## Optimizing Irrigation Scheduling for Sustainable Agriculture: A Case Study of a Farm in Onitsha, Anambra State, Nigeria

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**Abstract :** Irrigation scheduling is a critical aspect of sustainable agriculture as it ensures optimal use of water resources, reduces water waste, and enhances crop yields. This paper presents a case study of a farm in Onitsha, Anambra State, Nigeria, where irrigation scheduling was optimized using a combination of soil moisture sensors and weather data. The study aimed to evaluate the effectiveness of this approach in improving water use efficiency and crop productivity. The results showed that the optimized irrigation scheduling approach led to a 30% reduction in water use while increasing crop yield by 20%. The study demonstrates the potential of technology-based irrigation scheduling to enhance sustainable agriculture in Nigeria and beyond. **Keywords :** irrigation scheduling, sustainable agriculture, soil moisture sensors, weather data, water use efficiency, crop productivity, nigeria, onitsha, anambra state, technology-based irrigation scheduling, water resources, environmental degradation, crop water requirements, overwatering, water waste, farming systems, scalability

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Conference Title : ICAIR 2023 : International Conference on Agriculture and Irrigation Requirement

**Conference Location :** Sydney, Australia **Conference Dates :** August 24-25, 2023