

CASE STUDY: PIVOT PRESSURE

Upgrading systems and technology essential for SMART irrigation

An unrelenting hot and dry summer really emphasises the need for irrigating farmers to ensure that their irrigation equipment is up-to-scratch and working as efficiently as possible – saving them water and money.

Quinn Elstone, who has worked with Valley pivot users for several years, says that many farmers are using old and tired sprinkler packs which result in a less than optimal outcome.

“Some farmers haven’t reviewed or changed the sprinkler packs in twenty years!” he exclaims. “And a lot has changed in twenty years in technology and on-farm. Particularly in the last ten with some great products available to suit client’s requirements from leading suppliers – including Nelson Irrigation, Komet Irrigation and Senninger, all available in New Zealand.”

Quinn explains that technology has advanced to offer a wider range of sprinklers including low-pressure wide-footprint sprinkler packs which are increasingly recommended.

Twenty years ago pivots would have been operating with low pressure spray plates with high instantaneous application rates and small footprints, or very high pressure overhead sprinklers at 30psi.

“Now we have a wide range of options from 10–15psi offering good wetted footprint and efficiency whilst offering improved operation in typical New Zealand conditions,” says Quinn.



He explains that the reduction in pressure offers lower ground impact from the water and improves droplet size and wind fighting ability. Sprinkler packs, with high levels of application efficiency and wider footprints, are much better for absorption by the paddock and assist in reducing run-off and leaching. But most importantly, ensuring a highly efficient sprinkler pack means farmers are using less water to get optimum yields and less energy to pump the water.

Quinn says that old and worn sprinklers and regulators will also result in uneven applications which will impact yield across the pivot area.

Ideally, what farmers should be doing is checking their equipment much more regularly – part of the monthly and annual farm systems should be to review their sprinkler pack and overall machine health. Assessing new products on the market and discussing with their irrigation supplier pros and cons of upgrading sprinkler packs is something that should occur typically every 10,000 irrigation hours – lifespans will vary greatly and the sprinkler pack has moving and wearing parts in the sprinkler and regulator.



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CASE STUDY: PIVOT PRESSURE (CONTINUED)



“It might seem like an upfront cost which farmers don't want, but in the long run it increases production and reduces costs,” says Quinn.

“What often happens in the heat of the season is a farmer pulls up in a ute, sees a sprinkler head that needs replacing and sticks on whatever they have in the back to fix the problem then and there. The problem with this is that the wrong nozzle is used for that pressure sprinkler and the mechanics just don't work,” says Quinn.

The wrong sized nozzle can result in uneven application of water, or water not reaching where it should. They can also over apply the water for that area increasing leaching and run-off – the net result is often under performance in the field, and sometimes pumping too much water using more power than required which can sometimes lead to downstream issues with their overall system.

“With products evolving technologically all the time, farmers don't need to replace like for like and would be better off using the updated parts to increase uniformity, lower pressure and save energy and water. In field replacements happen through necessity of keeping going during the season – but every farm needs to actively review the sprinkler pack as a whole at some point – the positive reaction from farmers who do update is usually pretty quick.

“It's more important than ever when allocations are under pressure,” says Quinn. “New Zealand has access to some of the best specialised equipment on offer but farmers need to check the condition of what they have and continue to be open to suggestions for newer and better replacements – and starting with their sprinkler pack is the first and best place to start when looking to make improvements to their systems – get the basics right first,” he says.



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