



Welcome to our autumn edition of **pivotpoint**NZ!

## → In this issue

We feature new products and systems on offer from WaterForce – monitoring & control devices, sprinkler pack updates and effluent pumping solutions. We've also included a winter servicing reminder for your pivots and profiled a community irrigation scheme in Spotswood, Canterbury where Waterforce products and systems were utilised to improve pasture growth.

## Seasonal pivot servicing – Act now!

Inside this edition of **PivotPoint** you will find a seasonal pivot service reminder from your local **WaterForce** branch.

It's easy to forget about winter servicing – however WaterForce believes maximising your current system should be your priority.

Your local WaterForce branch have a service and maintenance programme that allows you to get the “bugs out”, avoid shut-downs and condition your pivot so that you are ready for the start of the 2010 /11 season and can focus on production. Our team can guide you through the various parts of your system, discuss simple assessments of your operation and then advise on the best course of action for resolving issues before they happen.

Talk to our service engineers about your seasonal pivot assessments including electrical, sprinkler pack checking, re-nozzling, pressure testing and general operational checks.

## Sprinkler packages – is your pack right for you?

Your sprinkler pack is the forgotten part of your pivot system. If your sprinklers are incorrectly specified for your application or have worn over time, they are costing you money.

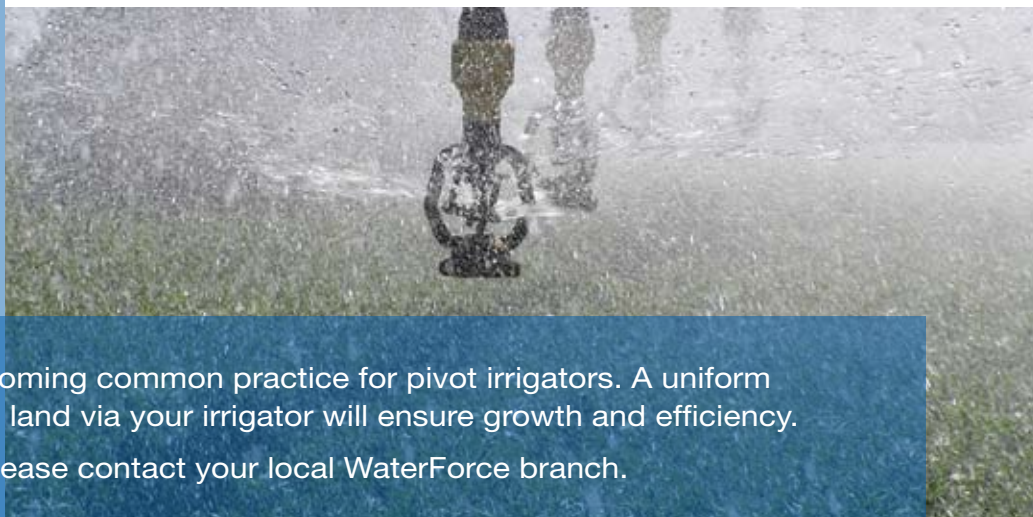
Many water sources in NZ are abrasive and the sprinklers are constantly wearing, so a general check is recommended every 2-3 seasons to ensure that worn sprinklers and pressure regulators are replaced to maximise water application and the efficiency of your pivot or linear.

WaterForce uses advanced computer software together with our inhouse expertise and experience to design and match the right sprinkler package to your farming application. We can arrange reviews and sprinkler package assessments to coincide with your pivot servicing so that issues are identified and the package is either put back to its original design or updated with

sprinkler options to suit your current requirements.

Sprinkler technology is also constantly evolving – so we encourage you to discuss sprinkler and regulator technology with our staff. If your system is operating 20psi or greater pressure regulated sprinklers, then you should be considering upgrading your machine to some of the latest 10 or 15psi sprinkler technology. Have you also considered lowering your instantaneous application rate by installing boom backs or truss rod hose sling upgrades to your existing machine?

Call into your local WaterForce branch to view the latest range of sprinkler technology.



**Fertigation** is becoming common practice for pivot irrigators. A uniform application of fertiliser on to land via your irrigator will ensure growth and efficiency.

If you want to know more please contact your local WaterForce branch.

## Project Profile

# New irrigation solutions for Spotswood farming community



### Project Summary:

WaterForce was engaged to design and supply a pumping, pipeline and irrigation system capable of delivering 550lps to five farms with the capacity to irrigate up to 790ha.

The water consenting process was already underway with Bowden Environmental, Kaiapoi to abstract water via a gallery from the Waiau River.

### Irrigation Solutions:

#### Centre pivots on the PPL farm

Centre pivots were a natural selection due to large expanses of flat land. One of the lower cost options considered included a 950m half circle pivot. Ultimately three 460m Valley pivots were supplied with corner arms, two full circle and one half circle.

This system would offer PPL the following benefits:

- The 460m pivots offered lower instantaneous application rates more in line with the soils infiltration capacity.
- A greater redundancy with three irrigators particularly being equal in size. If the 950m pivot has a breakdown, then 100% of the irrigation is lost. With three pivots and one failing, only 33% of the irrigation is lost.
- Whilst the property appeared to be flat, there is a 28m elevation difference across PPL. With a large pivot there was always the potential to have some wastage in pumping power. Each of the three pivots have a dedicated booster pump to optimise the power consumption.

One farm in the Phoebe Road community where centre pivots were not an option due to land contours and undulations, WaterForce was able to design and supply a solid set sprinkler system with 20mm brass impact sprinklers spaced on a 24.5 x 24.5m spacing, covering some 80ha.

### Main Pumping Station:

Water for irrigation was to be drawn from a bed-mounted gallery in the Waiau river. This would connect into a manifold with four 350mm steel pipe risers from which are connected

the suction pipes to four end suction centrifugal pumps. Currently only three pumps are installed.

