

A passion for processing fruit

Mpumalanga fruit processing company, TropiCube, is actively building markets for its preservative-free, stable dehydrated fruit products that are particularly suitable as bakery, cereal and confectionery ingredients. Janice Hunt reports.

STRATEGICALLY located at Kaapmuiden in the heart of the Mpumalanga fruit orchards, TropiCube's dried fruit processing plant produces preserves with a difference. Available as a paste or fruit pieces cut in various shapes and sizes, the TropiCube product is preservative-free, has a soft, chewy texture, contains functional ingredients such as vitamins, minerals and fibre, and has a long shelf-life due to a low water activity.

MD Rolf Moe, brought on board last year when CJ Petrow invested in the company, explains TropiCube's origins: 'This factory started as a result of our technical director, Olivier van Buynder's search for a new dried fruit process about five years ago. With a background in both farming and engineering, Olivier was then involved in pre-ripening fruit for the retail industry. He was constantly faced with tons of top quality fruit that was too ripe for transportation and which was often all but given away to local farmers for feed.

'Olivier became passionate about finding a fruit dehydration process that would produce a preservative-free product with a long shelf-life.'

Van Buynder takes up the story: 'Extensive research into dried fruit products available throughout the world showed that most were loaded with sulphur dioxide, which meant they were potentially allergenic to some people. I wanted a product that had no preservatives other than what nature had provided.

'This led me to various recipes and processes from places as far afield as the Philippines and Japan, to my Belgian grandmother's recipe book,' he continues. Combining several ideas, Van Buynder came up with a product that features a stable low water activity of less than 0,65Aw with a moisture content of between 12% and 15%.

Moe points out that this low free water process is at the heart of TropiCube's success: 'It's nature's own preservative — with such a low water activity, nothing can contaminate it.' The concept, however, isn't new and has been extensively applied in space food programmes.

Without divulging secrets, Van Buynder outlines the process, which is divided into five modules. The first stage is the wet preparation module where frozen fruit pulp is defrosted, then steeped and

cooked. At that stage, ingredients such as sugars, fibres, seaweed extract and vitamins are added. The gelling phase — using natural gelling agents — also forms part of the first module.

The second module is the drying phase, when the sheets of gelled, processed fruit on 2cm deep trays are placed in a custom-made contra-flow drying system for about 24 hours, designed and built by Van Buynder, in conjunction with a local engineering company.



Left: Technical director Olivier van Buynder examines product in the contra-flow drying room.

Right: A selection of TropiCube's products.



Ingredients

Curing is module three; and cutting — which requires specialised cutting technology due to the sticky, pectin-type texture and high Brix levels of the product and the variable sizes and shapes of the fruit pieces — is module four. TropiCube called in Nuritur, the Cape Town-based representative of Urschel Laboratories in the US to help it find the right cutting machine, and after extensive testing, an Urschel Model M dicer was purchased. Added benefits of this machine include significant productivity improvements and waste savings.

The final module is packaging, which for consumer products is still done by hand.

The result is a versatile range of products that are thermo-reversible, depositable and bake-stable.

The factory operates as a pilot plant with a capacity of 60t/month but has plans for a semi-automated main plant with a 200t/month capacity.

The fruits used in the TropiCube product ranges include apple, apricot, banana, guava, pineapple, orange, passion fruit, strawberry, raspberry, berry-mix, litchi, mango, kiwi, peach, lemon, tropical, and pear.

The particulate selection or fruit pieces include *Choice*, which contains 2kg of fruit for every 1kg of product manufactured, and no preservatives, colourants or flavourants; *Choice — flavour enhanced*, which contains nature-identical flavour to enhance the natural characteristics of the fruit; *Choice — no added sugar*, which contains between 5kg and 8kg of fruit for every 1kg of end product; and *Blend*, which has a lower fruit content (1kg of fruit to 1kg of manufactured product) and is boosted with nature identical flavours and colourants.

The paste range includes *Choice* and *Blend* products, made to the same recipes as the particulates, as well as a confectionery paste, which was developed specifically for an Israeli manufacturer. The specifications were a thermo-reversible and co-extrudable paste with a pourable viscosity when heated to 60°C, for use as a centre fill for cereal and confectionery products.

Moe is in the process of develop-

ing markets for the TropiCube products, which he believes will mainly be in the food manufacturing sectors, both locally and internationally. 'The opportunities for food manufacturing applications are practically endless,' he enthuses. 'Research has shown that a quality, differentiated fruit ingredient would have broad appeal in food manufacturing. Generally, preserved dehydrated fruit dries out quickly and becomes hard when used, for instance, in a hygroscopic product such as breakfast cereals.

Our product, on the other hand, offers a dried fruit product with the natural character of fruit and the requisite water activity and shelf life.'

TropiCube products can also be used in the baking industry in muffins, cakes and baked confectionery lines, by dairies in ice cream and yoghurts, by confectioners as a fruit component in chocolates or nougat, and even by infant food manufacturers as an ingredient free of preservatives, flavourants and colourants.

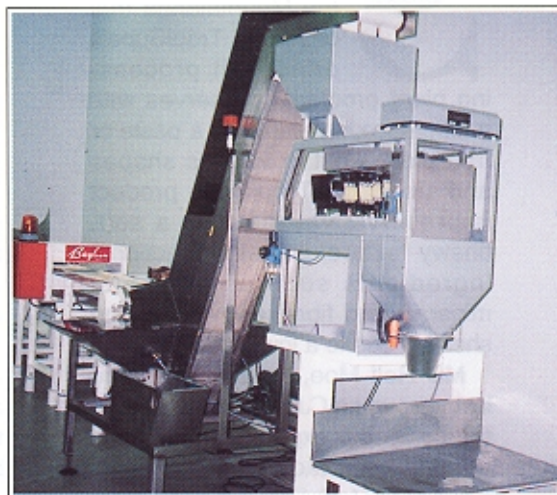
Ingredients house, Dolcré — which has also participated in the creation of new TropiCube products — has been actively developing the local food manufacturing market for the past year. Internationally, TropiCube has signed up agents Beldem in Europe and Whitworths in the UK to reach both the food manufacturing and retail sectors. Other agencies will be selected as and when the need arises, while Moe himself is tackling the Australian market. He admits that the market is in its infancy: 'We're still in a development phase. At this stage we need to create a demand for what we believe is a phenomenal product, without equal in the world.'

While TropiCube has been focusing on product and market development, nothing has been left to chance on the food safety front, and the company — which positions quality control as a top priority — has adopted the HACCP food safety system in the factory. Own audits are conducted frequently, and external audits are planned for the near future. □

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Above: TropiCube MD Rolf Moe; quality control manager Avril Hopkins, and technical director Olivier van Buynder with product in



Above: Packing for the food ingredient market is handled by this bulk packaging machine, equipped with a Bayliss on-line metal detector.

Below: The Urschel cutting machine from Nuritur has enabled TropiCube to develop a wide range of product sizes and shapes.

