

Pre-season Checklist Solid Set Irrigation

Is your system well set-up?

A pre-season check of your solid set irrigation system will ensure you are ready to start irrigating *on time* and are set-up well for the season ahead. Remember, delaying irrigating your pasture or crop beyond the first sign of soil moisture depletion will result in loss of production and income.

Simple checks to correct issues evident during the previous season, or that have occurred whilst the system has been idle, will result in more efficient water and power use and may assist to avoid mid-season break downs. A close inspection also identifies items for maintenance and proactive management of foreseeable issues before they become a costly crisis. These systems perform most efficiently when operating to specifications.

All pressurised irrigation systems need to have a pump that is properly selected to the system's duty, is operating efficiently and is well maintained. If the pump is not performing properly, the irrigation system won't either. Ensure the pipe sizes are adequate, especially the suction pipe, ensure the foot-valve and strainer are not blocked, check inside the pump for partial or full blockages, ensure the operating pressure and flow are according to specifications, and have the efficiency checked at regular intervals.

Dairy NZ's **Guide to Good Irrigation** (2011) is well worth consulting prior to each season. It will act as a reminder of the preparations, operations and management considerations which should be addressed.

What do I need to check?

A check list is provided on the next page. These are the fundamental items which should be used to guide your site specific system checks. It is always best to do these checks with a second person—the additional labour costs will certainly be returned when your system is having less break-downs, using less energy and correctly applying water over the coming season!

To check your system properly prior to the season and during the season, it is essential to have appropriate gauges and meters. These include a pressure gauge and flow meter at the pump and pressure gauges on either side of the filter.

TIPS

Safety First- many items can be fixed on-farm, others require specialist skills or equipment.
Know your limits and obligations.

Check your flows and pressures, generally affected by wearing of pump impellers over time. They should be within 10% of operating design.

Avoid vehicles running over the solid set pipes.

Run the system before the start of the irrigation season to check for leaks, and repair.

Walk the system with new employees so they understand it and have all operators read the operating instructions prior to start-up. Training will assist in improving operation to optimise water use and avoid damage to expensive equipment.

Appropriate overlap is critical to ensure the best uniformity and optimal application rates.

Poor uniformity may be caused by poor design or poor management—ensure spacing between sprinklers is according to specification.

Use a soil moisture probe to help you understand how your soil responds to rainfall and irrigation.

Use a simple water balance tool, such as IrriPasture, to help you better schedule irrigation to avoid applying too much or too little irrigation.

Determine the Readily Available Water (RAW) for the plant rooting depth and soil texture for the site. This gives you an indication of the refill and field capacity points for irrigation.

An efficient irrigation system is only as good as the scheduling of irrigation.

There are many ways to monitor your soil moisture. Dairy Australia has an overview information sheet found [here](#) or Irrigation New Zealand has a more comprehensive booklet found [here](#) to investigate suitable options for your farm and budget.

System 'off' checks

Component	Check
Safety	Electrical isolator switch is tagged/locked at irrigator and pump to disable remote start, if fitted
Water supply	Checks completed
Pump	Clean inside and out, no off-season damage, flow meter and pressure gauge serviceable Electrical breakers working Belt drive is tight (as applicable) Priming pump operable (as applicable) Suction line clear of cracks and leaks, foot valves free of corrosion and blockages
Filtration	Rings/screens clean and in good condition Pressure gauges sound
Control valves	Operational with ease
Off-takes	Hydrants secure Valves correctly set
Flushing points	Flushing points accessible Caps in place
Mainline	Mainline undamaged Tapping saddles/connections secure Risers for wear, damage, alignment
Sprinklers	Every sprinkler/nozzle against chart for correct size, wear, damage, blockages Alignment correct

System 'on' checks

Component	Check
Pump	Pressure and flow in accordance with pump specifications
Headworks	For leaks Flow rate to each setting
System pressure	Pressure is checked against specification: first and last hydrants before and after filters all off-take pressures correct
Pipe network	For leaks along mains, repair or replace as necessary Laterals flush clear
Off-takes	Hydrants not leaking, repair or replace as necessary
Sprinklers	Application pattern in accordance with system specification Moving sprinkler parts free Pressure at first sprinkler Pressure at last sprinkler
Other	
Checked by:	<hr/>
Date:	<hr/>

The project wishes to acknowledge that this checklist has been prepared using information from Irrigation New Zealand's Pre-Season Checklist found at irrigationnz.co.nz and duly acknowledges the Hunter Smarter Farming: Irrigating for Profit Project for its contribution to this material.



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