

Sign on the digital line.

Paperless offices may continue to elude us, but a project initiated by Paltrack has proven that the fruit export supply chain is ready for online documents and electronic signatures.

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At the moment, each intake and dispatch document is either printed on special four-layered paper or multiple copies are printed.

MORE THAN R500 000 PER YEAR. That's what it costs the fruit export industry to print intake documents. And that is only ink and paper. Now add the costs associated with handling the documents, such as couriers, faxing and filing. Not to mention the paper-induced productivity losses.

The good news is that there is a better way and it has been proven.

Andries Mouton, managing director of Paltrack, led a 10-month proof-of-concept project for an electronic signature and document management solution



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for the fresh fruit export industry. Paltrack supplies software solutions to the industry, including pack-line management, label and document generation and warehouse and stock management systems.

"Because we have clients all along the supply chain, from the farmer to the export agent, we have a bird's eye view of the process and the paperwork involved," says Mr Mouton. "We identified electronic signatures, backed by an integrated electronic document management solution (EDMS), as the next step towards increased competitiveness. Our goal is a real-time value network where all trading partners can easily connect and share information."

The electronic signature and document management project set out to show that by introducing document management technology, efficiencies can be gained, costs saved and the environmental impact of paper use reduced. The emphasis was on proving that electronic documents can and should be accepted as a legally binding alternative to their paper-based counterparts.

HOW THE PROJECT WORKED

Mr Mouton used the Paltrack software and systems related to intake and dispatch documents as point of departure. Based on the workflow from pallet intake to dispatch, the software engineers created a working prototype system that was implemented on Paltrack-sponsored hardware at various activity points. The prototype integrated Paltrack products with an EDMS and a signature solution. The EDMS solution is called PaperTrail and was sourced from Paltrack's original equipment manufacturer partner, EGIS.

"We chose the technology partners because they were close by, were willing to contribute and their products could be customised," says Mr Mouton. The Post-Harvest Innovation Programme funded some of

the work needed to integrate the different products to create the overall prototype for proof-of-concept purposes.

The prototype was left to run 'live', but parallel with the existing paper-based approval and signing system.

As part of the project, the intake and dispatch documents were electronically presented to the people who usually sign them, including the Perishable Products Export Control Board (PPECB) inspectors and truck drivers. Instead of pen and paper, they signed the documents using a signature pad. The biometric information associated with the signing action was captured in the electronic document as a security measure.

The documents were then stored in an EDMS database at the pack house from where it could be distributed easily, immediately and cost effectively to all parties that require signed copies.

The team also created a cloud-based dummy PPECB database to show the potential for a central repository of all the inspection documents. The database was updated with signed documents within minutes of the inspectors having authorised them.

After a few days, the project team visited the sites to interview people who have used the prototype to get their feedback and recommendations. "We found that everybody who participated in the project, be they representatives from management, operations, information technology (IT), drivers or inspectors, welcomed the concept," says Mr Mouton. "People also saw that the technology could be applied in other areas of their businesses, such as human resources (HR), finance and contract management."

WHAT PARTICIPANTS LIKED

Once they understood the process and the reasons behind the technology, the inspectors, drivers and

depot representatives were happy to use it. They found that there was much to like about electronic documents and signatures:

- **Speed.** The signed intake/inspection documents are delivered to the PPECB before the inspector leaves the site.
- **Quality and legibility.** No more struggles with printers that do not print clearly or faxed copies that are difficult to read.
- **Savings.** Less special order paper, printer cartridges and printer maintenance expenses.
- **Less frustration.** Fewer printer issues, especially paper jams, because of the significant reduction in the number of documents having to be reduced to paper.
- **Easy-to-use.** The users reported that the learning curve was not steep at all.
- **Saves time and effort.** One electronic signature is all it takes, and documents are sent automatically to the next depot, transport company or the PPECB.
- **Improved and more secure record-keeping.** Hard copies get lost, damaged or misplaced and take time to locate in even well-managed archives.

