Application Notes

Subject: MaxiMet & MetPak used in agriculture

Reference AN0029

Introduction



Solar radiation, temperature, and precipitation are the main drivers of crop growth; therefore agriculture has always been highly dependent on climate patterns and variations. Since the industrial revolution, humans have been changing the global climate by emitting high amounts of greenhouse gases into the atmosphere, resulting in higher global temperatures, affecting hydrological regimes and increasing climatic variability. Therefore farmers use weather data directly in many areas during the cycle of any crop they are growing.

Application

One of the most important factors that influence a plants development is the solar radiation absorbed by crops. The solar radiation brings energy to the metabolic process of the plants with the process of photosynthesis. Farmers can monitor the amount of “sunshine” hours the crops receive and use this data to help with the understanding of the crop growth. Also one of the main factors determining the amount of water in the soil is the rate of evaporation from the soil, which is directly affected by solar radiation. Irrigation solves this problem up to a point, however, farmers still need to understand the effect of solar radiation in order to fine-tune the amount of irrigation needed, so as not to under or over water their crops.

Another important factor is humidity. The lower the humidity, the greater the influence of solar radiation. If the air is very dry, then the soil and plant will lose more water to the air than they would on a more humid day.

Temperature measurement affects the growth of crops, however, crops can have different requirements for effective growth. Warmer temperatures may make many crops grow more quickly, but warmer temperatures could also reduce yields of other crop types.

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For any particular crop, the effect of increased temperature will depend on the crop's optimal temperature for growth and reproduction. In some areas, warming may benefit the types of crops that are typically planted there. However, if warming exceeds a crop's optimum temperature, yields can decline.

Precipitation is a critical meteorological parameter in farming as all crop growth needs water and the measurement of precipitation aids to assist the farmer along with the irrigation in making sure that the crop receives the minimum amount of water required to enable growth as this helps control the costs for the farmer.

Installations

WindSonic, MaxiMet and MetPak have been installed worldwide as part of weather stations where the data fulfils agricultural needs. Please find below an example weather station in Asia.



Why Gill?

MaxiMet and MetPak provide all of these parameters in compact, virtually maintenance free single output device, which can also be connected to MetStream to provide farmers / growers with direct, real-time data.