

Lizbob Farms Ltd.

Lowara Z6 Borehole Pump | Ōhaupō, New Zealand

CASE STUDY - GREEN KIWIFRUIT FARM IRRIGATION

Lizbob Farms Ltd. is operated by Michael and Karyn-Ann Spiers and is located near Hamilton in Ōhaupō, New Zealand. Traditionally, they were a dairy farm with over 320 milking cows. In 2018, an opportunity presented itself for the farm to expand into growing Green Kiwifruit by developing an orchard with over 6,150 plants.

After working with a local irrigation consultant to develop a solution that would adequately cater to the farm's new demands, a local Lowara dealer, Qubik Te Awamutu and Xylem's distributor in New Zealand, Brown Brothers Engineers, were engaged to help deliver expertise and the required products for the farm's expansion.

THE PROBLEM

The development of the orchard required a new borehole pump and irrigation system to adequately supply water for the Kiwifruit. Their existing bore had too much iron content and therefore a new bore had to be drilled and fitted with a replacement pump capable of providing 35m³/h of flow at 45m of head for watering via drip irrigators. A new bore location was identified, and drilling found a suitable water source at approximately 55m in depth. With the combination of both the 55m bore depth and the required 45m of head for the irrigation system, it was determined that a pump capable of producing 35m³/h of flow at 100m of head was required.

Changing flow demands across different zones required the pump to be operated via a variable speed drive to ensure constant pressure across the farm. This allowed for water to be supplied at 2mm/h across the 4 irrigation zones for 2.5 hours each zone, with a total run time of approximately 10 hours per night.

The bore presented an additional challenge as it was subject to a high level of sand infiltration, which would need to be handled and transferred by the pump, then filtered out before the water proceeded through to the drip irrigators.



END USER

Lizbob Farms Ltd.

CLIENT

Qubik Te Awamutu and
Brown Brothers Engineers

Order Date: 2018

Completion Date: 2019

Xylem's Role: Supply

XYLEM'S SCOPE

Pumps & Packaged Pump Systems

Xylem was involved as the manufacturer for this project with support and product information.

THE SOLUTION

Brown Brothers Engineers reviewed the requirements of the project and offered the Lowara Z646 11-6 15kW borehole pump-set. This pump-set was selected as it provided the required head and flow rates along with the sand handling capabilities needed for continual operation. The hard-wearing full stainless steel construction of the Lowara Z6 allows it to reliably transfer abrasive suspended solids such as the sand infiltration present in the bore water at Lizbob farms.

"The pump handled the sand infiltration superbly"

To remove the sand from the transferred water, a hydrocyclone sand separator and a fine particle filter were added to the system. This has ensured the delivery of clean particle free water to the drip irrigators.

A Xylem 18.5kW wall mounted HYDROVAR variable speed drive (VSD) was used to control the varying flow requirements of the orchard's 4 irrigation zones. The easy to use 'plug and play' HYDROVAR VSD eliminated the need for a bulky control panel all while providing maximum energy efficiency and longer pump service life.

THE RESULT

Lizbob Farms expansion into growing Green Kiwifruit has allowed the farm to receive a new seasonal income stream. This was achievable though the installation of a new turnkey irrigation system featuring the Lowara Z6 submersible borehole pump.

The pump-set has continued to perform without fault while pumping the highly abrasive sand since installation. Michael, the Farm Operations Manager, has commented that "the pump has worked really well and is still doing what it is supposed to, it holds its pressure well at 3.4 bar and handles the 4 different sized irrigation zones with ease". The Lowara Z646 11-6 pump-set selected for the task has showcased the reliable performance and high sand handling capabilities of the Lowara Z6 range.

The combination of a borehole pump that can handle high sand content, the HYDROVAR VSD, and the filtration elements of the system has ensured a continued clean water supply for the orchard with minimal downtime or maintenance required.

"Qubik & Brown Brother's support in all facets was outstanding. We have had great advice and the pump has run exceptionally well. Last Summer was very dry and the pump ran for 10 hours every night for 5 months straight and never missed a beat"

Michael Spiers, Farm Operations Manager.



The pump shed where the wall mounted HYDROVAR variable speed drive is located to control the Lowara Z646 11-6 pump which supplies water for the farm's varying irrigation demands.



Four different sized irrigation zones are watered by drip feeders, all fed from the Lowara Z646 11-6 pump which operates for up to 10 hours per night throughout the irrigation season.