THE STUMBLING BLOCKS TO OVERCOME

Based on feedback from the participants, the project team identified the factors that could impact the implementation of the solution. Many of them were pilot system restrictions and can easily be resolved.

One of the concerns that were raised was that security validation consisted of only a login ID and a password. Mr Mouton says that the technology can provide real-time signature verification, but that the biometric information stored in the electronic version of a document provides all the information forensic auditors might need to determine who actually signed it.

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PROJECT TITLE

Proof-of-concept for an electronic signature and document management solution

PRINCIPAL INVESTIGATOR

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DURATION

Ten months

PHI-2 CONTRIBUTION

R230 400

LEAD INSTITUTION

Paltrack (Pty) Ltd

BENEFICIARY

The entire fresh fruit industry

FOCUS AREA

Supply chain logistics & information



1 Andries Mouton.



The project findings show that EDMS can help to achieve efficiencies, reduce costs and create a 'greener' fruit export industry.

There are also several logistical factors to consider. For example, Internet connectivity, interruptions or power outages can hamper the electronic signing process, and set-up errors will result in documents being sent to the wrong location. The latter, however, also happens to paper documents that are manually handled.

An illustration of how easy the technology is to use, is the fact that the truck drivers' main complaint was that they had to walk to the dispatch office to use the signature pad that was linked to a PC there. Usually, they sign on a clipboard next to the truck. The 'sign-on-glass' technology that allows the signing process to happen on a mobile device next to a truck already exists but that was not part of this project.

The overall success of the project and the feedback from participants that EDMS can make a tangible difference, exceeded Mr Mouton's expectations. "We now have a number of solution evangelists out there. They have used the system we are proposing and are more than willing to share their experiences."

All that remains to be done is for the PPECB to endorse the proposed concept. This is necessary to find

WHY IT CAN WORK

The proposed EDMS solution:

- is more secure than the current ink-on-paper system;
- leverages the technology to reduce cost and increase efficiency; and
- does not depart unnecessarily from the manual processes, making change management easier.

ways to accommodate the Department of Agriculture, Forestry and Fisheries' existing document requirements, for example, that original intake documents, bearing an inspector's signature and stamp, have to be submitted.

The project team believes that the legal considerations, security concerns, information ownership and privacy considerations have been, or can be, addressed. "If the pilot group's feedback is anything to go by, the industry is ready to go paperless," concludes Mr Mouton. 🍏

Electronic signature makes life so much easier and can even be more secure than ink on paper.



TRU-CAPE FRUIT MARKETING (PTY) LTD
Export Intake Document

Supplier: DFC	Document No: 1028300197
Destination:	Loan Code: CLNLS H HUI 1 GHOWEMS LTD
ETA	Compliance Code: 201201001
ACCURE	Intake Pro No: 21
PMC	Purchase Order No: 140
PUC	COB87
Truck Driver:	Total Cartons: 2
Cell Number:	Total Pallets: 2
	Waybill No:
	Cell By Code:
	Avg Temp: 0.00
	PKA for CAS: Mandatory Dates:
	Fair Trade Number:
	Lot No:
	Carrier Signature:
	Producer Signature:

Variety	Count	P.Pack	Int.Code	Eqd	TM	P.Chan	Exam	BT	IG	IR	Document	Brand	Shops	Access	Eq
Command	4000	100	4014	U1	1.5000	F5	0087	5	F5	140	140	0	0	0	C
Sat	140														
Spout Tot	140														

CERTIFIED BY PPECB FOR EXPORT

Inspected By: Sarah Heath

Inspection Date: From 01/11/2013 to 01/11/2013

Inspection Point: 1215 DANIEL BOS

Inspector: ADAM DEAN

Evolution: 0

Inspection: 0

Endorsements: 0

Inspection Point: P1

definitions

1. POST-HARVEST PATHOLOGY, FOOD SAFETY AND DISEASE CONTROL

Post-harvest pathology in the fruit industry involves the scientific study of post-harvest pathogens and fruit diseases to find remedies and solutions. It is closely linked to food safety and other issues of global importance. Green alternatives such as essential oils are now harnessed to combat post-harvest diseases. The microbial dynamics of fresh fruit is also investigated to develop fruit quality and safety guidelines and hopefully a standard for the industry.

