

IPOS Issue 27 – November 2014

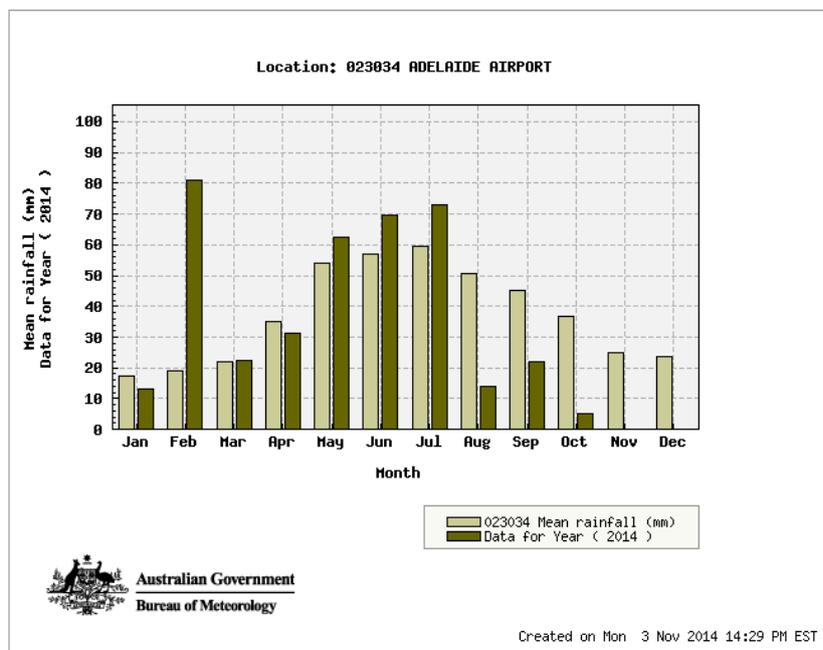
Importance of Monitoring Actual Irrigation Requirement

The irrigation season gets off to a very dry start

As we get into what would historically have been the start of the irrigation season, this year we are now a few months in with irrigation being required since August! We would have all realised by now that it has been very dry for several months, but how dry has it been and what impact has this had on irrigation requirements?

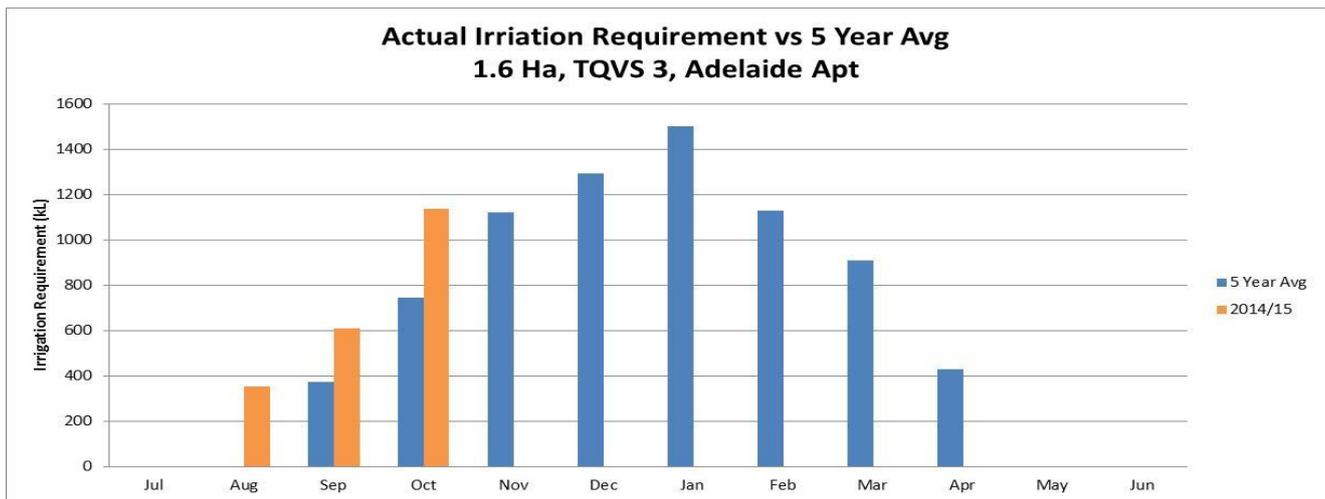
The lack of rainfall is having a significant impact on the start of the irrigation season. As you can see from the following information from the Bureau of Meteorology, rainfall recorded at Adelaide Airport has decreased significantly since winter. Since the start of August, only 41mm of rain was recorded compared to the long term average of 132.2mm for the same period.

Source: Bureau of Meteorology



| Statistics | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Mean rainfall (mm) for years 1955 to 2014 | 17.3 | 19.2 | 22.1 | 35.0 | 54.1 | 56.9 | 59.7 | 50.5 | 45.1 | 36.6 | 24.8 | 23.8 | 445.9 |
| Rainfall (mm) for year 2014 | 13.0 | 81.0 | 22.6 | 31.2 | 62.4 | 69.6 | 72.8 | 14.2 | 21.8 | 5.0 | | | |

To look at how this is impacting on irrigation requirements we will take an example site of 1.6 Hectares, being for local sport (TQVS 3) and near the Adelaide Airport. As the following graph demonstrates, when comparing Actual Irrigation Requirement (AIR) against the Base Irrigation Requirement (BIR) in the SA Water IPOS Calculator we can see that irrigation was required a month earlier than even the 5 year average figures. AIR is also much higher each consecutive month to date with an 87% increase compared with the 5 year average BIR. For this site the total irrigation requirement to date equates to 2100 kL compared to a BIR of 1120 kL.



