



**CASE STUDY**  
Network Site Visit



agri-nutrients  
**Ballance**<sup>®</sup>

POWERED BY

**CallaghanInnovation**  
New Zealand's Innovation Agency

PROGRAMME PARTNERS

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**INDUSTRY4.0**  
Network

## About

Ballance is a farmer-owned co-operative based in New Zealand, deeply committed to fostering sustainable and profitable farming.

Founded as a fertiliser-manufacturing enterprise, the organisation has evolved to incorporate advances in agri-science and technology. Besides a broad range of science-based nutrient products, Ballance also offers award-winning farm systems software, providing a 360-degree solution for farming productivity while minimising environmental impact.



## Background

Within its Awarua fertiliser manufacturing facility, Ballance experienced a challenge: limited visibility into its production operations. Despite having a supervisory control and data acquisition (SCADA) system, the organisation found it difficult to access relevant information quickly and remotely, leading to delays in decision-making.





## Initial Response

Ballance had been using a manual report, which operators would fill out on paper, based on the readings they were seeing on the control room screens. This helped to highlight when trigger or alarm points were being approached, supporting quick response by the team, as well as giving a rough-and-ready paper trend.

## Solution

Ballance implemented a PI Historian system, which was connected to its existing SCADA setup. This was gradually rolled out across the production facility, department by department, by a cross-functional team. Initially constrained by data tag limitations, the team worked within these confines but quickly moving to tag all SCADA data points. This allowed the PI Historian to be comprehensively linked to the SCADA system.

## Implementation Process

The rollout was strategic, conducted department by department to ensure minimal time commitment from the implementation team and to test the system's efficacy in smaller environments before a full-scale implementation.

## Results

The PI system produced significant improvements:

- Clear and easily accessible information
- Data-sharing capabilities across various teams
- Potential for automated daily production reports
- Quick response to production challenges
- Enhanced team agility
- Data-driven decision-making
- Enhanced problem-solving
- The fine-tuning of existing systems and automation
- Remote access and visibility to site operational data



## Future Steps

Ballance plans to further expand the system's capabilities by:

- Implementing automated production reporting
- Adding control points and alerts
- Increasing sampling, testing and tracking capabilities for quality assurance
- Wider systems integration into lab systems and its enterprise resource planning

## Key Benefits

The PI system enhanced operational visibility and provided the team with the tools to make rapid, data-driven decisions. This enabled not just a more agile response to problems but also an overall streamlining of the manufacturing process.

Measurable improvements have been as follows:

- Enables installation of automated pH control using existing SCADA system, resulting in increased Resource Consent compliance. Since system has been in place, there have been zero Resource Consent breaches.
- Fine-tuning of existing wastewater system with targeted improvements.
- Significantly reducing the time requirement from operators when running problem-solving activities.
- Increased agility to proactively respond to potential production issues and keeping control parameters within agreed specifications.

## Takeaways

- **Tag Everything:** Comprehensive data capture is crucial for wider analytics and operational oversight. This can lead to improvements in traceability and quality control.
- **Speed is Essential:** Leveraging system capabilities for rapid decision-making is key. In fast-paced industries, access to real-time data can be the difference between staying ahead of the competition and falling behind.
- **Data-Driven Culture:** Cultivating a data-driven culture is essential and can significantly benefit from making decisions rooted in solid data analytics. You can do this by taking the front-line teams through the "why" and highlighting the benefits to them.



## About the site visits and Industry 4.0

The purpose of the Demonstration Network is to drive uptake of Industry 4.0 technologies among New Zealand manufacturers with the aim of increasing their productivity and global competitiveness. The Network of Site Visits (NSV) are part of the [Industry 4.0 Demonstration Network](#), which also includes a mobile showcase and smart factory showing cutting-edge Industry 4.0 technologies in action. The NSV takes selected companies through a fully-funded assessment process to help them accelerate their own journey towards Industry 4.0, and sees them share their knowledge with other manufacturers.

### Further questions?

To find out more please contact

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