

Sea freight

<http://passionfruit.cirad.fr>

Mediterranean strawberries:
transforming the try scored
in 2010-2011!

Pitahaya: yellow, red...
a few keys for knowing and
recognising these fruits better



DUNKERQUE-PORT

The fresh produce hub

In the heart of the main consumer area between London, Brussels and Paris, the port of Dunkirk offers more than 120,000 m² of storage facilities near the short-sea and deep-sea terminals. Of this warehouse space, 35,000 m² is dedicated to fresh produce and 40,000 m³ to frozen foods.

With the many shipping services to and from the Far East, the West and East coasts of Africa, Central and South America, the Pacific, the Indian Ocean, the UK, Russia and elsewhere, the port of Dunkirk handles cargoes that include bananas from the Caribbean and South America, citrus fruits from Morocco, grapes, apples and kiwis from Chile, apples from Brazil, and apples, pears and oranges to Russia.

The private companies located a few hundred meters from the water's edge, such as Dunfrost, Dunfresh, Banalliance and Dailyfresh, are specialised in the storage and distribution of all kinds of refrigerated products between 20°C and +13°C.

DUNKERQUE
PORT

Grand Port Maritime de Dunkerque

www.dunkerque-port.fr

[facebook/dunkerqueport](https://facebook.com/dunkerqueport)



PORT SUPPORTED BY EU



That's life! *What was urgent yesterday is no longer urgent today. What was once essential becomes superfluous a moment later. As Georges Clémenceau said, 'the cemeteries are full of irreplaceable people ...'. The world is so cruel that I feel that with a fine display of human solidarity I should associate myself with the Director-General of the World Trade Organization. Indeed, Pascal Lamy is no longer 'the guest you must have' on all TV shows, in universities and conformist economic/political circles. In Europe in particular, it is not that peoples and governments are putting their preoccupations with world trade and its sacred avatar globalisation to one side, but rather that they blame them for all their ills. Doubtless in an exaggerated manner, globalisation is accused on the one hand of ruining the Europeans and North Americans by de-industrialising their continents and on the other of enslaving the poor people in third countries who supply products that are essential—or not—for the new happiness of Humanity. And it's tough luck for the Director-General of the WTO who imagined a more glorious destiny for himself: putting his name at the bottom of the agreement closing the Doha Round that started in 2001 ! As a particularly brilliant man, he will know how to adapt to the new situation. His discourse will be more social, more focused on development, more balanced and doubtless more cautious too. Everybody is hoping for a vision of the world that might perhaps be less Malthusian. It's a pity about the various liberalisations that have been imposed—by the WTO. I think in particular of the common market organisation of bananas (CMOB) that is paying for the deregulation dogma at the end of this year and will doubtless pay in 2012 as well. The debt crisis will at least have slowed the advance of all trade. The person that Jacques Delors nicknamed the soldier monk is now wearing a blue helmet. But he shouldn't worry. Blue fades very fast.*

Denis Loeillet



Publisher
Cirad
TA B-26/PS4
34398 Montpellier cedex 5, France
Tel: 33 (0) 4 67 61 71 41
Fax: 33 (0) 4 67 61 59 28
Email: odm@cirad.fr
http://passionfruit.cirad.fr

Publishing Director
Hubert de Bon

Editors-in-chief
Denis Loeillet and Eric Imbert

Editor
Catherine Sanchez

Computer graphics
Martine Duportal

Iconography
Régis Domergue

Website
Unité multimédia (Cirad)

Advertising Manager
Eric Imbert

Subscriptions
Caroline Crampont-Turquès

Translator
Simon Barnard

Printed by
Impact Imprimerie
n°483 ZAC des Vautes
34980 Saint Gély du Fesc, France

Separate French and English editions

ISSN
French: 1256-544X / English: 1256-5458

CPPAP
Fr.: 0711 E 88281 / Eng.: 0711 R 88282

© Cirad

Subscription rate
EUR 220 / 11 issues per year

This document was produced by the Markets News Service of the PERSYST department at CIRAD, for the exclusive use of subscribers. The data presented are from reliable sources, but CIRAD may not be held responsible for any error or omission. Under no circumstances may the published prices be considered to be transaction prices. Their aim is to shed light on the medium and long-term market trends and evolutions. This publication is protected by copyright, and all rights of reproduction and distribution are prohibited.



