

# Pre-season Checklist Centre Pivots and Laterals

## Is your system well set-up?

A pre-season check of your centre pivot (CP) or lateral move (LM) irrigator/s 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 needing maintenance and proactive management of foreseeable issues before they become a costly crisis. These are high performance systems that give their best 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 a check 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

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, pressure gauges on either side of the filter, a pressure gauge at the centre CPs or cart LMs and perhaps another flow meter, and a pressure gauge on an outer emitter just above the pressure regulator.

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!

## TIPS

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

Avoid implements and machinery striking the irrigator - erect reflective signage.

Walk the irrigator track before turning on the system to check for obstacles (eg. fallen trees or branches, failed fences, implements left behind) and any changes to paddock surface.

Walk the system with new employees before they operate the machine for the first time and have all operators read the operating instructions prior to start-up.

Include management of the wheel tracks in the farm maintenance program. Wheel ruts significantly increase the load and the wear on the drive train and can slow a section of the irrigator down, affecting the irrigator alignment.

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

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

An efficient irrigation system is only as good as the scheduling of irrigation. Schedule your irrigation to maintain soil moisture within the Readily Available Water (RAW) zone. This optimal level is determined by the plant rooting depth and soil texture of the site.



Take the time to develop yours and staff skills, in identifying potential risks to the performance of your system before the irrigation season commences. Simple hazards may cause outages which will impact on production.

## System 'off' checks

Component	Check
<b>Safety</b>	Electrical isolator switch is tagged/ locked at pivot and pump to disable remote start, if fitted
<b>Pump</b>	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
<b>Filtration</b>	Rings/screens clean and sound Pressure gauges sound
<b>Pivot point (CP)</b>	Lubrication, grease
<b>Drag hose (LM)</b>	Hose condition good, fittings secure
<b>Towers</b>	Micro-switches, cable and rod connections Wheel nuts, studs and alignment, tyre condition and pressure Gearboxes, drive shafts, U joints for wear, lubricate as required
<b>Riser pipe and spans</b>	Boots– tighten bands if necessary Flanges
<b>End gun, corners</b>	Connections Wiring and hydraulic lines Booster pump operable
<b>Sprinklers</b>	Every sprinkler/nozzle against chart for correct size, order, wear, damage, blockages Regulators for wear or damage Droppers for wear or damage, replace as necessary
<b>Control unit</b>	Electronic controls and battery charge; insects
<b>Prepare to start</b>	Ensure nothing is parked in front of the irrigator

## System 'on' checks

Component	Check
<b>Pump</b>	Pressure and flow in accordance with pump specifications
<b>Pivot point</b>	For leaks, movement
<b>Riser pipe and spans</b>	For leaks along spans and at towers Flanges – call service company if flanges are leaking
<b>Towers</b>	Motors, gear box and drive shaft operation for noise or vibration
<b>Sprinklers</b>	Each sprinkler is turning correctly and cage not damaged Each sprinkler is throwing level, not at an angle Droppers hanging straight, leaks Compare flow rate of random sprinklers to sprinkler chart specifications
<b>End gun, corners</b>	Connections Operation to nozzle chart specification, esp. activation pressure Gun angles are correct, turn on and off at right locations Corner arm sprinklers turn on and off correctly
<b>System pressure</b>	Inlet pressure gauge– replace if necessary Inlet pressure is as specified in spray chart End pressure is as specified in spray chart – above pressure regulator at end dropper (at least 5 psi or 34.4 kpa higher)
<b>Application depth and uniformity</b>	Conduct a catch-can test using a step-by-step process. <b>Click for DIY Irrigation Evaluation Guide (DairyNZ, 2017)</b>
<b>Other</b>	

Checked by:

Date:

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](http://irrigationnz.co.nz) and duly acknowledges the Hunter Smarter Farming: Irrigating for Profit Project for its contribution to this material.



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