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PICO 1:

PAPER TITLE

AI for Precision Irrigation

Authors of paper:

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Paper Description:

- **P (Population):** Farmers or agricultural businesses that manage crops requiring consistent and optimized water supply, such as those in semi-arid regions or those growing high-value crops like almonds or wine grapes.
- **I (Intervention):** An AI-powered smart irrigation system. This system uses machine learning models to analyze data from soil moisture sensors, weather forecasts, and plant health monitors (like drone imagery). It then automates irrigation schedules by delivering the precise amount of water needed, at the optimal time, to specific sections of a field.
- **C (Comparison):** Traditional or non-AI irrigation methods. This includes manual, scheduled irrigation (e.g., watering every Tuesday and Friday) or basic sensor-based systems that use a simple "if/then" logic (e.g., if soil moisture drops below a set threshold, turn on the sprinklers).
- **O (Outcome):**
    - **Reduced water consumption:** Measured in cubic meters or gallons per acre.
    - **Increased crop yield and quality:** Measured by weight, volume, or grade of the harvest.
    - **Cost savings:** Reduced expenses on water and energy for pumping.
    - **Improved plant health:** Measured by indicators such as Normalized Difference Vegetation Index (NDVI) or reduced plant stress.