C contents

Direct from the markets

p. 2 NOVEMBER 2011

- **Avocado:** Peruvian avocado: a record in 2011 and more to come... — Avocado variety of the month: 'Pinkerton'.
- **Exotics** (pineapple, litchi, mango): Green light for genetically modified pineapple — Pineapple boom coming in Malaysia? — Kiwi: Italy is becoming very colourful.
- **Banana:** Minimum price in Ecuador: status quo — Jamaican bananas: get up, stand up! — Queensland bananas: beauty is skin deep! — Banana supply.
- **Citrus** (orange, easy peelers and grapefruit): Syria, an important Mediterranean producer of citrus — And citrus even stores carbon! — Orange variety of the month: 'Salustiana' — Spanish citrus: planting still slow in 2009-10 — Uruguayan citrus soon available in the United States — Congratulations to the University of Florida! — Small citrus harvest in Mexico in 2012 — Easy peeler variety of the month: 'Nour'.
- **Sea freight and sector news:** Find out everything about edible exotic plants

E. Imbert, D. Loeillet, C. Dawson, P. Gerbaud, T. Paqui, R. Bright

The latest on...

- p. 13 • **Mediterranean strawberries** — Transforming the try scored in 2010-2011! Cécilia Céleyrette
- p. 17 • **Charter market** — Fears that a tipping point may soon be reached for the specialised reefer intensified as the mode suffered the worst off-season in two decades Richard Bright
- p. 29 • **Pitahaya (*Hylocereus* spp.)** — Yellow, red... a few keys for knowing and recognising these fruits better Fabrice Le Bellec

Wholesale market prices in Europe

p. 35 NOVEMBER 2011

Cover photograph: Pierre Gerbaud

Avocado

November 2011

The market remained satisfactory even though the supply of green varieties returned to a more plentiful level. Arrivals of 'Ettinger' and 'Fuerte' from Israel culminated at a level distinctly higher than the average and Spain remained firmly present. However, the volumes of 'Hass' were only average. The small increase in arrivals from Chile was compensated by the small shipments from Mexico and the Spanish and Israel seasons started only gradually in the second half of the month. In this context and in spite of fairly sluggish demand, prices fell fairly noticeably, as they do in November every year, but remained distinctly higher than the average for both green varieties and 'Hass'.



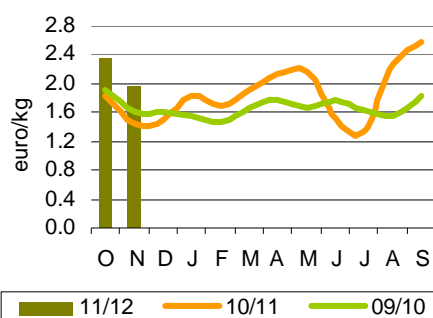
■ Avocado variety of the month: 'Pinkerton'. This Mexican and Guatemalan hybrid is a recent variety bred in California by John Pinkerton and registered in 1975. It is probably the result of a Hass x Rincon cross. The tree is very vigorous and tolerates temperatures of -1/-2°C to 30°C. Production is good and alternate bearing is little marked. The fruits may suffer from ring-neck if the tree is under conditions of stress. The organoleptic qualities of this variety are excellent (nutty taste). The pulp is smooth, buttery and fibre-less.

Source: CIRAD

November, the agricultural consultant Fernando Cilloniz estimated that exports should exceed 100 000 t in 2012 thanks to the increased orchard area. This potential should make it possible to triple shipments to the United States while maintaining stable supplies for the European market. He considers that Peruvian export potential will reach 160 000 t in 2016, an opinion shared by the manager of one of the largest nurseries in the country who affirmed that current sales of seedlings make it possible to increase the area under avocado by about 2 000 ha per year.

