



## *Irrigation Management Series*

### **Case Study – Synlait Dairy Farms**

Synlait is a very progressive milk production company based in Canterbury, currently producing more than 50 million litres of milk a year with 14 of its own farms. With future plans to produce 100 million litres of milk a year this company has its eye firmly placed on achieving a sustainable operation with a high levels of efficiency.

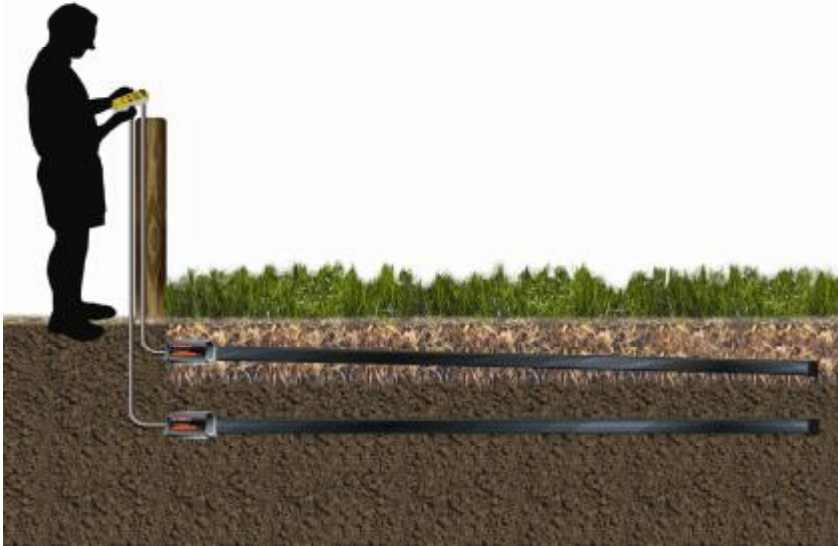
Irrigation management has been an important aspect of its farm operations for many years with use of both AQUAFLEX and consultant based services used to provide soil moisture information to better improve their irrigation efficiency.

Synlait have now installed AQUAFLEX on all their dairy farms. Jilly Reesby who leads the team of Farm Technicians who are responsible for collection of on farm data such as pasture covers and soil moisture information said “The move away from utilising a service was two fold. Firstly we wanted control over access to the data so we can get information when we need it. To make good management decisions we can collect data from the AQUAFLEX when required. Secondly, once we own the equipment we have no on going costs other than the collection of the information. As we are in the paddocks at least weekly doing other monitoring, this cost is low”

While telemetry systems to transmit the data via radio directly back to a central point are available Synlait have at this stage opted for the use of a PALM hand held computer to download the Soil Moisture and Soil Temperature data directly when near the measurement sites. It is a simple and straight forward way of obtaining the information and many clients prefer this to telemetry as they are wanting to measure other things such as pasture covers at the same time.

Irrigation application on Synlait properties is dominated by Centre Pivot Irrigators and Rota Rainers. Their AQUAFLEX installations are in two configurations. For Rota Rainer installations they have a dual sensor installation. The installation consists of a sensor sloping through the profile from about 50mm below the surface down to 400mm. This sensor then provides a very good characterisation of the water contents in the main root zone of the pasture. A second sensor is installed horizontally at around 500mm depth to act as a check sensor (Fig 1). It lets you identify overwatering as drainage of water past the root zone can easily be identified as well as giving the manager guidance to the level of stress the pasture is under. Should the water content in the root zone lower to levels where the plant needs to try and extract water from depth, the 500mm sensor will start to show significant extraction.

For AQUAFLEX installation under pivots, Synlait have on most sites opted to remove the 500mm check sensor. This is because with the fast return time and smaller application rate of pivots, the risk of overwatering is minimised through careful monitoring on all but the lightest soils. This has allowed them to spread their capital investment around more sites including replication under the larger irrigators as well.

