Guidelines for Applicants

Assessment Criteria

This is one of a series of guidelines to help applicants to the Smart Approved WaterMark, Australia's outdoor water conservation label. Applications to the Smart WaterMark are assessed by an Independent Technical Expert Panel against the following four criteria:

1. **Water Saving -** The primary purpose of the product is directly related to reducing actual water use where there is a direct correlation between the use of the product and water savings.
2. **Fitness for Purpose -** Supporting documentation (such as instructions and marketing material) helps ensure that users get the best water savings/efficiency from the product.
3. **Meeting Regulations and Standards -** The product is of high quality and meets industry standards, and customer and community expectations.
4. **Environmentally Sustainable -** The product, while satisfying the above three criteria, is environmentally sustainable i.e. that in making water savings the product will not adversely impact on the environment in other areas.

   The Expert Panel needs verifiable independent evidence that the product achieves the water savings claimed in the application (i.e. through independent testing, case studies or comparative reports). Please note, unsubstantiated marketing claims are not regarded as evidence of water saving.

   The Smart WaterMark stakeholder web site has further information on the application process including timetables, fees and online application forms at: https://www.smartwatermark.org/application-form/

   If you have any questions about these guidelines or your application please contact The Water Conservancy national office. Email: info@thewaterconservancy.org Landline: 02 7229 5388

Supporting Evidence

Applications to the Smart Water Mark are assessed on the basis of independent, verifiable evidence to justify claimed water savings submitted with each application. Applications that are not supported by this information will not be considered by the Expert Panel.

Independent means that the author or compiler of the evidence has no commercial interest in the sale or promotion of the product which is the subject of the application. Evidence can be derived from any method chosen by the applicant and could include case studies, laboratory testing and product or service appraisal by independent consultants or organisations. Results from international and Australian tests are acceptable provided that data is presented in English and uses metric units.

Specific guidelines for different types of products and services are prepared to advise applicants on the sorts of testing or evidence that might be acceptable. Applicants are not obliged to follow these guidelines and can present any evidence in support of their application provided that it is independent and verifiable.

Guideline 2. Irrigation Equipment

General

Water efficient irrigation occurs when a skilled operator uses a well-designed system, which is made up of good quality and efficient equipment.

The design of the irrigation system, which determines how the individual pieces of equipment are put together and how the system is operated, are the main determinants of irrigation water use efficiency. Consultancies offering water-efficient design, evaluation and operation of irrigation systems can submit an application to the Smart Water Mark scheme as a service. This Guideline is concerned with the equipment which makes up irrigation systems.

A water efficient irrigation system comprises equipment that is fit for its purpose and operates efficiently. The major potential sources of inefficiencies in an irrigation system are:

- Leakage through equipment that is made to a poor standard
- Distribution of water from the equipment outside or not on the target area
- Overwatering because a component has not operated correctly, resulting in more water being applied than needed in the root zone.
- Errors in time and durations of irrigation due to poor design and equipment quality.

Previous successful applications to the Smart Water Mark scheme for irrigation equipment have described how using the particular equipment has led to water savings. The reasons have included various equipment features such as pressure regulation, improved watering uniformity and reduced leakage. Some other possible ways of demonstrating water saving are outlined below.

For all irrigation devices, case studies showing a reduction in water use following the installation of a device when compared with instances without the device are an excellent way to demonstrate the water-saving potential of a product.

The International Standards Organisation (ISO) publishes a list of standards for irrigation equipment. These standards contain a range of tests for irrigation equipment that could be used to produce evidence of water efficiency and water savings. These standards are listed on the Irrigation Australia Limited website (www.irrigation.org.au).

Electronic controllers

The Smart Approved Water Mark encourages using products and services representing best practices in the relevant industry. For electronic irrigation controllers, best practice is represented by controllers that use environmentally based sensors to schedule irrigation. To determine irrigation schedules, the sensor(s) might measure any relevant agronomic factor such as evapo-transpiration or soil moisture.

Applicants can use any suitable method to demonstrate that the controller saves and supplies only the amount of water required by the plant. As a guide, the Smart Water Application Technology program.

(www.irrigation.org/SWAT/Industry/) in the USA compares the performance of a controller with a theoretical optimum to determine the efficacy of the controller. The irrigation industry believes that an irrigation controller should be able to deliver irrigation water within 5% of the theoretical optimum. The Smart Water Mark Expert Panel has adopted this standard as a benchmark for assessing electronic irrigation controller applications.