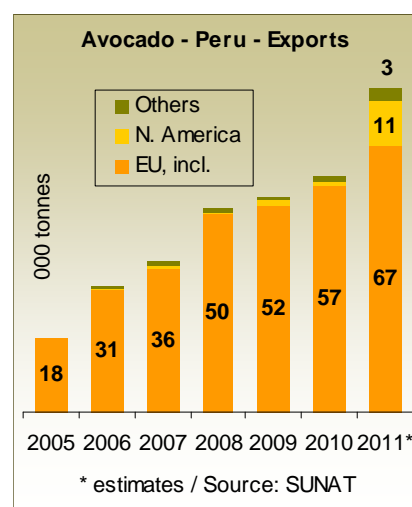
Sources: SIPA, SUNAT

Avocado - France - Import price



■ Peruvian avocado: a record in 2011 and more to come...

According to the Peruvian customs, avocado exports exceeded 81 000 t in 2011. The European Union received about 67 000 t and for the first time was not the exclusive destination for these fruits. In spite of the late opening of the market, exports of 'Hass' to the United States approached 9 000 t and should not stop there in the future. At the Simposio Internacional de la Palta held near Lima in mid-



* estimates / Source: SUNAT

PRICE	Varieties	Average monthly price euro/box	Comparison with the last 2 years
	Green	5.50-6.00	+ 15%
	Hass	9.00-9.50	+ 25%

VOLUMES	Varieties	Comparison	
		previous month	average for last 2 years
	Green	↗	- 2%
	Hass	= ↗	- 3%

VOLUMES	Source	Comparison	
		previous month	average for last 2 years
	Chile	↗	+ 5%
	Mexico	=	- 27%
	Israel	↗	+ 14%
	Spain	↗	+ 5%

Avocado — Peru — Exports							
tonnes	2005	2006	2007	2008	2009	2010	2011*
EU, incl.	18 380	30 521	36 129	49 832	51 722	56 750	67 008
Netherlands	5 601	8 011	14 430	23 106	26 980	26 570	38 103
Spain	6 111	12 291	12 362	17 669	15 221	20 224	20 687
UK	3 378	4 757	5 899	4 953	4 572	4 412	6 030
France	2 934	4 962	3 058	3 957	4 643	5 025	1 828
N. America	224	891	753	450	1 342	1 266	11 460
USA	-	-	-	-	-	-	8 977
Canada	224	891	753	450	1 342	1 266	2 483
Chile	-	102	400	453	507	281	922
Others	67	80	271	-	448	790	2 899
Total	18 670	31 738	37 606	51 298	53 978	59 521	81 367

Source: SUNAT

Observations			Cumulated total / cumulated average for last 2 years
Arrivals peaking at a slightly higher level than average in spite of a strong decrease to the benefit of the USA during the second fortnight.			- 24%
Shipments concentrated on the USA, very limited volumes for Europe.			- 34%
Strong arrivals of green varieties, especially during the first fortnight. The first limited volumes of 'Hass' arrived in the second fortnight.			- 12%
After large volumes at the beginning of the month, a return to quantities close to normal. First significant volumes of 'Hass' in mid-month.			+ 26%

Pineapple

November 2011

The situation was very difficult in November. In the first fortnight in France, the bank holidays on 1 and 11 November had a negative impact on demand. Supply was still unbalanced by substantial amounts of large fruits. The running of promotion operations had no effect on consumption, especially for very large and very small fruits (6, 10).

The situation became much worse in Week 46. The absence of demand resulted in increased stocks. Some operators succeeded in shifting their fruits but at the cost of price concessions. However, the market was almost at a standstill for the last two weeks of the month and numerous batches were available on a Price After Sale basis. Several clearance sales were then organised (at prices as low as EUR 3 per box!) but unfortunately these did not really reduce stocks. At the end of the month, many operators were worried about the way the market might move in December.

There was no supply of 'Smooth Cayenne' during the whole month.

