

Title:

Remote Sensing in Precision Agriculture for Irrigation Management

Abstract

The ever-increasing world's population, the consequent heavy demand for food supply, and the lack of rain-fed agriculture to meet such demands have increased the role of irrigation in agricultural production. Water management in the irrigation system is the biggest problem, particularly in regions where the effects of climate change are noticeable. The amount and timing of the crop's water requirements are under debate. Information about crops, weather, and/or soil is needed for this purpose. Unfortunately, getting such information is difficult, especially when working with enormous tracts of property. Scientists have been working to find the answers to these issues for many years. The use of remote sensing to gather the necessary data is one area that has attracted interest. The advantage of remote sensing is that data collection over vast distances becomes simple and efficient. For the purpose of enhancing sustainability, crop yield, and environmental quality, precision agriculture involves the use of agronomic concepts and innovative technology to control the geographical and temporal variance related to every aspect of agricultural output. Crop water status is monitored in agricultural areas using a variety of remote sensing techniques. It mainly includes remote sensing, crop monitoring in terms of water management, the use of drones, and modern irrigation techniques for the purpose of saving water and increasing water use efficiency in crops. This review is focused on remote sensing technologies for precision irrigation used to calculate evapotranspiration, infrared thermography, crop water status, and crop attributes. The framework for achieving this goal has included precision agriculture as a valuable element. By using these techniques, we can overcome the problem of water shortage, which is crucial for agriculture.

Keywords: precision agriculture; remote sensors; crop water status; irrigation management