

MEMORANDUM

To: Brent Walton
From: Paul Reese, Matai Consultants Ltd
Subject: WIL Wrights Road storage. Case study analysis update

Date: 20th March 2023

Brent

Please find the following update for the Matai section of Wrights Road storage business case IM document as discussed.

Farm Financial analysis and Water trading demand

Matai Consultants (previously **Water Strategies**) have updated the farm financial analysis used for the report '**Benefits of Scheme Storage 2. Additional Information**'. The analysis covers 5 farm case studies (4 without on farm storage and 1 with on farm storage (564m³/ha)).

Matai updated the income for dairy farms to a farm gate milk price of \$7.75, and for the mixed and dairy support properties current market pricing was used for grazing and supplementary feed sales. Farm working expenses were increased by 17% across all farm systems. The MPI 'Situation and Outlook for Primary Industries', December 2022 report was used as reference to determine the increase in expenses.

Financial Analysis – Benefits of Scheme Storage and Water Trading.

For all farm systems the storage provides a positive return on investment with extra production and increased returns offsetting the increased costs.

As anticipated the dairy land use, that dominates the WIL scheme area, provides the best returns on the investment with returns up to 2.2 times across all scenarios of current and increased minimum flow regimes. For the farm with on farm storage the return was still positive 1.5 times.

For dairy support the returns covered the extra costs by up to 1.8 times based on the ability to continue grazing the optimum or an increased number of cattle and selling excess pasture or crops.

1 in 10-year drought scenario: The updated analysis shows the storage provides a positive or break even return on investment for all farm systems in a 1 in 10-year drought scenario (using the 2009/10 year) under the current Waimakariri river minimum flow regime.

The ability to maintain or increase pasture growth on dairy farms provides revenue that recoups the storage cost by up to 4.6 times above what they would have been with no storage. This is driven by the ability to continue milking from the pasture base.

For dairy support the results are around breakeven with bigger scale properties being able to soak up the higher fixed costs on a per hectare basis.

Without Wrights Road, storage pasture production substantially reduces across all farm systems.

With Wrights Road storage, the soil moisture is maintained above the stress point for up to 22 days longer in the 2009/10 year modelled.

Cropping – Individual crop margin analysis shows a positive financial benefit by up to 1.6 times against the costs of applying water across a range of arable crops grown in the Waimakariri region; and fodder crops by 1.2 times.

Timing of supply - Timing of irrigation on crops is a critical factor with different responses at different growth stages. Yield potential is lost when crops are in water deficit and this loss cannot be recovered. The supply dynamics under the run of river management (no scheme storage) are uncertain with zoning limitations and timing of restrictions unknown, this is further compounded when on partial restrictions. With Wrights road storage these limitations will be mitigated with 'on-demand' water from storage.

Water supply reliability enables farm system stability. Farmers can confidently enter contracts knowing contract specifications will be met giving production and financial farming certainty alongside the satisfaction of achieving good results.

While water storage is not proposed as part of the PC7 Solution Package, having scheme storage and the changes to the supply dynamics will help shareholders meet the nitrogen cap. With more water and higher reliability, pasture production will not be limited by water as often and therefore will be less reliant on nitrogen to get a dry-matter response, and the response from nitrogen applied can be maximised.

Purchase of Additional Scheme Storage Water -

The analysis shows that a dairy farmer buying extra stored water can realise a return on the purchase. High value arable and fodder crops support a purchase price at or above cost of extra stored water.

Storage water trading will provide a return on investment for a seller of water equal to or greater than the cost of storage.

Summary

Financial benefits

1. For all farm systems the storage provides a positive return on investment with extra production and increased returns offsetting the increased costs.
2. Dairy land use provides the best returns on the investment with returns up to 2.2 times.
3. Arable crop returns of applying the storage water are up to 1.6 times; and fodder crops return 1.2 times.

Water trading

1. The benefits from storage to both production systems and financial returns will support a water trading platform.
2. Purchasing additional stored water is a viable economic opportunity for dairy without storage.
3. The analysis indicates that a higher price (than the scheme storage charge) could be afforded for a water trade to water individual crops and dairy pasture.

Memo ends