The situation for air pineapple was fairly good during the first half of the month. Supply was fairly limited and so operators could maintain prices at a good level. Everything changed in the second half of the month. Demand marked time while supply increased strongly. Batches available on a commission basis were common and this obviously brought prices down. Conversely, the supply of 'Sugarloaf' pineapple was abundant in the first half of the month and they sold at between EUR 1.80 and 2.00 per kg. Supply decreased at the end of the month and prices became firmer at EUR 1.90 to 2.00 per kg.

The situation was very tense on the 'Victoria' market from the beginning of the month. Sales were too slow and this affected prices. At the end of the month, the market had trouble taking the strong increase in supply from Réunion even though promotion operations were organised.

PINEAPPLE — IMPORT PRICE

EUROPE

Weeks 44 to 48	Min	Max
By air (euro/kg)		
Smooth Cayenne	1.50	1.90
Victoria	2.80	3.50
By sea (euro/box)		
Sweet	5.00	8.50

■ Green light for genetically modified pineapple. The government of Costa Rica has given its approval to Del Monte for the extension of its transgenic pineapple trials. The manager of the PIN-DECO plantation where 3 hectares was already planted, affirmed that it was necessary to extend this to 200 ha for accurate evaluation of fruit development.

Source: Reefer Trends

■ Pineapple boom coming in Malaysia? This is the aim of the Minister of Agriculture who would like the area under 'MD2' to increase from some 14 000 ha today to 18 000 ha. The purpose is to respond to demand on the Asian markets, especially if the ongoing negotiations for access to the Chinese market succeed. The Malaysian Pineapple Industry Board and the East Coast Economic Development Council have already purchased 2 000 ha for new plantations and are negotiating a further 2 000 ha. Things are also happening in the sector of pineapple for

processing. The Board is currently running high density planting trials (80 000 to 85 000 plants/ha instead of 30 000) to develop canned pineapple and juice production.

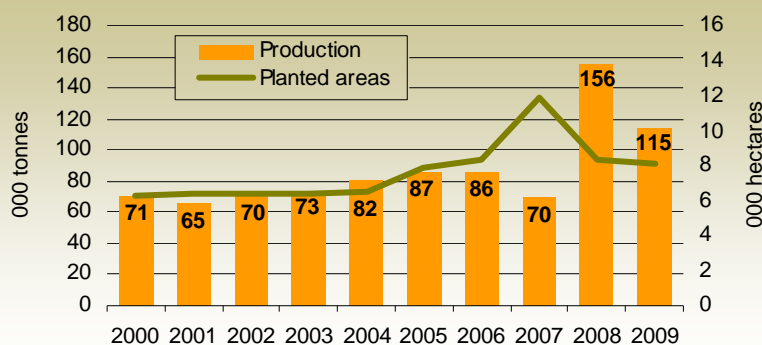
Sources: FoodNews, Reefer Trends, Bernama

■ Kiwi: Italy is becoming very colourful... After the classic green and then 'Gold', 'EnzaRed'® kiwi with red flesh has arrived on the Italian market. The rights to the variety and the ENZA brand are owned by the New Zealand company Turners & Growers. The fruits are available in very limited quantities and for the moment come from Sichuan in China. Quantities will increase in the coming years with the start of production in the New Zealand orchards in 2013 and then in Europe where planting should start in 2012 in Italy and France.



