Potential Evapotranspiration (PET)

Introduction to Potential Evapotranspiration (PET)

Evapotranspiration is a metric that gauges how quickly water leaves the earth, either through evaporation or through a plant's use of water (some of which is ultimately lost as water vapor). Water that leaves the earth needs to be replenished, either by rain or by irrigation, in order for plants to have sufficient supply to grow.

Potential Evapotranspiration (PET) is the calculation, based on weather, of how much water is likely to evapotranspirate over a certain amount of time. This could be a day or growing season. It's measured in the same units as precipitation (millimeters or inches).

The science behind PET and how it's calculated is complex, as is the most common equation for it, called the Penman-Monteith Equation. The equation takes into account various weather attributes including temperature, windspeed, relative humidity, and several more. To simplify it for your application, the aWhere API calculates PET using Penman-Monteith.

Most farmers probably don't use PET in their day-to-day operations, but the measurement can drive some important insights for your customers when applied practically. The simplest use is the Precipitation-over-PET ratio (P/PET). Essentially, this ratio is a measurement of potential stress from lack of water. If PET has been high but there hasn't been much rain, then crops may be stressed and require more irrigation.

In your application, you can display potential water stress on a dashboard or report. You can also calculate the required amount of irrigation to reach a more normal amount of water. And if displayed alongside the upcoming forecast, your application can help drive whether irrigation is necessary at all or if the farmer

can wait a day for natural rainfall.