Chicken Company Hatches RFID-based Track-and-Trace Solution

Senecal has been tracking each batch of chickens processed at its Normandy facility, linking RFID data to 2D barcodes on meat packaging so stores and consumers can view data regarding each product and its origins; eventually, the chickens'

By Claire Swedberg

Tags: Packaging, Retail, Supply Chain, Agriculture/Livestock

Oct 06, 2019—Poultry provider Senecal is employing RFID technology to gain a view into the supply chain of its chickens and ducks as they are processed, chilled and delivered to retailers, with an RFID-based system from UBI Solutions consisting of RFID tags linked to poultry batches, as well as RFID readers and cloud-based software to manage read data. The company is entering the third phase of its deployment by introducing barcodes to live chicken tracking, with plans to link that data to the RFID-based records collected as the meat is processed.

The small French company provides high-quality chicken and duck meat, which is processed at its Normandy facility and then sold throughout France. The firm sought an automated track-and-trace system that would enable it to more efficiently process its chickens as they are scaled, plucked, eviscerated, and then inspected and packaged at its facility, and it wanted to share data about those chickens with its customers and distributors. Senecal contacted UBI Solutions to procure an RFID-based system three years ago so that it could monitor the movements of each poultry batch at its facility, according to Renaud Munier, UBI Solutions' international business-development director.

"Senecal wanted to have the capability of defining the quantity of chickens as they arrive in the facility—the number that is processed, the forecast, as well as the quality checks," Munier says. The deployment took place in different stages. The first phase, launched in 2017, consisted of tracking chickens, gooses and ducks at the plant. The second phase went live last summer and enables the sharing of data about each fowl with customers.

By collecting data at the processing center, then providing a 2D barcode link to that data on the packaging, the company can allow customers to scan the packaging via a smartphone in order to find out when a particular chicken was butchered, what farm it came from and other details. The retailer can use the same application to view the batch number and date of any chicken. The third phase will involve expanding the system to track live chickens from shortly after chicks are born, using barcodes that can be scanned to build a record that will be linked to RFID data during processing.

Quality chickens are raised and sold within about 90 days, Munier explains, and managing records related to each animal can be an arduous task. Traditionally, maintaining records has been a manual effort. On a daily basis, the processing facility prepares for the following day's production by collecting manual records from suppliers regarding which butchered chickens will arrive the next day. Upon receiving the chickens or other poultry, employees previously used paper and pen, manually inputting data indicating what was received and when, so that they could create a record for their own purposes, as well as for any regulatory bodies.

That process lacked clarity, however, and the company wanted to do more to understand the story related to each chicken, as

© 2019 RFID Journal

well as share that information with its customers. With RFID, Senecal has automated the collection of data that it can access on its server. The reader infrastructure consists of three fixed Impinj readers, 12 handheld M3 Mobile Orange readers and several Zebra tag printers. The poultry company selected an on-metal magnetic tag that could receive and send RF transmissions around the metallic environment of the processing facility without being disrupted by magnetics.

UBI Solutions' Renaud Munier

The day before each batch of newly butchered chickens arrives at the facility, the company receives a delivery notification from suppliers and an RFID tag is assigned to that batch with a numeric code that is later displayed on a production control screen. The unique ID number encoded on the tag is linked to that specific batch, along with information that includes where the chickens came from and where and when they were butchered. Once the batch arrives, each chicken is hung on a hook and is then moved by conveyors through the processing steps. The first chicken in the batch is suspended on a hook with that parent RFID tag representing the entire batch, attached via a magnetic backing. A sensor counts the chickens or other poultry, then an "end batch" RFID tag is attached to the last animal hook in the batch.

The chickens are cleaned, de-feathered and packaged for sale in French stores. During each processing step, the RFID tag data is captured via a fixed or handheld reader, then is forwarded to the server to update the batch's status. The tag ID data can also prompt processing settings according to the needs of a particular batch.

For instance, the amount of time required for high-temperature exposure, in order to remove feathers, is different for chickens, ducks or geese, and an animal's weight can impact the requirements as well. When each tag is read, says Jacky Theme, UBI Solutions' project director, the PLC on the processing equipment captures data indicating the type of batch, including the size and age of the poultry, and the system automatically adjusts settings for the appropriate processes.

After the chickens have been scaled, plucked and eviscerated and are ready for packaging, they are removed from the conveyor hooks and placed on trolleys. At that time, the parent RFID tag at the front of the batch is removed from the conveyor system and attached to the first of the batch of trolleys. The other trolleys are also tagged with RFID tags that have their own unique ID number, associated with the parent tag, so that every trolley of chickens is associated with the same batch. They must then be moved into cold storage for a minimum of two hours, so as to ensure the proper temperature and humidity of the meat, which defines its ultimate taste.

A mobile RFID reader at the entry to the cooler room captures the tag IDs as the trolleys are brought into cold storage, and again as they are rolled back out. That data is updated in the server to indicate exactly how long the meat was cooled. The chickens also move through an inspection process, during which each tag ID is automatically read, and the inspector can examine the birds and determine the quality of the meat, along with the bird's size and other details, which can be input and linked to the RFID tag.

Chickens can be sold whole or in parts, such as sirloins, breasts or thighs. The system employs barcodes rather than RFID; an RFID reader at the packaging station again reads the RFID tag for that batch, then 2D barcodes are printed and attached to each package of meat. Those barcodes are all associated with the RFID tag to ensure a history of each package of meat is stored,

© 2019 RFID Journal

based on that particular batch of chickens.

When retailers or customers scan the barcode in the store, their phone or other mobile device is directed to the Senecal website, where data related to the meat is available. Two different levels of information are available according to whether the individual scanning the barcode is a reseller (retailer) or a consumer. The latter may see such information as the farm where the chicken was raised and the date on which it was butchered, while the former could gain additional batch data for its own purposes, such as sell-by dates or lot numbers.

Data related to the processing, inspection and packaging of the meat is managed on UBI Solutions' RFID UBI Manager cloud-based software. With the solution, Munier says, Senecal can not only boost the efficiency of its operations, but also prevent errors. In addition, the system will provide a tool for recalls in the event that any meat is contaminated or needs to be taken out of the supply chain or removed from store shelves.

By having a barcode on each package of meat, linked to the RFID batch-based history of the chicken processing, the company can enable stores or consumers to quickly identify whether the meat they have is part of a recall. "The main target for Senecal is to inform the reseller," Munier states, so that stores can ensure they aren't selling recalled meat.

The next phase of the deployment will address how to manage the well-being of live chickens. The software will store the lot number linked with each chick and enable farmers and distributors to input and share information as the poultry matures, such as the animal's weight. Although the RFID technology has been in use at the processing facility for several years, the company announced access to data for consumers last summer.

© 2019 RFID Journal