

The scientific and technical objectives are organised as research and development projects concerning products covered by the department: fruits, vegetables, aromatic plants and other horticultural produce.

They concern the following themes:

- knowledge of fresh produce and characterisation of horticultural products,
- quality in close relation with pre-harvest physiology and phytotechnology,

- storage in relation with pre-harvest physiology and phytotechnology,
- fresh and processed technology in close relation with yield and quality constitution components ■



## The international market for citrus and tropical fruit juices: review and prospects

Abstract



Complete version

<http://technofruits2001.cirad.fr>

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Although it is difficult to find accurate, reliable statistics, we can nevertheless affirm that the market for practically all citrus juices and all tropical fruit juices is growing slowly but steadily at both the global scale and that of the European Union. The analysis and interpretation of official data and above all permanent contacts with

economic operators in the fruit juice sector led us to reaching this conclusion.

The European market situation is analysed product by product (orange, grapefruit, lemon, pineapple, mango, passion fruit and banana), and the fruit juice market at the beginning of the twenty-first

century is characterised by two new, important trends:

1. business concentration at all levels in the production and distribution chain;
2. the emergence and very rapid development of demand for NFC (Not From Concentrate) and organic products ■



## Processing exotic fruits for juice: description of processes and optimisation of qualities

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A number of French market statistics from the *Union Nationale des Producteurs de Jus de Fruits Français* reveal a fairly substantial increase in exotic juices and blended juices containing mango, pineapple, passion fruit, etc. since the beginning of the 1990s. They consist of juice prepared from concentrate, nectar and pure juice and of beverages. Vitamins are often added to restore the initial levels in the raw materials; this is performed within a specific framework of regulations.

### Florida citrus juices

The crop estimate for 2001/2002 varies from 223 to 241 million boxes depending on the source. One box of

oranges (approximately 41 kilograms) gives about 21 to 24 litres of pure orange juice. This means 5 thousand million litres of juice to be stored and distributed. The main orange juice producers in Florida have chosen bulk aseptic packaging and storage in two forms: 1,000-litre wooden bins with aseptic liners and giant aseptic tanks containing a million gallons (3.78 million litres). Some six factories in Florida store juice in this way. It reduces storage and handling costs in comparison with the traditional frozen tank method, increases productivity and enables better stock management and conserves juice quality.

#### The process

Citrus juice manufacturing processes are fairly well known: fruit reception,

storage and selection. Inspections are performed by USDA and the FDA in Florida on reception and at several stages. They make it possible to check whether regulation ripeness has been attained. Washing is often followed by abrasive scrubbing of the fruits to recover essential oils. Two types of extraction are performed in Florida and Brazil: FMC and Brown. In the FMC method, oranges are pressed vertically with metal cups and the Brown method is similar to a traditional citrus fruit squeeze with the oranges cut in two and pressed horizontally by cones.

Extraction gives a high-pulp juice that must then be refined. This is performed in several stages: finishers (filters) separate out the coarse pulp. The addition of pulp to