

RFID meets milk challenges

In addition to the usual requirements of maximising operation efficiencies, milk processing plants have the added burden of having to meet stringent legislative requirements concerning traceability and control. **Leuze electronic** describes how RFID helps meet the challenges

When the data acquisition element of a major milk producer's milk registration and acceptance process began to become obsolete, Leuze electronic stepped in to design a robust RFID system to record milk tankers arriving at the production plant in order to provide traceability control of the milk.

RFID expanded beyond the previous system of data transmission of the details concerning the milk tanker's contents across to the production plant, to a system which included benefits such as vehicle access control to the site and the recording of vehicle cleaning operations.

The previous system had used various data acquisition methods, which in turn required laborious data match-



ing and collating, with individual data such as the tanker and the driver's number, routes driven, quantities collected etc., being manually entered and collated. Legislative requirements such as providing traceability in accordance with EU ordinance 178/2002, required a reliable and robust system, which prompted an investigation of all the technical possibilities available, to find the best way of addressing the various issues.

Finding a solution

In-depth analysis of the various processes such as the collection of milk from the farm, transportation to the production plant, arrival at the milk acceptance point, tank drainage and vehicle cleaning and the precise determination of the operating times involved, enabled the operator to come up with the optimum solution in close cooperation with its automation partner, and Leuze electronic.

It was clear that the majority of the processes involved could be covered by utilising an RFID data carrier (transponder). Using this data carrier, the data can be transmitted from the vehicle to the dairy plant with a high degree of operational reliability.

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RFID is helping to optimise milk registration and acceptance processes

viously required several different systems can now be executed using a single transponder type:

- Data transfer from the collection tanker to the production plant
- Controlled access entitlement to the plant
- Reliable, high speed data transfer
- Documentable vehicle-specific truck cleaning
- Seamless traceability throughout the whole process
- Increased process reliability
- Simplification and standardisation of individual processes
- Recording of production times.

Many of the tasks at the plant, which previously required several different systems, can now be executed using a single transponder type

Updating data

What makes RFID technology so appropriate, apart from its facility for unambiguous assignment of the data carrier, is the scope it offers for the in-process updating and forwarding of data.

There is a legal requirement that the data concerning the acceptability of each collection of milk (quantity, producer, temperature etc.) is recorded at the point of collection from the producer and this collection was automated. At the end of the collection route, the entire set of data is transmitted to the RFID transponder. The transponder number is used to allow site access for the vehicle to drive into the production plant or washer, for recording documentary evidence of these events. When the tank is drained, all of the data of relevance for the milk production plant administration system is transmitted again using the transponder.

Following a trial run in two processing plants, the new system is now being rolled out to other locations.

Visualising and indicating cost savings

The installation of Ishida's IDCS (Ishida Data Capture System) for checkweighers has delivered cost savings and production line optimisation at Polish coffee, tea and cocoa producer Mokate, leading to a payback on investment within 12 months. The IDCS software solution can help factory managers make decisions regarding investment in new packing machinery or changes to existing operations and procedures by visualising and indicating where cost savings - on the packing or processing line - can be made.

The IDCS records data from each pack weighed by an Ishida checkweigher (data from up to 100 checkweighers can be recorded by one IDCS) into a single secure database. The reports generated can indicate, for example, how much product is being given away in any given time period (per minute, hour, shift, week, month or year) or how often lines are not operating when they should.

Mokate initially installed the IDCS on a single checkweigher for a three month test period. During its first day of operation the software identified that a number of unplanned stoppages were longer than anticipated. The software also helped to evaluate reasons for packaging material losses. As a result, the company purchased a further 12 Ishida checkweighers with IDCS software and it has now retrofitted the IDCS to all existing checkweighers in its factories.

Benefits of the software include on-line supervision of production lines - delivering information on individual shifts, production volume, throughput and film consumption. Also, centralised control eliminates operator errors during product set up.

Another saving has been achieved by controlling the loss of film during the packing process. The system calculates the amount of film used to produce a particular number of sachets, and shows the wastage through rejected packs or through film losses during machine adjustments.

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