

Automation of irrigation

to improve your life

Irrigation is time consuming and often disruptive. While irrigation at night has several advantages it also involves disruptions to sleep or family time, and working on machinery in the dark has inherent risks.

The increasing availability of automation on irrigation equipment has been readily adopted in numerous ways. Underground trickle tape systems are highly automated, and many low pressure overhead systems such as lateral move irrigators and centre pivots offer remote control via phone or computer.

Benefits of automation include:

Benefits for the crop	<ul style="list-style-type: none"> • Irrigation can occur at the optimal time to meet crop requirements.
Benefits for the grower	<ul style="list-style-type: none"> • Reduced travel time to turn pumps and irrigators on and off (particularly when the farm is spread over a wide area). • Less interrupted sleep. • No working on machinery in the dark. • Allows operator to continue irrigation while away from the farm. • Family-friendly (uninterrupted time with children, meals etc). • Reduced stress, tiredness, etc.

Choose an automation system that suits your farm and budget:

Simple automation	Remote control of machinery via phone or computer e.g. turning pumps on and off, pausing and restarting boom irrigators.
Time-controlled automation	Equipment set to follow a specific pattern of operation e.g. trickle irrigation set to deliver a quality of water over a time-span, pumps set to turn on at a set time of day/night.
Full automation	Equipment set to make decisions within certain parameters e.g. weather stations, and crop canopy and soil moisture monitoring equipment provides data for irrigation scheduling software that then turns pumps and irrigators on and off accordingly.

Soil moisture monitoring equipment suited to use in automated systems include tensiometer, matrix granular blocks and capacitance probes.

Flood irrigation presents unique challenges for automation and has been the focus of considerable effort by industry personnel and growers. Systems that provide automation in flood irrigation are now available to turn water off when the applied stream reaches a certain point down the crop row. This ‘simple’ automation greatly reduces the time spent waiting for water to reach the ends or multiple visits to the field to check on progress.



Next Steps

Full automation is not always worth the expense required. Most growers find that solving one or two key limitations in their current system is enough to make a huge difference without adding much to the cost of the overall system.

Identify what ‘lifestyle’ problem you want to solve e.g. turning pumps off at night, then ask irrigation specialists what options are available for your current system or any new systems you might be evaluating.

Resources

<https://youtu.be/8ynWvzpBc5l>

<https://researchonline.jcu.edu.au/58478/> Smarter irrigation scheduling in the sugarcane farming system using the Internet of Things