

Hunter Starting Smarter Irrigation Project

Pre-season Checklist K-Line Irrigation

Is your system well set-up?

A pre-season check of your K-Line irrigation system will ensure you are ready to start irrigating *on time* and are set-up well for the season ahead. Remember, a delayed start to irrigating your pasture or crop at the first indication of monitored soil moisture depletion will result in loss of production and income.

Simple checks to correct issues that were evident during the previous season, or have occurred whilst the system has been idle, will result in more efficient water and power use and avoid mid-season break downs. A close inspection also identifies items for updating maintenance checklists 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.

What do I need to check?

Irrigation New Zealand'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.

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.

A check list is provided on the next page. These are the fundamental common 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!

Tips

- Safety First- many items can be fixed on-farm, others require specialist skills or equipment. Know your limits and obligations.
- Check your flows & pressures, generally affected by wearing of pump impellers over time. They should be within 10% of operating design.
- Reduce the likelihood of vehicles running over the K-Line pods.
- Walk the entire system before turning on to check for leaks.
- 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 and between K-Line positions are according to specifications.
- Research by the manufacturer of K-Line indicates that, depending on the sprinkler selected, operation on 11 x 17m spacing, 13.5 x 20m spacing and 15 x 15m spacing improves uniformity. Refer [here](#).
- Consider soil moisture monitoring and weather forecasting options. Linking soil moisture monitoring with weather forecasts, using a simple water balance tool such as the Scheduling Irrigation Diary for Dairy, allows you to better gauge when to start-up and take advantage of rainfall to save time (irrigation days) and money (pumping costs).
- 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.

Pre-season Checklist- K-Line Irrigators

SYSTEM “OFF” CHECKS

Component	Check
Safety	<input type="checkbox"/> Pump switch is tagged/locked
Water supply	<input type="checkbox"/> Checks completed
Pump	<input type="checkbox"/> Clean inside and out, flow meter and pressure gauge serviceable
	<input type="checkbox"/> Belt drive is tight
Filtration	<input type="checkbox"/> Rings/screens clean with no holes
	<input type="checkbox"/> Pressure gauges in good condition
Control valves	<input type="checkbox"/> Operational with ease
Off-takes	<input type="checkbox"/> Hydrants secure
	<input type="checkbox"/> Valves correctly set
Flushing points	<input type="checkbox"/> Flushing points accessible
	<input type="checkbox"/> Caps in place
Mainline	<input type="checkbox"/> Mainline undamaged
	<input type="checkbox"/> Tapping saddles/connections secure
	<input type="checkbox"/> Risers for wear or damage
Sprinklers	<input type="checkbox"/> Each nozzle for correct size and not worn
	<input type="checkbox"/> Every sprinkler for wear, damage, blockage
	<input type="checkbox"/> Alignment correct
Prepare to start	<input type="checkbox"/> Before starting: Pump system secure
	<input type="checkbox"/> Overlap of positions planned as per specifications

SYSTEM “ON” CHECKS

Component	Check
Pump	<input type="checkbox"/> Pressure and flow as specified
Headworks	<input type="checkbox"/> For leaks
	<input type="checkbox"/> Flow rate to each setting
System pressure	<input type="checkbox"/> Pump pressure for first and last hydrants
	<input type="checkbox"/> Pressure before and after filters
Pipe network	<input type="checkbox"/> For leaks along mains
	<input type="checkbox"/> Laterals flush clear
Off-takes	<input type="checkbox"/> Hydrants not leaking
Sprinklers	<input type="checkbox"/> Application pattern
	<input type="checkbox"/> Moving sprinkler parts free
	<input type="checkbox"/> Pressure at first sprinkler
	<input type="checkbox"/> Pressure at last sprinkler
Moving	<input type="checkbox"/> K-line pulled along permanent fences, not under trees
Other	<input type="checkbox"/>

Checked by: _____ Date: _____



Pumps are the heart of the irrigation system. Annual overhaul & ongoing seasonal maintenance means you will use less energy and distribute your water more evenly.

