

Technology transfer yields excellent results

The transfer of knowledge and skills – known as technology transfer in industry terms – is proving to be a powerful and effective weapon in the citrus industry's competitiveness arsenal.

As much as deregulation introduced competition into the fresh fruit export industry, it was not all good news. In terms of citrus, the post-deregulation period was characterised by deterioration in fruit quality and packaging material, handling in the logistical chain and cooling protocols. In addition, ignorance of phytosanitary protocols and a lack of information and knowledge resulted in huge losses to the industry.

Responding to this situation, in 2007, the Citrus Marketing Forum requested that these issues be addressed to minimise losses and improve discipline in the industry. The Forum's plea resulted in the formation of the Citrus Research International Post-harvest Technical Forum (CRI-PTF), whose functions and responsibilities include post-harvest technology transfer. Falling under the CRI Extension Department, CRI-PTF is managed by Hannes Bester, the national extension manager.

CRI-PTF carries out its mandate through, among other initiatives, a series of workshops that helps role players to fully understand phytosanitary issues, export regulations and the post-harvest management practices needed to land their perishable product in the best possible condition in export markets. "Our aim is to minimise losses every season, while enabling long-term sustainable, competitive marketing, ensuring job security and creating wealth," says Hannes.

Enlisting PHI support

Given the increasing importance of technology transfer to the long-term well-being and profitability of the citrus export industry, Hannes and CRI wanted to extend the reach of the CRIPTF workshops. To this end, an

application was made for PHI support.

"The objective of this project was to ensure that, before picking and packing start, all individuals involved in the post-harvest value chain are fully informed of post-harvest phytosanitary requirements and protocols, the latest research findings and recommendations on pathological and physiological fruit quality issues, packaging research, packaging material specifications, palletisation protocols, time and temperature protocols, logistics, and handling and cold chain management operating procedures," says Hannes.

With PHI support, six two-day workshops were held at the end of January and beginning of February 2015, and a further six workshops in the same months in 2016. The main production regions of the country were covered with two workshops in Limpopo, and one each in Mpumalanga, KwaZulu-Natal and Swaziland, and the Eastern and Western Cape. The PHI funding allowed an additional workshop to be held in Nelspruit, making it easier for both commercial and emerging producers to attend.

In 2015, some 764 people attended, and in 2016 the total was 920. They represented the diversity of the industry in terms of economic activity, gender, race, size of enterprises and position in the citrus value chain. Each attendee received a CD with copies of all the presentations, as well as one-page critical control point recommendation hand-outs on the topics of drench application, chlorine application, fungicide bath and wax application.

"The excellent attendance and feedback confirmed the successes of these workshops," says Hannes.

The best indicator of the value added by this initiative, however, is export results. Positive feedback from export-

"The workshops successfully and rapidly convert research findings and technology developments into industry-wide application and value realisation for the industry and country as a whole"

HANNES BESTER



PROJECT TITLE CRI post-harvest technical forum extension

PRINCIPAL INVESTIGATOR Hannes Bester (left)

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LEAD INSTITUTION Citrus Research International (Pty) Ltd

BENEFICIARY The South African citrus industry

FOCUS AREA Technology transfer

PUBLICATIONS Pending | PRESENTATIONS AND PAPERS 23

2016 WORKSHOPS

TZANEEN, LIMPOPO 26 & 27 January

LOSKOPDAM, MPUMALANGA 28 & 29 January

NELSPRUIT, MPUMALANGA 9 & 10 February

DURBAN, KWAZULU-NATAL 11 & 12 February

JEFFREYS BAY, EASTERN CAPE 16 & 17 February

STELLENBOSCH, WESTERN CAPE 18 & 19 February



ers on the improvement in fruit quality and shelf life, reduced rind disorders, quality of packing material and adherence to phytosanitary requirements is a direct outcome of the fact that producers and packhouse managers apply the research results and recommendations presented during the workshops.

"We find that packhouse managers who attend the workshops use the presentations for in-house training," says Hannes. "Our post-harvest extension officer sees vast improvements in packhouse practices, especially the management of critical control points. It is no surprise, therefore, that the Exporters Technical Panel report that the quality and presentation of South African citrus is improving."

These two-day workshops have become one of the most powerful technology transfer tools in the South African citrus industry. They are a vehicle for taking the latest post-harvest research findings and state-of-the-art technology developments from theory to practical application, resulting in a direct and immediate return in the form of increased competitiveness.

THE WORKSHOP CONTENT

- Production region overview
- The citrus value chain
- PPECB feedback:
 - Previous season rejections and quality
 - Export standards for the coming season
- Exchange traded products market feedback
- Export regulations: The Department of Forestry and Fisheries
- Phytosanitary regulations (all markets) and industry's citrus black spot risk management system
- Marking requirements
- Citrus marketing dynamics in the USA
- Packhouse requirements with regards to audits
- Get more miles out of the pre packhouse drench application
- The first application step in the packhouse: what do we sanitise?
- Update on floodler research
- Resistance development vs. packhouse sanitation practices
- Perspective: imazalil sulphate and pH
- Packaging issues
- Ineffective critical control points
- Practical guidelines for managing physiological disorders
- The effect of packhouse practices on fruit physiology
- Impact of packaging and ambient loading on cooling of fruit in containers
- Recommendations regarding packhouse treatments
- Update on food safety and residues
- Costs and potential losses in the logistical chain
- Packhouse management of FCM for a phytosanitary market
- Post-harvest research projects and priorities



Left: Various sponsors also take part in the workshops.



**POST-HARVEST
INNOVATION PROGRAMME**

a public-private partnership between
science & technology
Department of Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA
fpoF
FRESH PRODUCE
EXPORTERS FORUM