Sources: FoodNews, Turners & Growers

Pineapple - Malaysia - Production and planted areas



Source: LPNM

PINEAPPLE — IMPORT PRICE IN FRANCE — MAIN ORIGINS

Weeks 2011		44	45	46	47	48
By air (euro/kg)						
Smooth Cayenne	Benin	1.80-1.90	1.80-1.90	1.80-1.90	1.70-1.90	1.60-1.90
	Cameroon	1.80-1.90	1.80-1.90	1.80-1.90	1.70-1.90	1.60-1.90
	Ghana	1.80-1.90	1.80-1.90	1.70-1.85	1.65-1.75	1.50-1.75
Victoria	Réunion	2.80-3.20	2.80-3.20	3.20-3.50	3.20-3.50	2.90-3.50
	Mauritius	2.80-3.00	2.80-3.00	3.00-3.30	3.00-3.30	2.80-3.30
By sea (euro/box)						
Sweet	Côte d'Ivoire	6.50-8.50	6.50-8.50	5.50-8.00	5.50-8.00	5.50-6.50
	Cameroon	6.50-8.50	6.50-8.50	5.50-8.00	5.50-8.00	5.50-6.50
	Ghana	6.50-8.50	6.50-8.50	5.50-8.00	5.50-8.00	5.50-6.50
	Costa Rica	6.00-7.00	5.50-7.00	5.50-7.00	5.50-6.50	5.00-6.00

Banana

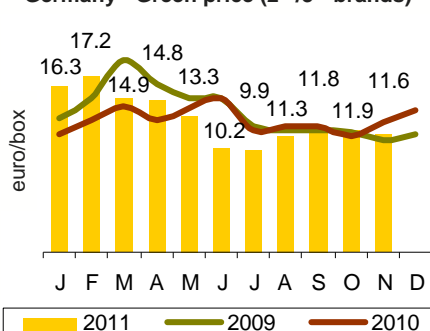
November 2011

The European market was still cumbersome even though overall supply seemed only average or even slightly short. Arrivals from Africa held at a slightly lower level than normal with the marked deficit in deliveries from Côte d'Ivoire not fully compensated by the still large volumes from Cameroon. Supply from the French West Indies decreased to a level much lower than normal because of the decrease in shipments from Martinique. However, although estimated arrivals from the dollar zones indicated normal levels for the season, supply was very disorganised. Shipments from Colombia decreased to smaller than average levels, as did those from Costa Rica that were still strongly focused on the USA. But supply from Ecuador remained large and significant Spot volumes were unloaded in the ports in northern and eastern Europe. In addition, demand was smaller than in preceding years, especially in Northern Europe (German retail sales down by 5%). As a result, prices were practically stable but slightly lower than average in Northern and Eastern Europe and the previously unaffected markets in Southern Europe began to worsen. The situation went from difficult to catastrophic in Russia, where arrivals reached a historical peak level.

NORTHERN EUROPE — IMPORT PRICE

November 2011 euro/box	Comparison	
	previous month	average for last 2 years
11.60	- 2%	- 2%

Germany - Green price (2nd/3rd brands)



■ Minimum price in Ecuador: status quo. The problem lasted for weeks. How was it possible to reconcile upstream demands for an increase to USD 6.00 per box because of the increase in production costs with the expectations of the export sector that wanted the price to be lowered to between USD 4.50 and 5.00 USD to enable Ecuador to maintain its competitiveness on a world market suffering from the economic downturn? The Ecuadorian Minister of Agriculture decided to maintain the status quo, or almost! The 2012 ministerial agreement revises two options, to be chosen by the partners: the application of a fixed price of USD 5.50 per box, equivalent to that of 2011, for the whole year, or USD 6.25 for the first 22 weeks and then USD 4.90. Producers and exporters have until 30 December to formalise their approval. It is reminded that in early 2011, the 'banana law' required the signing of a contract between producers and exporters so that the minimum price would be applied in practice. The government says that it would strengthen controls in 2012 and exporters who have not obeyed the rules risk losing their licence to access the international market.

Source: El Productor

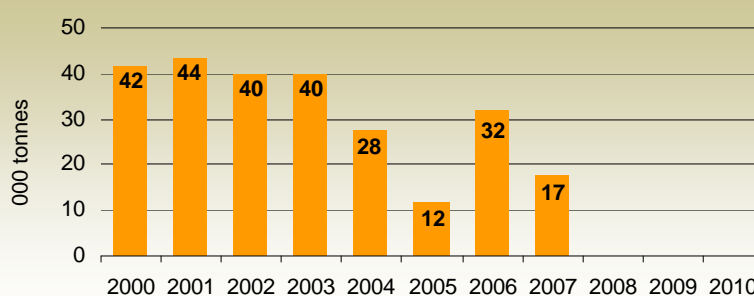
■ Jamaican bananas: get up, stand up! The Jamaican Minister of Agriculture has announced funding of USD 50 million for the development of banana growing. However, the aim is not to relaunch an export sector that has been at a standstill since 2008. The more modest ambition is that of limiting imports of processed products made using bananas, (especially banana crisps) by developing local production thanks to an extra hundred hectares.