The basis of the design was to distribute flow at the most economical rate to each farm. This decision was based around the pipe size and pressure rating versus the pump energy consumption and the resulting booster pump sizes on each farm.

The four pumps are identical, being Goulds 250 x 200-400 pumps running at 1400rpm, delivering 137lps at 40m head and pumps powered with 90kw motors. Typical of the conservative design approach is the fact that if there is a pump failure, three pumps can nearly achieve the full duty.

Some of the features of this system design are:

- Automatic priming system to ensure positive prime at all times.
- With pumps being the same, servicing, replacement and even the option of having a spare pump available is very beneficial.
- Two of the pumps are driven by a Variable Speed Drive (VSD), two being on soft start. This ensures full automation (and redundancy should one of the VSDs fail).
- Dialling system, so should there be a fault then the operators will be advised by text messaging.
- The mainline to the two booster pump shed locations is 630mm Marley medium density pipe with a 6 bar pressure rating. The pipeline was delivered in 12m lengths and joints welded onsite.

In terms of allocating costs across each property in the Phoebe Road community that uses the water supply, there is an ultrasonic water meter at the main pumping station and similar meters at each farm, so rates can be tallied and confirmed.

There is a long-term plan in place to enhance the delivery of the data to a central location and build up data transfer with soil moisture monitoring, weather station and possibly even pump energy monitoring.

### Project Outcome:

The project has delivered an irrigation scheme that has robust redundancy and is installed to a very acceptable standard. All parties in the project (suppliers, client and consultants) worked together to ensure all factors were considered.

The system was commissioned during November 2008, with all farms operational by early February. The growth even in the later summer was phenomenal and had never been experienced before. Wading through ankle-deep grasses was a dream turned into reality. The scheme was a tremendous example of client and WaterForce working closely together to achieve a very cost-effective system.

# New monitoring and remote control systems from WaterForce

**Technology is ever-evolving and irrigation-specific monitoring & control equipment is critical to a farm's operation.**

WaterForce has developed monitoring and remote control systems to give our clients the best monitoring and management tools for the day to day operation of their farms. These systems can be tailored to comply with your property's resource consents. (WaterForce is a preferred supplier to several councils).

Through [www.waterforce.co.nz](http://www.waterforce.co.nz) you will find monitoring solutions which allow you to view important information including flow data, soil moisture data, effluent pond levels, tank reservoir levels, weather stations and many other day-to-day tools that you just don't have the time to get to, are all available at your finger tips via the web or web-enabled mobile phone. These systems give you greater visibility to ensure resource consent compliance – from well consents to effluent dispersal consents.

Complimenting our monitoring products, WaterForce is able to offer several levels of pivot and pump control remote warning systems as well as interactive pump and pivot control systems.

We have a range of systems which include:

- Text only warning systems which can be off-the-shelf for pivot warnings and basic controls through to custom designed warning systems for effluent or pumping solutions.

- Valley Basestation – a PC-based computer control system ideal for larger farms with multiple pivots either on one or multiple sites
- Valley Tracker – a web-based system to control and access your pivot from any computer or smart phone in the world, designed specifically for pivot irrigation.

All of our systems can be fitted to Valley pivots and linears as well as being suitable for most other pivots (different control options exist on some brands).

To provide the best options for your farm please contact your local branch or [monitor@waterforce.co.nz](mailto:monitor@waterforce.co.nz).



## Further tips and advice to maintain your pivot over winter

### Maximise the working life of your drive train

WaterForce stocks and recommends Valley V-Lube Gear Case Oil to ensure you maximise the working life of your pivot gearboxes. This oil is a compounded worm lubricant containing non-corrosive extreme pressure additives, specifically designed for worm drive pivot gearboxes and centre drive gear motors. A must for every pivot operator to have in the shed and the ONLY lube we will use to maximise your investment's life span.

If you wish to undertake parts of your off-season servicing yourself, consult your local service team with regards to gearbox maintenance and supply of V-lube gear case oil for your system.

Note: The oil bath in worm gear cases may reach temperatures up to 94°C. Quality oil is essential for gearbox longevity.

**Price: \$108.00**  
excl. gst per 21/2 gallon container

**If you are purchasing 5 spans or more of V-Lube WaterForce will supply a gearbox assessment guide for your staff as well as a 20% discount on the gear lube and any other service parts ordered at the same time\*.**

\*Service parts limited to gearbox diaphragms, drain seals, pivot sprinkler hardware, replacement gearboxes, full tires and rims all priced ex-branch and based on pre-orders only.



### Pivot end guns and booster pumps

Like your sprinkler pack, your end gun and booster pump are often left neglected. These items are critical to your production and stopping the pivot during the season for servicing of these units can result in downtime and lost productivity.

WaterForce promotes regular checking as part of your winter conditioning or a standalone service.

We see a number of booster pump failures throughout the irrigation season which can often be avoided by regular servicing of mechanical seals, bearings and the pumping unit. Booster pumps and end guns are often running for 90% of the pivot's life and on a typical 500m pivot they are irrigating 10ha or more.

Talk to our service teams about having your booster pump removed, serviced, returned and tested ready for the next season. Whilst on site we can also inspect your end gun, assessing the wear on swivel bearings, end vanes and nozzles.

Also talk to our staff about the new Komet 12 degree end gun and other low wind drift options, as well as automatic end flush systems to flush silt from the end of your overhang.

### Keep up with changes to effluent regulations

Pivot systems are ideal vehicles for the distribution of your dairy shed effluent. With up and coming changes to effluent regulations in New Zealand, this is the ideal time to talk to WaterForce about a review of your on-farm effluent distribution system as well as the servicing of your effluent pumping systems.