



**National Smarter Irrigation for Profit Project**  
**Tamworth**  
**Optimised Dairy**  
**Irrigation Farm (NSW)**

**Baseline Investigations**

Commencing in February 2016, the project undertook the following:

- Collation of historic energy, water and production comparison farm data. 2015 baseline figures revealed that for every 1000L of milk produced, Rex outlaid \$18 on power and \$3.10 on water to operate his irrigation, approximately 4% of total farm income.
- An Irrigation System Performance Report was prepared by an independent irrigation specialist. Significant irrigation inefficiencies of 25-35% were identified related to distribution uniformity & pump performance.
- A Water Meter Validation Report was prepared by a certified validator. The meters were found to be reading approximately 25% above actual usage.
- Electromagnetic Survey (EM38 Mapping) undertaken was of the farm including deep soil coring/ analysis.
- Paddock soil fertility testing and analysis to assess nutrient levels of the irrigated milking platform.
- Scoping of fertigation possibilities for the farm aimed at maximising use of the irrigation infrastructure & reducing labour inputs.
- Monitoring of the 3 farm power meters unearthed inaccuracies in peak & off-peak readings, potentially decreasing daily irrigation power costs by \$10/day.



**Loomberah Dairy Farmer: Rex Tout**

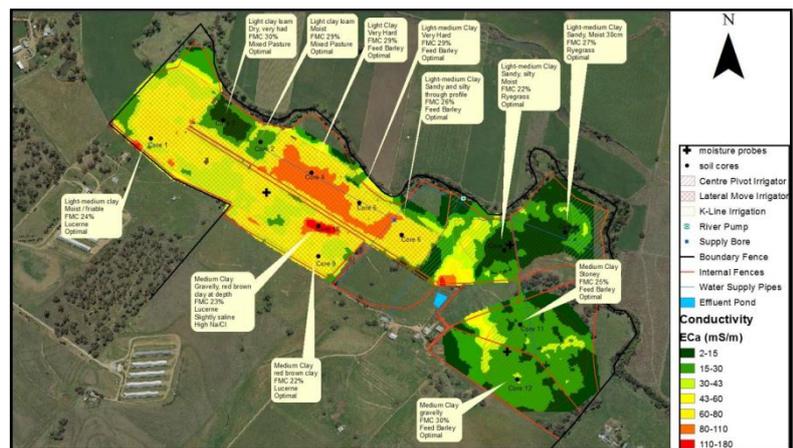
**Limestone Park**, located at Loomberah, near Tamworth, is the location of the Optimised Dairy Irrigation Farm for NSW. Owner, Rex Tout, milks a herd of 130 cows on 112 ha consisting of an irrigated milking platform of 40ha and 72 ha designated for young and dry stock. In 15/16 he produced 1.04M litres of milk (72,860 kgMS). The daily cow diet consists of an average 5kg and an estimated 13-14kgDM from summer and winter pastures. Rex has both surface and ground water entitlements totaling 461ML annually, though access is highly dependent upon seasonal allocations.

His motivation for becoming the farm in focus for the project was to increase profit per cow, not to grow numbers. He aims to increase production per cow and do this more efficiently by optimising the potential of his irrigated milking platform, on which he currently grows a back calculated 14 tDM/ha, to increase the production of quality home grown feed.

The farm irrigation consists of two centre pivots (17ha coverage) and a single linear irrigator (23ha coverage).

Rex is the first to admit that he is not great at keeping farm records. The project is also increasing his skills and capability to monitor water and power use, as well as pasture yield and utilization, to better assess the outcome of efficiency initiatives on overall farm profitability. At the commencement of the project he was adamant that monitoring needed to be user friendly and assist him to make management decisions with ease, not confuse him.

Rex already believes that baseline investigations undertaken in the initial stages of the project have highlighted some basic actions that will generate significant savings.



**Limestone Park: Irrigation layout, EM Survey & Soil type mapping undertaken by North West Local Land Services.**



**Technical Working Group members establish "Indicator Monitoring Areas"**

### Activities 2016

Implementation of performance report recommendations:

- ✓ Irrigation infrastructure overhaul including installation of new nozzles to better match pressure requirements and correction of nozzle layout.
- ✓ Recalibration of the irrigator control panels by the manufacturer technician.
- ✓ New surface water pump installed and maintained to operate within manufacturers pump curve.
- ✓ Installation of 2 new flow-meters by a certified installer to ensure accurate water use readings.
- Precision GPS based farm mapping prepared (farm layout, infrastructure & soil type)
- Forage & Fodder Plan and Nutrient Management Plan prepared to reflect baseline investigation results.
- 3 soil moisture probes (one per irrigator) & a tipping bucket rainfall gauge installed with real-time logging capability transmitted to a smartphone App.
- Scheduling Irrigation Diary (SID) integration of the Tamworth BOM (University of Southern Queensland). The SID is accessed from an App on Rex's smartphone to guide irrigation scheduling and record water use.
- Indicator monitoring areas established in the vicinity of each soil moisture probe to accurately monitor pasture (tDM/ha) & utilisation (tDM/cow) measured using an electronic C-Dax meter.
- Retrofitting of a fertigation pump to an existing mixing tank by Solar Injection Australia.
- Establishment of ongoing energy, water, labour and production farm monitoring program to assess quarterly efficiency gains and profitability performance.
- Farm Open Day held to introduce the project to the local farming and service provider community.

### Regional Farmer Support & Communication

As the dairy industry of the Tamworth region is small and localised, the project is drawing upon the existing the dairy discussion group for ongoing farmer input and support. The project is providing opportunities for local farmers to receive real-time soil moisture and rainfall logging data as well as introducing them to available technologies such as the SID to better inform their own irrigation decisions. Following how data results are informing short and longer term management decisions on Rex's property will be valuable information for local farmers and, of course, many of the key messages about how monitoring data analysis is used to inform management decisions will be broadly applicable to dairy irrigators across NSW.



### Technical Support

An expert Technical Working Group provides both strategic direction and technical advice to the Tamworth project. Teleconferences are conducted bi-monthly and members meet on farm with Rex as required.

The members are:

- Brett Abrahams (Irrigation technician, *AquaNorth Irrigation*)
- George Truman (Senior Mixed Farming Systems Officer, *North West LLS*)
- Rex Tout (Farm Owner)
- Scott Woods (Consulting Agronomist, *Hazell's Farm & Fertiliser*)
- Sally Balmain (Livestock Officer, *NW LLS*)
- Peter Smith (Irrigation Consultant, *Sapphire Irrigation*)
- Dale Kirby (Team Leader- Land Services, *NW LLS*)
- Marguerite White (Dairy Australia engaged Project Manager, *ICD Project Services*)

For further information on the project go to:

[www.dairyingfortomorrow.com.au/tackling-specific-issues/water](http://www.dairyingfortomorrow.com.au/tackling-specific-issues/water) or search "Smarter Irrigation for Profit" on Facebook.

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The project is also supported in Tamworth by these organisations:



Local Land Services  
North West

