

Post-harvest management quality along the tropical fruit chains

> CHALLENGES

Depending on level of technicality and product type, the post-harvest losses generated during storage, handling, distribution, or by consumers represent between 30 and 40% of production of fruits and vegetables. Losses have various origins and this action is aimed at assessing the impact of post-harvest technologies on managing spoilage flora, storage capacity and final quality of fruits, by taking into account their physiological status.



CIRAD develops an integrated approach for controlled and sustainable production of tropical fruits with optimum organoleptic, sanitary and nutritional properties.

> CIRAD'S EXPERTISE

SHIPPING Conditions optimisation:

- Modified atmosphere
- Ethylene stripping
- Reefer parameters control (vent efficiency, T°C, RH)

Physiological disorders control and prevention (storage, shipping, consumer level...):

- Chilling injury, Browning, bruising (/banana)
- Black spot (/pineapple)
- Mechanical damage, discoloration (/mango)

Fungal and pest management:

- Fungal contaminations along the food chain
- Natural compounds as anti-fungal agents
- Active coatings
- Shipping simulation

Quality attributes analysis:

- Sensorial characteristics
- Aromatic compounds
- Nutritional compounds
- Textural properties

Storage life extension:

- Harvest stage optimisation
- Green life period

Quality research:

- Physiological response of the fruit / stress
- Biochemical mechanisms linked to the quality parameters
- Nutritional compounds

> CIRAD IN A NUTSHELL

CIRAD is the French agricultural research and international cooperation organization working for the sustainable development of tropical and Mediterranean regions. With over 100 countries, it works to generate new knowledge, support agricultural development, and contribute to the debate on the main global issues concerning agriculture, food and rural territories. It has a staff of 1650, including 800 researchers.

Crop management, agroecology and environmental impact assessments are major fields of activity for them.

Visit Cirad website: www.cirad.fr

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> A FOCUS ON SPECIFIC CONDITIONS IN SOUTHERN COUNTRIES

The strong restrictions on the Southern countries in terms of energy cost, access to water, manufacturing capacities and maintenance of equipment, specificity and variability of raw materials, mean designing robust, economical processes in accordance with the qualities of the raw material and the finished product. The paths of optimization of existing technologies and the design of new fruit processes are both studied by CIRAD.

This focus on Southern Countries is strengthened by a network of partners on three continents, and 14 regional Cirad offices, from which it works with more than 100 countries.

Besides, CIRAD has posted several Fruit Technologist experts permanently posted in the French Oversea Territories (La Reunion, Guadeloupe-Martinique, Guyane), Africa, Latin America and Southeast Asia), which provides a unique access to field trials.

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