

## Feed and Grain Batch Process

Automated Feed Mill Control

- ✓ Feed Mill Automation
- ✓ Batch Control
- ✓ MES (Manufacturing Execution System)

Midwest Ag Service  
Seneca, KS

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*Bachelor Controls' thoroughness, experience, and understanding of our processes and goals as well as their dedication to support the application in the future, provided a confidence that BCI's application, tailored to our requirements, would maximize the benefit and minimize any risk.*

Darin Marti  
General Manager  
Farmers Cooperative  
Sabetha, KS

**BCI BATCH ENGINE™**



Bachelor Controls, Inc.

Systems Integration for Manufacturing

### Project Summary

A full-line commercial feed manufacturer offering custom formulation and computerized ration balancing, Midwest Ag Service's goal is to assist livestock producers in being more profitable through better nutrition, management techniques and education. So when they needed a flexible feed mill automation solution that optimizes process cycle times and equipment utilization as well as synchronizing plant floor operations with the enterprise business system through implementation of a Manufacturing Execution System (MES) strategy, they turned to Bachelor Controls.



### Objectives / Requirements

Provide automated sequential control of the Feed Mill processes, including

- Manage and schedule hundreds of recipes
- Route ingredients from six silos, 31 major ingredient bins, eight minor ingredient bins and 12 micro ingredient bins
- Produce three-ton batch every three and a half minutes using three ingredient scales
- Provide unattended automated ingredient grinding
- Route finished product to 24 storage bins
- Manage truck load-out functions
- Support flexible ingredient inventory management
- Provide data management applications to capture process and ingredient information and transfer it to enterprise-level software applications (MES)

### Results / Benefits

BCI developed a Server/Client-based operator interface and PLC control architecture, utilizing the Server computer and related configurations to support

- all Human Machine Interface (HMI) screen developments
- a robust MS-SQL database application
- a powerful Preventative Maintenance utility
- the *BCI BATCH ENGINE™* MES application for data transfer with the enterprise-level applications

The process and batch control systems manage and arbitrate over 400 ingredient and product paths and seamlessly integrate with third-party formulation and business software applications to facilitate near real-time data logging and report generation.

*A major risk was integrating the best possible Feed Mill Control System with our choice of formulation and business management software. BCI's experience and unequalled referrals convinced us they had sufficient depth to ensure the system would exceed our expectations.*

Dean Becker  
LLC Sales and Formulation Manager  
Nemaha County Co-Op