Source: jis.gov.jm



© Régis Domergue

Banana - Jamaica - Exports



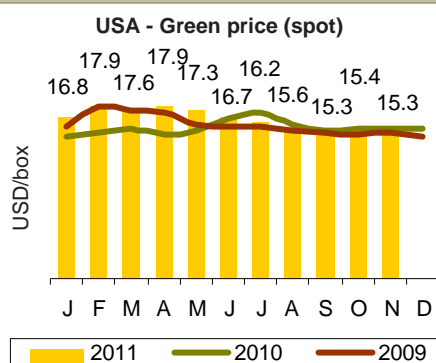
Source: COMTRADE

EUROPE — RETAIL PRICE

Country	November 2011		Comparison	
	type	euro/kg	October 2011	average for last 3 years
France	normal	1.37	+ 3%	+ 2%
	special offer	1.05	- 3%	- 10%
Germany	normal	1.12	+ 1%	+ 1%
	discount	0.99	+ 1%	+ 8%
UK (£/kg)	packed	1.20	- 2%	+ 4%
	loose	0.60	- 5%	- 20%
Spain	plátano	nd	-	-
	banano	nd	-	-

Banana

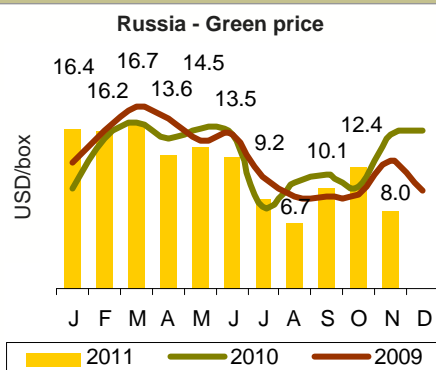
UNITED STATES



USA — IMPORT PRICE

November 2011 USD/box	Comparison	
	previous month	average for last 2 years
15.30	- 1%	0%

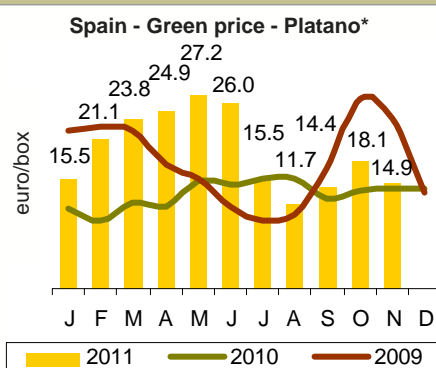
RUSSIA



RUSSIA — IMPORT PRICE

November 2011 USD/box	Comparison	
	previous month	average for last 2 years
8.00	- 36%	- 44%

CANARIES



CANARIES — IMPORT PRICE*

November 2011 euro/box	Comparison	
	previous month	average for last 2 years
14.90	- 17%	- 21%

* 18.5 kg box equivalent

■ **Queensland bananas:** beauty is skin deep! How can you sell bananas with visible defects in a countries where labour for peeling fruits is expensive? The Australian company Foodstream, which has already developed a system for the automatic peeling of mangoes, is now developing a facility for bananas. The technique is based on the use of ultrasound and gives finished products with better quality than that of classic mechanical processes. The State of Queensland, where a third of banana production is lost because of these visible defects, has awarded a USD 50 000 grant to the company to help it to finalise its system.

