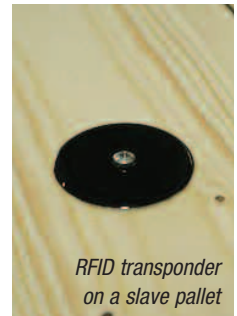


RFID keeps track of fast moving FRUIT

The Netherlands is a big exporter of fresh fruit. Key to the country's success in these markets is the ability to deliver large quantities to supermarkets and retail outlets as quickly as possible - a task that requires fast and accurate processing and order-picking, particularly at the distribution warehouse level



The readers fit perfectly between the rollers of the material handling systems and acquire the transponder data (the pallet number, for example) as the pallets pass over them

The Dutch company, H M de Jong recently established a low-energy-consumption, high-bay fresh fruit warehouse with a capacity of 12,400 pallets at Ridderkerk near Rotterdam. The Ridderkerk facility has, of necessity, a very rapid turnover of storage locations, the speed of handling ensuring that the consumer is supplied as quickly as possible with fresh produce.

“Barcode technology is economical and well proven, but it was not deemed suitable for this application because of the risk of barcode label soiling posed by the fruit and the high moisture levels within the warehouse”

The distribution centre features numerous roller and belt conveyors for transporting and sorting the freshly harvested produce, plus workplaces for fruit care, all of which needs to be integrated within the warehouse management system to ensure reliable, error-free pallet identification and efficient flow of goods. H M de Jong's partners in this project were Egemin (conveyor and storage systems) and Leuze electronic (identification technology).

Leuze was in a position to offer various methodologies for the tracking systems, both optical (barcode) and radio frequency identification (RFID) based. Barcode technology is economical and well proven, but it was not deemed suitable for this application because of the risk of barcode label soiling posed by the fruit and the high moisture levels within the warehouse environment.

Compared with these optical methods, RFID offers a more robust technology in terms of its ability to withstand adverse environmental conditions. It is immune to soiling and, as data transmission occurs via a magnetic field rather than a line-of-sight vision system, RFID systems are capable of identifying items through materials. Thus the code or data-carrier can be covered or indeed fitted within a tray, without impacting on the reliability of the identification process.

Traceability issues

RFID is the only identification technology capable of updating data during processing ('writing'), and one or more targets can be transmitted to the transponder. As a result, it is possible to implement multiple control options for the pallets or containers. At Ridderkerk, fruit is transported, picked and stored in plastic containers and cartons, and placed on pallets. In order to ensure the smooth running of this process, each step must be tracked with the status of each pallet ideally being available at all times.

The pallets arrive from the fruit farms in widely varying conditions, so these are placed on 'system' pallets referred to as 'slave boards'. An RFID transponder is mounted in the geometric centre of the slave board, to ensure reliable detection regardless of the direction of travel, whether lengthways, sideways or diagonally. When the merchandise is placed on a slave pallet an assignment is made, which is unique and traceable.

The readers fit perfectly between the rollers of the material handling systems and acquire the transponder data (the pallet number, for example) as the pallets pass over them. The transponders and readers are mounted in such a way as to be fully protected from impacts. This, together with the short transmission distances, ensures high functional reliability.

The configurable function of the read/write device and the block structure of the transponder memory allow information to be read from, and written to, the transponder. The path of the pallet is reliably detected and controlled, whether the pallet is being stored with a new load or if the fruit is being transported for order picking.

In addition to this traceability, a very high level of system availability is assured, which enables operators to react quickly to system malfunctions. And as individual pallet locations can be called up and traced at any time, fast and smooth order processing is achieved, even with



A tomato packaging station

Transferring from a delivery to a slave pallet

“ *RFID is the only identification technology capable of updating data during processing* ”

varying stock levels or, again, in the event of a malfunction.

As far as the wider food processing industry is concerned, the use of RFID technology not only ensures operational stability, regardless of environmental conditions, but it is also able to satisfy new requirements that are currently being considered for food production. These include the generation of detailed documentation relating to process steps, above and beyond EU-VO 178/2002, and the traceability of individual products.

i More Info – Enter 400
at www.psbonthenet.net/enquiries

Leuze electronic Ltd
Generation
Business Park,
Barford Road,
St. Neots,
Cambridgeshire,
PE19 6YQ
Tel: 01480 408508
Fax: 01480 403808
mark.weymouth@leuze.co.uk
www.leuze.co.uk