Source: SA Water Basic Irrigation Management Toolkit, using 5 year Eto and Long Term Average Rainfall data

This comparison highlights the importance of monitoring the current climate data and managing irrigation scheduling against the actual requirement. The BIR should be used only as a guide to plan for the upcoming season, but as this data suggests the current climate can be significantly different therefore you need to keep a close eye on what’s happening now and amend your irrigation scheduling accordingly.

Irrigation System Assessment

In recent e-bulletins and in our irrigation calculators an emphasis is placed on correct irrigation scheduling to achieve irrigation efficiency. Whilst irrigation scheduling is important, the design and maintenance of an irrigation system is also an important factor when it comes to your irrigation efficiency. In this article we discuss some of the things worth considering when assessing your irrigation system’s application efficiency.

By running your irrigation system during the permissible daylight hours, you can gain a better understanding by visibly assessing any obvious issues with your system. Tilted sprinklers, sprinklers not spraying a consistent stream of water, sunken and blocked sprinklers, sprinklers that are not throwing far enough or too far as well as sprinklers irrigating areas that should not be irrigated are some common issues to look out for.

Continued overleaf...

You can also gain a better understanding by placing 'catch cans' on your turf to collect the water and assess how evenly water is distributed. The distribution uniformity (DU) is a measure of the evenness of irrigation. The DU is calculated by the average irrigation volume applied to the driest quarter of the field divided by the average volume of applied across the whole field. For more information about irrigation distribution uniformity you can view our [fact sheet](#).

Once you have seen the system operating you will be in a better place to implement any improvements. If sprinklers are applying water at different rates, be sure to check the nozzle and sprinkler types. The application rate can vary significantly depending on the type of nozzle placed in the sprinkler. The type of nozzle required will depend on the sprinkler type, the distance you want the sprinkler to spray and the flow and pressure supplied.

Irrigation systems can also be a source for water leaks. Solenoid valves, joints, sprinkler heads and damaged pipes can be common sources. The simplest way to determine if a leak is present is by reading your water meter. By reading your water meter over a period of time when there is no irrigation and other expected water use and consumption has registered, you may have a leak. You can look out for obvious signs for leaks as well such as greener patches of turf and damper areas.

The [Irrigation Efficiency Checklist](#) is also a useful resource that will help you identify potential opportunities to improve irrigation efficiency. If you are interested to learn more, you can contact us on the details below. Alternatively, you can contact an irrigation consultant for expert advice!

Office for Recreation and Sports Grants

Don't forget to regular check funding sources for potential grants...

The State Government's Office for Recreation and Sport provide different grants to support local governments, schools and sporting clubs. The Sport and Recreation Development and Inclusion Program (SRDIP) is now open and may be applicable to your organisation. Follow the link below to determine whether this is of interest to you!

<http://www.recsport.sa.gov.au/funding-scholarships/sport-recreation-development-inclusion.html>

Continued overleaf...

October Irrigation Requirement Overview

Bureau of Meteorology (BoM)

| Station | TQVS 1 (kL/ha) | | TQVS 2 (kL/ha) | | TQVS 3 (kL/ha) | | TQVS 4 (kL/ha) | |
|---------------------------|----------------|------|----------------|-----|----------------|-----|----------------|-----|
| | AIR | BIR | AIR | BIR | AIR | BIR | AIR | BIR |
| Adelaide Airport - 023034 | 1461 | 1165 | 864 | 606 | 715 | 466 | 566 | 326 |
| Kent Town - 023090 | 1378 | 1047 | 815 | 521 | 674 | 390 | 533 | 258 |
| Mount Crawford - 023763 | 1218 | 756 | 718 | 289 | 593 | 172 | 468 | 0 |
| Noarlunga - 023885 | 1453 | 1120 | 863 | 585 | 716 | 451 | 569 | 318 |
| Parafield - 023013 | 1496 | 1119 | 895 | 568 | 745 | 430 | 595 | 293 |

AIR is the 'Actual Irrigation Requirement' which is based on the current climate data.

BIR is the 'Base Irrigation Requirement' which is based on the average of the previous 5 years climate data.

| Station | Rainfall mm | | Eto mm | |
|---------------------------|-------------|-----------|---------|-----------|
| | Current | Long term | Current | Long term |
| Adelaide Airport - 023034 | 5 | 37.2 | 170.5 | 159.7 |
| Kent Town - 023090 | 4.8 | 42.8 | 160.9 | 150.2 |
| Mount Crawford - 023763 | 5.2 | 65.8 | 142.9 | 133.4 |
| Noarlunga - 023885 | 3.4 | 34.8 | 168.5 | 152.9 |
| Parafield - 023013 | 1 | 41.4 | 171.7 | 157.5 |

This season's irrigation requirement for October is significantly greater than the long term average. This is mainly due to significantly lower than average rainfall for the month.

Disclaimer:

SA Water's Business Technical Support provides recommendations and suggestions only. It is advised that further investigations are detailed studies are completed before any projects are implemented. All applicable standards & guidelines (Australian, EU, AQUIS, HACCP, Australian Drinking Water Quality Guidelines etc.) should be adhered to, and care should be taken to ensure water and wastewater minimisation programs do not negatively impact health or processing operations.