Source: Freshplaza

■ **Banana supply.** CIRAD estimated that in the first nine months of the year European supply was a small 1% more than in 2010. Dollar origins displayed a slight average increase (+ 1%) with Ecuador, Costa Rica, Peru and Honduras increasing shipments strongly or very strongly and Panama and Colombia losing ground. The signs

are bad for ACP exporters with an overall decrease in the quantities released (- 4%), with the exception of the Dominican Republic, which is breaking records.

European production also decreased by 5% during the period in question. It is noted that supply in September alone decreased in comparison with the same month in 2010, after five months of uninterrupted growth. The situation is the exact opposite in France. September was a substantial month with volumes up by 3 000 t in comparison with 2010. During the 12 months from October 2010 to September 2011, the French market took 517 000 t and forecasts for 2011 indicate that annual consumption will be around 530 000 t. In September, the United States confirmed its full mastery of its market with a net increase of 1%. The trend of customs value for the first nine months of 2011 is good at USD 445 USD/tonne against 309 in 2008 and around 400 in 2009 and 2010.

Source: CIRAD

Banana - January to September 2011 (provisional)

000 tonnes	2009	2010	2011	Difference 2011/2010
EU-27 — Total supply	3 774	3 871	3 901	+ 1%
Total import, of which	3 358	3 420	3 472	+ 2%
MFN	2 657	2 652	2 744	+ 3%
ACP Africa	375	405	375	- 7%
ACP others	327	363	353	- 3%
Total UE, dont	416	451	429	- 5%
Martinique	124	145	135	- 7%
Guadeloupe	36	25	43	+ 71%
Canaries	241	267	235	- 12%
Madeira, Greece, Crete	15	14	16	+ 16%
USA — Importations	2 653	3 102	3 152	+ 2%
Re-exports	413	379	392	+ 4%
Net supply	2 240	2 723	2 760	+ 1%

Sources EU: CIRAD, EUROSTAT (excl. EU domestic production) / Source USA: US customs

EUROPE — IMPORTED VOLUMES — NOVEMBER 2011

Origin	Comparison		
	October 2011	November 2010	cumulated total 2011 compared to 2010
French West Indies	↘	- 12%	0%
Cameroon/Ghana	= ↗	- 2%	- 15%
Surinam	↗	+ 8%	+ 12%
Canaries	= ↗	+ 5%	- 10%
Dollar:			
Ecuador	= ↗	+ 7%	+ 17%
Colombia*	↘	- 14%	- 4%
Costa Rica	= ↘	na	na

Estimated thanks to professional sources / * total all destinations

Mango

November 2011

The Israeli and Puerto Rican seasons ended in October and the market was supplied mainly with Brazilian fruits shipped by air and by sea. The pace of deliveries increased steadily in a context of slightly stronger demand as summer produce became rare after lasting for a long time because of the particularly warm weather. The price of 'Tommy Atkins' from Brazil dipped markedly in the second half of the month as many buyers preferred the 'Kent' and 'Keitt' fruits less well represented in Brazilian shipments. The comparative shortage of these varieties resulted in strong prices throughout the period. They only started to form the greater part of Brazilian shipments at the end of the month. The increase in arrivals of 'Kent' and 'Keitt' did not weigh on prices as demand increased in parallel.

The Spanish season continued in November but with much smaller volumes. The variety 'Osteen' disappeared from the market to the benefit of 'Kent' and 'Keitt'. In spite of a gradual worsening of quality, the prices of the latter held as overall supply was moderate.

The decrease in shipments from Spain benefited fruits shipped from Brazil by air, leaving them a broader market than before. However, the abundant arrivals of Brazilian fruits on a sluggish market and their considerable disparities in quality (colour and stage of ripeness) did not prevent a fall in prices, especially in the second half of November. A few batches of 'Haden' from Brazil completed supply by air. These found it difficult to gain a position in the face of competition from 'Kent', available in larger volumes and often at lower prices.

