Three-year study shows RFID tags can withstand

By Ashley Bentley, The Packer

Radio frequency identification tags proved they can withstand multiple trips through the supply chain.

A three-year study of how the RFID tags handle temperature changes, wet and dry environments, cleaning, dropping, transporting and loading came back with promising results.

“What they determined is you could use a one-way tag multiple times with almost 100% readability,” said Jerry Welcome, president of the Washington, D.C.-based Reusable Packaging Association, sponsor of the study.

Courtesy Reusable Packaging Association

A researcher affixes a radio frequency identification tag to reusable containers used in a three-year test on RFID technology's durability. The small labels on the right are the RFID tags, while the larger labels contain identification data needed solely for the purpose of the test.

While the first two years of the study saw the RFID tags — affixed to one of two sizes of reusable plastic containers — subject to vibration tests, dropped from different angles, wrapped and shipped, it was the past year that they were really put to the test.

Three produce companies used RFID tags on their RPCs destined for Wal-Mart Stores Inc., all the way through the supply chain process — from field to store shelves.

Frontera Produce, Edinburg, Texas; Stemilt Growers, Wenatchee, Wash., and Salinas, Calif.-based Tanimura & Antle used the RFID tags with their produce shipments.

After two trips through the entire supply chain, the tags, which were subject to field conditions, coolers, trucks, distribution centers and cleaners, survived both trips. After the testing, 109 of 110 containers on a pallet could be read with 100% accuracy.

“Where we focused primarily was will it survive for the produce supply chain,” Welcome said. “It goes through a pretty vigorous system when you think about it.”

One trick to the success of this study is the placement of the tag.

“We did have some tags not applied correctly that did fall off,” Welcome said. “But for the most part, the vast majority stayed on and did their job.”

Optimal placement of an RFID tag is discussed in the entire study, which is available only to the association’s members at this time.

Besides the added value of being able to use a one-way RFID tag, Welcome said another cost saving advantage discovered is the need for fewer tag readers. Readers and equipment, along with pallets, were included in the study.

Welcome said the results of this study are particularly important for the produce industry because so much information can be stored on an RFID tag, and the study shows how the entire system can be more cost effective.

“That tag can be read and rewritten several times,” Welcome said. “It can have both product information and asset information. The whole reason to use the tags themselves is that you can get a lot out of them.”

From the grower-shipper’s perspective, the tags can store lot numbers, Global Trade Identification Numbers or other distinguishing facts, which can help quickly identify products in the case of a recall or outbreak.

For the pallet pooling company or RPC manufacturer, they can store and track information about that pallet’s number of trips, durability, etc., and use it to optimize their systems.

For both parties, the tags help facilitate analysis of the supply chain.

Lettuce, apples and peppers were used in this the study. Lettuce was used because of its high water content, and water’s ability to detune radio frequencies, while apples and peppers were used to study the effects of seeds, pits and shape on radio frequencies.

The RPCs used in the study were manufactured by Georgia-Pacific, Atlanta; IFCO Systems NA., Houston, and Orbis Container Corp., Fresno, Calif. The RFID tags were provided by Alien Technology, Morgan Hill, Calif.; Avery Dennison, Pasadena, Calif.; Impinj, Seattle, and UPM Raflatac, Hebron, Ky.

The physical testing was conducted at Michigan State University’s School of Packaging, while the RFID readability testing was performed at California State Polytechnic University. The study was peer reviewed by both universities.

To view the original press release/article, visit http://thepacker.com/Three-year-study-shows-RFID-tags-can-withstand/Article.aspx?articleid=367856&authorid=351&feedid=215&src=recent