

Ballantine Produce Co. Deploys RFID

To gain a competitive advantage, one of the largest U.S. fruit suppliers has begun tagging nectarines it ships to Wal-Mart.

By Mary Catherine O'Connor

May 23, 2005—Ballantine Produce Co., based in Sanger, Calif., is one of the United States' largest growers, pickers and shippers of grapes and tree fruit including plums, peaches and nectarines from the U.S. and other countries, including Chile. Though it will not be required to place RFID tags on cases and pallets of the fruit it ships to Wal-Mart stores until 2007, and is not currently under any mandate from Albertsons or other grocers, Ballantine has decided to begin deploying the technology now at its packing facility in Reedley, Calif., both in order to gain a competitive advantage and also to begin evaluating the technology for internal uses. It began a pilot test on May 18 of a tagging system developed for the company by Manhattan Associates, an Atlanta-based software and RFID middleware provider.

David Silva, Ballantine's director of information systems, says that the company decided to move forward with the RFID deployment and pilot test in February. It set a June 1 deadline to begin testing because it wanted to take full advantage of its selling season, which runs from June to early fall. "We knew that if we didn't hit that window, we'd lose the full effectiveness of the tests," says Silva. Though it had less than four months to get the tagging system up and running, the company is ahead of scheduled and under budget, says Silva.

Silva says Ballantine picked Manhattan Associates as a partner in its RFID deployment because of Manhattan Associates' focus on the technology and its middleware platform. At the same time, Ballantine decided to purchase Manhattan's Warehouse Management software to track its packaging inventory—reusable plastics containers (RPCs) and cardboard cases—using bar codes. Ballantine deployed Manhattan's Warehouse Management software just two weeks ago. For order management and order picking, Ballantine has been using Famous Software, an enterprise resource planning platform and accounting platform, according to Mike Argay, senior manager of RFID services for Manhattan Associates. But at some point in the future, Ballantine will be migrating its order-management and order-picking operations to the new Warehouse Management software.

Manhattan Associates played the role of systems integrator for Ballantine's RFID deployment, helping the company chose hardware (readers and tags from Alien and a Printonix printer-encoder), install and optimize the reader, antenna and tag placements, and link the hardware with Manhattan Associates' Integration Platform for RFID, which consists of EPC Manager, which generates and tracks EPC numbers, and Manhattan's RFID middleware, called Enterprise Integration Server. Silva himself handled the process of linking Manhattan's Integration Platform for RFID into the Famous Software platform.

Ballantine supplies Wal-Mart with many of its tree fruits, such as peaches, plums and nectarines, as well as grapes. For the pilot program, however, Ballantine is tagging only four stock-keeping units of nectarines that are being shipped to Wal-Mart's distribution center in Terrell, Texas (the different SKUs are based on different sizes and sources of nectarines).

Here's how the system works. Ballantine processes orders from Wal-Mart through its Famous Software order management tool. When Famous processes a nectarine order bound for Wal-Mart's Terrell, Texas, distribution center, it forwards a copy of the order to the Manhattan Associates software. (Famous also processes the order as it would any other, by generating a pick order for the nectarines to be pulled from inventory, brought through Ballantine's quality assurance inspection and packed into RPCs.)

The order information that Famous sends to the Manhattan software includes a serialized bar code number that is linked in the Famous software to a history of the fruit to be shipped to Wal-Mart, including where and when it was picked. The EPC Manager associates each EPC it generates for a given order to this bar code, so that Ballantine can still trace the fruit back to the grower (as it can with any of its other non-RFID orders, through these bar codes).

The Manhattan software then produces EPC numbers for the nectarine order: one for each pallet and one for each of the 55 RPCs of the nectarines that the pallet will carry. A Printronix s15000e printer then generates the appropriate number of 2-by-4-inch smart labels, each embedded with an Alien 96-bit Squiggle tag. The printer verifies that each tag is functioning. It then verifies the tag again after the Printronix encodes the tag with an EPC.

Built into the sides of the RPCs are plastic clips that hold printed cards that identify the product being shipped. For the RFID pilot, Silva decided to hand-place the smart labels behind these clips as well, instead of peeling off the self-adhesive label's backing and attaching the label directly to the RPC. Ballantine is using the clips because it does not have a means of removing smart labels if they are attached directly to the RPC's plastic surface. Silva says that by using the clips, the company runs the risk that the labels will be jarred loose during transport, but it will use this system until it develops a better way to label the RPCs.

As each pallet of nectarines is loaded onto a truck, it passes through a portal reader that is linked to a tree of indicator lights. The portal verifies that the pallet tag is readable, then checks one of the RPC tags against that pallet tag to make sure that the pallet is carrying the correct RPCs. If the pallet tag is not readable or the RPC tag it samples should be on a different pallet, a light indicates to the operators to stop the pallet from being loaded.

In early testing of the Alien tags on RPCs carrying peaches, representatives from Manhattan worked with Ballantine to find the optimal reader antenna and tag placements until it was able to successfully read between 40 to 45 RPCs for each 55-RPC pallet load. They're now using the same tag placement and reader configuration for the pilot project. Silva reports that the company was reading 70 percent of the RPC tags during the first days of the pilot. Argay says he's pleased with the performance of the Alien squiggle tag, since the high water content of fresh produce tends to cause interference problems with the RF signal.

The pilot will be carried out for the rest of the summer season, and Silva might extend the pilot to include other products, such as grapes. He does not yet have any data from Wal-Mart regarding receipt of the product at the Terrell distribution center because the center will not be operational until June 1.

As the company develops its RFID deployment, Argay says Ballantine can begin to use the Manhattan software to track the freshness of the produce in its tracking facility and support appropriate stock rotation to ensure that the first product into the facility is the first product shipped. Eventually, says Silva, Ballantine will also begin deploying an active RFID system in which temperature sensors linked to battery-operated RFID tags are used to log the temperature history of produce from the time it is picked to the time it reaches a retailer. This type of RFID system can help produce suppliers ensure the quality of fresh produce, and it is something that [Global Berry Farms](#), a berry marketing company, is currently testing (see [Growers Sow the Seeds of Success](#)).

