

# SMART IRRIGATION

**Andrew Curtis**

*Irrigation New Zealand, Christchurch*

SMART stands for Sustainably Managed, Accountable, Responsible and Trusted. SMART Irrigation has been designed to allow irrigators to meet community expectations around sustainable water management whilst also maintaining their own future financial viability.

INZ's SMART Irrigation strategy is to develop practical and achievable standards for irrigators that add value behind the farm gate. These can also be used in planning processes overseen by regional authorities. This will ensure that transparent and consistent policy and regulations develop around irrigation practice.

Importantly, SMART Irrigation provides a brand for the irrigation sector that will help communicate the need for irrigation, its positive impact and ultimately contributing to winning support from the New Zealand public. The SMART Irrigation public website will be launched at the INZ conference in April 2014.

Importantly the expectations of the SMART Irrigation framework are complementary to improved production (both quality and quantity – through uniformity of application and appropriate application depths and timing), minimised operating costs (through hydraulic design and scheduling, and thus profitability) and importantly improved environmental performance (through less water being abstracted, less drainage and/or surface run-off, and less energy being used per hectare of irrigated land).

## **Requirements of SMART Irrigation**

The requirements of SMART Irrigation are simple -

- (1) The Irrigation System Can Apply Water Efficiently

*Industry codes of practice and standards provide minimum design performance levels*

*Once installed the performance is checked annually*

- (2) The Use of Water for Irrigation is Justified

*There was a valid reason why I applied irrigation today*

- (3) Proof Can Be Provided

*I am accountable for my actions*

## ***The Irrigation System Can Apply Water Efficiently***

This is achieved through –

- (a) *New development, upgrade or redevelopment is consistent with the INZ Irrigation Design and Installation Codes of Practice and Standards*

In collaboration with technical experts from the irrigation service industries and irrigators INZ has developed Codes of Practice and Standards for Irrigation

Design<sup>1</sup> and Installation<sup>2</sup>. INZ Accreditation Ltd was established in 2012 in part to introduce a quality management system (accreditation programme) for Irrigation Design Companies<sup>3</sup>. This first requires design companies to demonstrate they can achieve the Standards through the application process. Accredited companies then agree (through a legal agreement) to adhere to the INZ Design and Installation Codes of Practice and Standards and be audited biennially. The programme gives irrigators confidence that an accredited company will deliver an irrigation system design that meets the Codes of Practice and Standards. Irrigation systems that deliver the required amount of water at the right time maximise the production potential and importantly minimise environmental impacts (drainage and run-off).

- (b) *A new development, upgrade or redevelopment is commissioned to demonstrate that it has achieved the Irrigation Design Standards*

INZ produced a freely available standard installation contract in 2013 and alongside this a commissioning template was also produced in 2014<sup>4</sup>. Together they allow the irrigation systems design performance parameters to be incorporated into the contract. These can then be used in the commissioning process to hold the installer/designer to account.

- (c) *The irrigation system is self-evaluated annually to demonstrate that it continues to perform efficiently*

INZ updated the Evaluation Code of Practice in 2014<sup>5</sup>. It is now called the Irrigation Performance Assessment Code of Practice. Within this self-evaluation performance methods for all irrigation system types have been collated and documented. The outcomes from the self-audit should be compared to the design performance parameters in the commissioning report. If anomalies are observed they should be rectified, alternatively if there is uncertainty as to the issue a full independent evaluation should be undertaken. Such an approach makes economic sense, ensuring the irrigation system is working as it should is an essential risk management strategy for production.

### ***The Use of Water is Justified***

*Annual justification of irrigation applications to demonstrate responsible use.*

Firstly it is important that consistency with any consent condition is demonstrated. These are a legal requirement and therefore must be adhered to. For the justification of use there are a number of ways this can be done. Soil moisture monitoring provides one easy pathway and is becoming more commonly used. A simple water budget (climate and soil data combined with irrigation applications) provides another as do crop models. For irrigation applications that are not triggered through plant induced soil water deficits, other evidence should be provided, for example for frost protection temperature records should be kept.

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<sup>1</sup> <http://irrigationnz.co.nz/industry/design/>

<sup>2</sup> <http://irrigationnz.co.nz/industry/installation/>

<sup>3</sup> <http://irrigationaccreditation.co.nz/>

<sup>4</sup> <http://irrigationnz.co.nz/news-resources/irrigation-resources/>

<sup>5</sup> <http://irrigationnz.co.nz/industry/performance-assessment/>

To support and enable all irrigators to perform SMART Irrigation, INZ has developed a comprehensive Irrigation Resource Kit - 'Irrigation in a Box'<sup>6</sup>. This contains information books to assist in irrigation management and development, irrigation system pre-season checklists, evaluation materials and a range of other information – a one stop shop for irrigators. Alternatively INZ also has one day irrigation manager training courses now widely available<sup>7</sup>. Attending the day allows irrigators to practically understand SMART Irrigation. They also receive a complimentary Irrigation Resource Kit.

***Proof Can Be Provided***

The provision of auditable evidence is key to providing accountability and establishing trust. In Canterbury SMART Irrigation has now become an integral part of Farm Environment Management Plans, providing a robust industry led pathway for the achievement of responsible water use.

## Standards & Codes of Practice



<sup>6</sup> <http://irrigationnz.co.nz/news-resources/irrigation-resources/>

<sup>7</sup> <http://irrigationnz.co.nz/events/>