

# Desert farming project achieves two-year milestone with smart tech

Desert Farming Deficit Project completes two years with water-saving smart control application

● The system allows for timely and efficient control using mobile/computer apps and wireless sensor networks for volume and pump operation, with almost real-time access to data

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The latest Desert farming deficit irrigation project has completed two years with a successful smart control application added in early May this year. The project expects to begin harvesting within 10 days. This was revealed by Dr Abdelhadi A.W. Mohamed, Sultan Qaboos Chair on Desert Farming and coordinator of the Desert Farming Techniques and Soilless Agriculture at Arabian Gulf University (AGU) in an exclusive interview with the Daily Tribune. Two years ago, Dr Abdelhadi (AGU) and experts from the National Space Sciences Agency (NSSA), Netherland Smart Farm Sensing (SFS), and the Ministry of Municipalities Affairs and Agriculture agreed to implement and investigate the effects of deficit irrigation treatments (ranging from 20% to 50% re-



Date palm yield in Horat Aali farm

duction) on date palm yield. The first year was implemented successfully, but no clear differences in yield and quality indicators were observed due to deficit irrigation. However, it was difficult to obtain the actual applied volume using the conventional irrigation station programme that is based only on time of application. “To address this, we introduced a new smart system of irrigation control this year, replacing the old conventional irrigation stations that were based on manual time-based settings since May,” said Dr Abdelhadi. Dr Abdelhadi, along with the SFS team including Dr. Laurens SFS CEO and Joost van der Gaag, integrated a smart irrigation control system that allows full



Smart irrigation controller

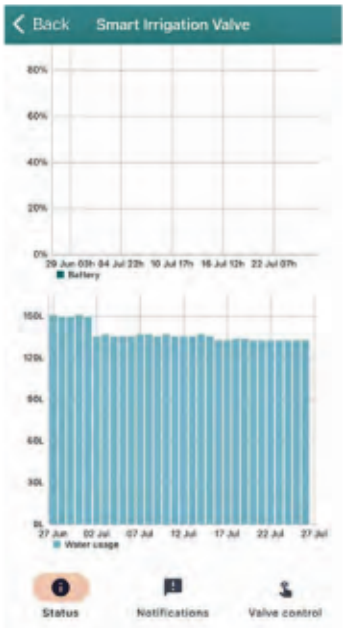


Checking the status of the tree remote control based on volume/time over the irrigation operations within the data management platform (AgriOT). This system allows for timely



Soil moisture sensors (water drops) and smart controllers as they appear in the mobile AgriOT App.

and efficient control using mobile/computer apps and wireless sensor networks for volume and pump operation, with almost real-time access to data, along with warning messages about any incomplete irrigation. Additionally, the system can control smart valves and flow meters to maintain the water supply and enable real-time monitoring of trees through a mobile app. The smart control applica-



Last 30 days data shown in the system. The irrigation programme is based on eight years of daily weather data and considers the age of the trees, as well as soil physical and chemical properties. This information is used to determine the amount of water required for irrigating the crops



Dr Abdelhadi A.W. Mohamed

and when to irrigate them. Although the tested deficit irrigation had no or minimal effects on date yield and quality, the application has been able to optimize the irrigation schedule, resulting in significant water savings. Dr Abdelhadi said: “Our research programme and interests are focusing on maximizing water use efficiency, development of drought tolerant varieties, soil and salinity management and innovative methods for supporting tree seedlings to increase survival rate during extreme heat and drought conditions.” He also highlighted that along with improving food security and preventing pollution and soil degradation, Bahrain and the GCC are testing alternative food crops to achieve sustainability.