Tap mounted controllers

Tap-mounted controllers, which use a clock mechanism to regulate a home garden irrigation system, have two key features that give them the potential to save water compared to a manually controlled watering system. These are the timing mechanism and the valve which controls the flow of water. Some tap-mounted controllers may be fitted with environmental sensors.

Demonstration of water savings could include evidence of the water tightness of the device and verification of the accuracy of the timing mechanism. Case studies or testimonials that demonstrate reduced water use after installing a tap-mounted controller could provide the required evidence.

Sensors

The key water-saving feature of sensors is their ability to turn off (or on) the irrigation system with interaction with a controller. Therefore, the testing protocols for sensors should be aimed at testing this function.

For **soil moisture sensors,** the testing should examine the soil moisture conditions under which the sensor "triggers" a response.

The rainfall depth required to trigger the sensor for rain sensors should be measured. The University of Florida has developed a testing protocol for evaluating rain sensors (http://edis.ifas.ufl.edu/). The protocol is designed to test the functionality of the sensor in regard to sensing rain, drying out before another rain event, and repeating the cycle. The tests measure the accuracy of the sensor. In other words, the amount of rain required to activate the sensor as compared with the amount of rain reported by the sensor and the precision of the sensor, which measures the repeatability of the measurement of rain.

For **evaporation sensors**, a comparison could be made between official evaporation figures such as those from the Australian Bureau of Meteorology (www.bom.gov.au) and the measurements made by the sensing device.

Sprinklers and sprayers

There are existing international standards for sprayers and emitters which contain detailed testing protocols on a range of equipment features.

The tests cover many aspects of the products, including:

- Discharge at different inlet pressures
- Radius and height of the throw
- Coverage pattern and uniformity of coverage
- Water tightness of assembled sprinklers and sprayers

The use of sprinklers and sprayers can result in water waste through uneven watering or watering of areas other than the target area.

If a sprinkler or sprayer is designed to operate as a stand-alone unit and not in an array with other sprinklers or sprayers, the distribution uniformity (DU) will be at least 75%.

In all other cases, it is expected that the spray head would have independently verified flow rates and distributioin (i.e. wetted radius) within 5% of the manufacturer's specification.

Drip emitters

Drip emitters can be considered separately from sprayers, sprinklers and hand held emitters. Drip emitters as a category include individual drip emitters that can be fixed to a pipe at selected locations chosen by the installer as well as in-line drip emitters where the individual dripper units are manufactured in the pipe. This type of product is sometimes known as emitting pipe.

Since drip emitters are manufactured to operate at low discharge rates it is important that the discharge performance of the dripper is confirmed with a low coefficient of manufacturing variation (a flow rate variation from the nominal flow rate within 5%). If the device is pressure compensating, evidence of the potential water savings resulting from the range of pressure compensation could be presented. The test for drippers could include consistent water saving as claimed by the manufacturer, and they are operating without clogging or other issues.

Trigger nozzles and handheld devices

Water waste with such devices usually occurs because the device waters outside the target area, inefficient opening and closing mechanism and leakage from the body of the nozzle.

Tests should be done to demonstrate the water tightness of the device and the efficacy of the opening and closing mechanism.

Other tests should measure the uniformity of different spray patterns. For example a test could involve a set number of passes over a fixed array of catch cans for a defined period, say 12 passess in a 2 minute period.

About Smart Approved WaterMark

Since 2004, SAWM has certified water efficient products and services. As a national scheme it delivers a common home and national approach and labelling scheme for consumers and retailers. For consumers, the certification scheme is designed to provide confidence that products and services bearing the label will help them save water around the garden. For the water industry, the scheme provides a national mechanism to identify water saving products and services; one piece of the demand management jigsaw. Certificate holders – licensees - gain the ability to use the Smart Approved WaterMark for marketing advantage.

In 2022 SAWM rebranded to The Water Conservancy (TWC). We are non for profit that is leading the way as in independent knowledge resource and advisory hub for education, facilitation and adoption of a more conscious and sustainable approach to water us in Australia. SAWM is one of the 5 programs offered by TWC to find out more please visit our TWC website: https://thewaterconservancy.org/