shown in **Fig 2**.
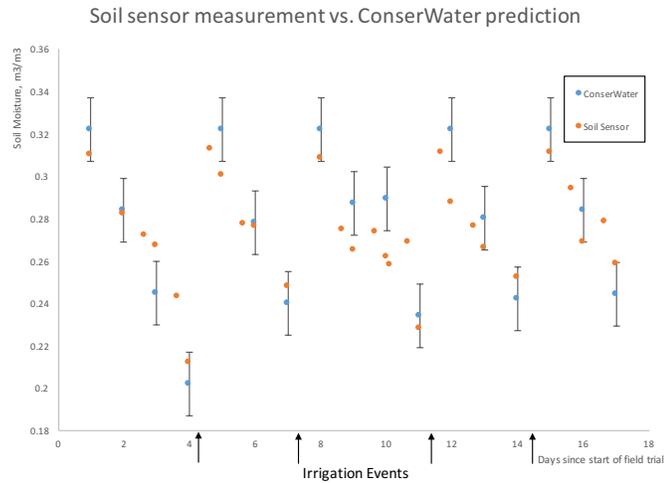
**Fig 2.** A field trial comparing ConserWater's soil moisture predictions with that of a soil sensor (Irrometer Model R). ConserWater is able to follow the soil moisture measured by the sensor to within its error bars of ~±.01, well within the accuracy range of irrigation from typical equipment like sprinklers.

These technological advantages of ConserWater translate into several unique product features, and some of these are summarized in relation to competing products in **Table 1**.

**Table 1.** ConserWater vs Competition features chart

|  | ConserWater AI | Soil moisture Sensors (Eg. Irrometer) | Evapotranspiration-based irrigation (Eg. AquaCrop, CIMIS in California) | Higher End Products (eg. Tule, IBM) |
|---|---|---|---|---|
| High Water Efficiency | ✓ | ✓ |  | ✓ |
| No Hardware Maintenance or Replacement | ✓ |  | ✓ |  |
| Easily Scalable to Large Areas | ✓ |  | ✓ |  |
| Cost | **$*** | **$$** | **$** | **$$$** |

*ConserWater pricing starts from $0 (free)