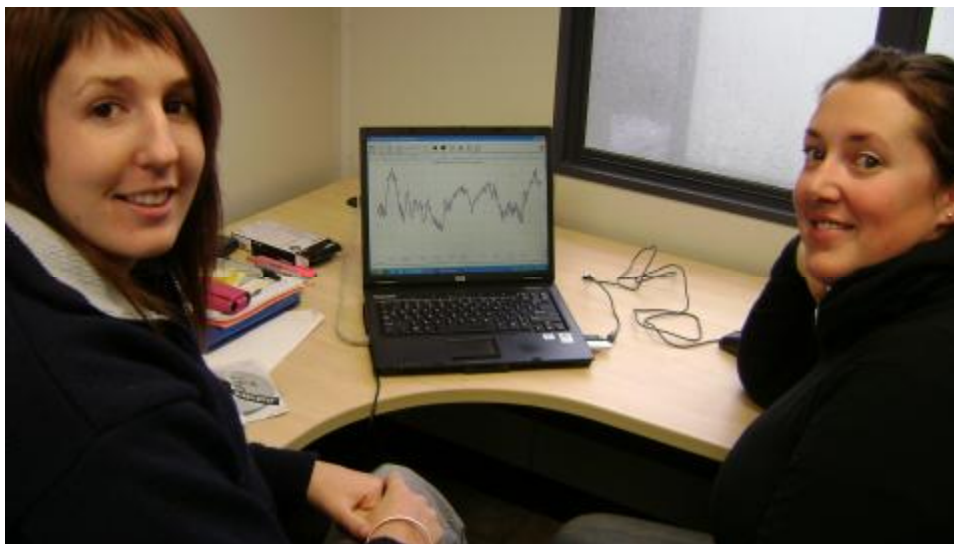
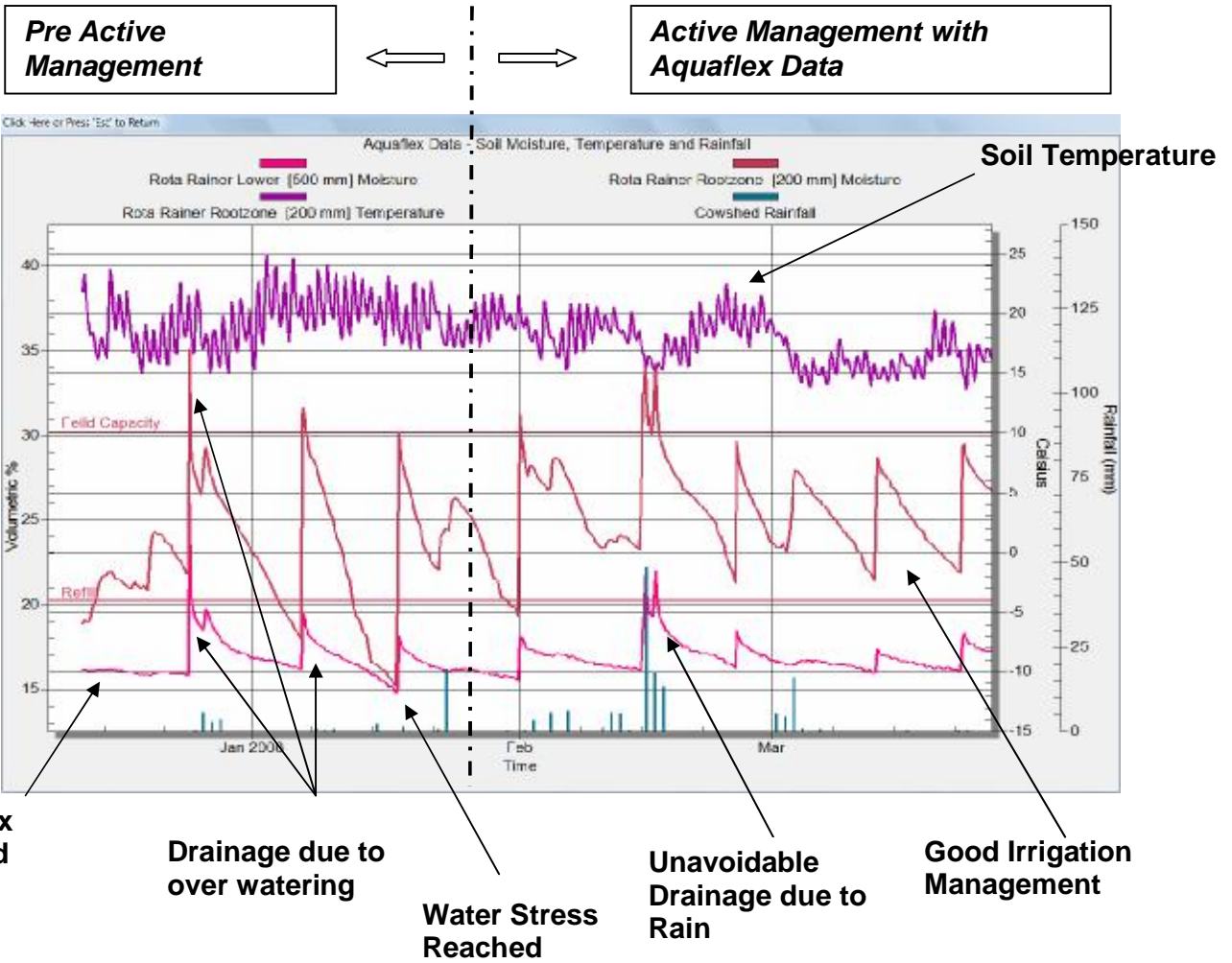


**Figure 1:** Example of 2 sensor installation in pasture with bottom sensor used to access over and under-watering

When asked how AQUAFLEX has assisted Synlait, Ms Reesby has said “Aquaflex has allowed us to achieve greater efficiency in our irrigation management. The result is a more sustainable and profitable business.” An example of the gains can be seen in Figure 2 which is data from a Rota Rainer property. It can be seen that once Aquaflex was installed the irrigation program was able to be manipulated from far more efficient irrigation application with little over or under watering occurring. Post AQUAFLEX management there is little deep drainage occurring and the root zone water content is being maintained between Field Capacity and Refill Point.

With the scale of the Synlait Farms operation, the farm technicians collect all the soil moisture information for the properties and forward the graphs with recommendations to the Farm managers on at least a weekly basis by email. This allows them to get consistency of advice across its operation. In smaller operations any on farm staff are able to collect the information and make decisions for themselves. The software package does also have a built in email function that allows information to be easily sent to off farm owners or consultants for example. Many clients utilise this feature to forward information to Aquaflex NZ staff if they require assistance with interpretation and to obtain advice.

Synlait continue to install new monitoring sites as farm development continues. “Irrigating efficiently is one of the most obvious ways for us to increase productivity. Minimising power costs, water wastage and fertiliser losses, while increasing productivity is the focus. It’s a win-win situation.” say Jilly.



**Synlait Research Technician Manager Jilly Reesby (Right) and Gina Clemens Farm Technician look at soil temperature information from the AQUAFLEX system whilst preparing reports to be sent to managers.**

AQUAFLEX NZ are available to assist you with developing an irrigation management system for your operation, please feel free to contact them on 03 3848900 or visit [www.aquaflex.co.nz](http://www.aquaflex.co.nz)