2. MITIGATION TECHNOLOGIES FOR SANITARY AND PHYTOSANITARY COMPLIANCE

South Africa exports fruit to various markets that impose strict phytosanitary requirements to eliminate pests. Cold sterilisation treatments are effective, but not suitable for all fruit varieties. CATTS technology now provides a green mitigation alternative for quarantine pests, while special packaging formats are being developed to obtain certification in export fruit irradiation.

3. POST-HARVEST PHYSIOLOGY AND NON-DESTRUCTIVE FRUIT QUALITY ASSESSMENT TECHNIQUES

Post-harvest physiology in the fresh fruit industry concerns the scientific study of fruit after harvesting, with the goal of improving fruit quality and shelf life. In some cases it is required to induce fruit ripening, while cold storage treatments are generally aimed at delaying ripening to prolong shelf life. The influence of storage and other factors on the development of internal disorders are also determined. Non-destructive fruit quality assessment techniques are used in a study that provides insight into the mystery of mealiness in 'Forelle' pears and research shows when 'Triumph' persimmons should be harvested.

4. INTEGRATED PACKAGING SOLUTIONS

Fruit is a living, breathing organism that needs oxygen. Ventilated packaging plays an integral role in the maintenance of fruit quality, and is therefore one of the most vital elements of the fresh fruit export industry. 'Unpack the box' explains how exciting new technology – computational fluid dynamics – is used to design fruit export packaging.

5. CARBON FOOTPRINT / ENERGY EFFICIENCY IN THE SUPPLY CHAIN

Global warming and changes in climatic patterns have made the South Africa fruit industry aware of its carbon footprint, fossil fuel usage and the effect on greenhouse gas emissions. Considering the impact on the environment and constantly increasing electricity and fuel prices, practical solutions are required for the industry to remain socially responsible and globally competitive.

6. PRE-HARVEST DISPOSITION TO POST-HARVEST DISORDERS

The strict phytosanitary requirements of certain fruit export markets create numerous challenges for the South African fresh fruit export industry. In a new, internationally collaborated project, the Spanish citrus industry is helping to reduce chilling injury in our 'Star Ruby' grapefruit.

7. TECHNOLOGY AND KNOWLEDGE TRANSFER

In this book, technology and knowledge transfer is used as a generic term that describes the process of information, skills and knowledge transfer. Technology and knowledge transfer plays an important role in creating the necessary understanding of the South African fresh fruit value chain among relevant role-players.

8. SUPPLY CHAIN LOGISTICS

Logistics is an integral part of the South African fresh fruit export chain. It is imperative that the entire supply/value/cold chain functions efficiently – from pack house to the table – to ensure the smooth running of the export process. It is extremely important to manage product temperature and relative humidity efficiently in order to maintain fruit quality. An international project uses radio frequency identification technology to shed light on parts of the supply chain never monitored before. The compilation of a cold chain practice manual ensures that all stakeholders are equipped with a user-friendly reference guide. The value that high-quality pallets add to the prevention of losses is also highlighted in this focus area.

9. GREEN CHEMISTRY

The invention, design and application of chemical products and processes to reduce or eliminate the use of hazardous substances.

10. HUMAN CAPITAL DEVELOPMENT

Human capital development is one of the top priorities of the South African fresh produce industry. Specific initiatives are directed at students at schools and universities. They are receiving practical guidance on viable career choices in the agricultural sector to encourage skilled and qualified people to enter the industry. The focus is also on emerging farmers, in a pioneering mentorship intervention to help them develop into fully-fledged and sustainable fruit exporters.

11. INFORMATION AND COMMUNICATION TECHNOLOGY

An international ethical trade standard and a comprehensive and consolidated online web-accessible agrochemical database have been developed for South Africa. These two initiatives intend not only to benefit the entire South African agricultural sector, but also to be of international use. Another initiative to let the export chain run smoothly, focuses on electronic signature and document management.