Litchi

November 2011

After its absence on European markets in October, litchi reappeared in November with the start of the season of sales of the fruit from the Indian Ocean. The shortage of rainfall during the fruit formation in most producer countries limited production and made the harvests later. Although lack of rain did not affect Madagascar very much, given the production potential, it was felt more strongly in Mauritius and Réunion. There is a large production shortfall in both the latter countries this year. The first batches released on the market in Week 45 were from Mauritius. The quantities were not very representative and the fruits sold at high prices. Madagascar and Réunion arrived on the scene in Week 46, followed a week later by South Africa. The price of litchis from all sources fell rapidly until the end of the month. Retail prices reached particularly high levels and this undoubtedly hindered sales. Only a limited clientele could purchase the first batches, offered mainly to top of the range shops. The increase in supply caused a fairly fast decrease in prices although they remained high. At the end of the month, a few supermarket chains set out litchis to trigger sales for the Christmas period. Litchis received a timid reception from consumers in the present gloomy economic context.

Malagasy exporters have set up a new commercial strategy after the poor

sales in 2010-11. By limiting sulphur-treated litchis to two recipients in Europe, Madagascar has favoured the development of exports of non-treated fruits that were rare in preceding years. This market orientation has doubtless stimulated more competition, especially with fruits on the branch from Mauritius, sales of which were increasingly difficult as the weeks went by.

The first shipments from South Africa consisted partly of 'Fay Zee Siu', a variety that is mainly green and has a small stone. It has good taste qualities but is difficult to establish because of the colour. Sellers often had to invite buyers to taste them so that they could discover their qualities. Sales ceased at the end of the month with the increase in the supply of 'Mauritius', a variety better known by European consumers.

LITCHI — ARRIVAL ESTIMATES
tonnes

Weeks 2011	45	46	47	48
By air				
South Africa	-	-	15	30
Mauritius	2	20	35	35
Madagascar	-	20	180	130
Réunion	-	1	5	20

EUROPE

LITCHI — IMPORT PRICE ON THE FRENCH MARKET — euro/kg

Weeks 2011		45	46	47	48	Average November 2011	Average November 2010
By air							
South Africa	s	-	-	8.00	5.50-6.50	6.75-7.25	5.90-7.30
Mauritius	s	-	10.00	8.00-8.50	6.50-7.00	8.15-8.50	7.00-7.50
Mauritius	br	14-15	12.50-15	10-12	7.00-8.50	9.80-11.80	9.00-11.30
Madagascar	s	-	7.50-8.00	7.00-7.50	5.00-6.00	6.50-7.15	4.75-5.50
Madagascar	br	-	-	8.00-10	6.50-7.00	7.25-8.50	-
Réunion	br	-	14-15	12-13	8.00-11.00	11.30-13	9.75-11.50

br: fresh on the branch or not treated / s: sulphur treated

MANGO — ARRIVALS (estimates)
Tonnes

Weeks 2011	44	45	46	47	48
By air					
Brazil	100	100	140	140	100
By sea					
Brazil	2 950	3 900	3 900	3 300	3 980

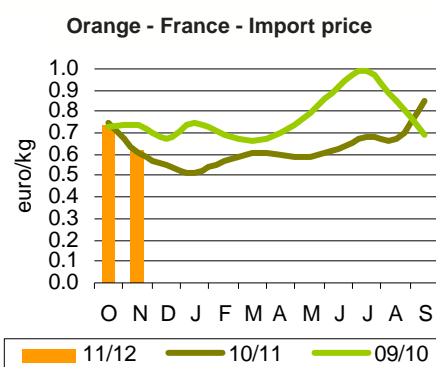
MANGO — IMPORT PRICE ON THE FRENCH MARKET — Euro

Weeks 2011		44	45	46	47	48	Average November 2011	Average November 2010
By air (kg)								
Brazil	Kent	3.50-4.00	3.50-4.00	3.50-4.00	3.00-3.80	3.00-3.80	3.30-3.90	3.85-4.05
Brazil	Haden	3.00-3.50	3.50-3.80	3.50-3.60	3.50	-	3.35-3.95	3.30-4.00
By sea (box)								
Brazil	T. Atkins	4.50-5.00	4.50-5.00	4.50-4.75	3.75-4.50	3.75-4.50	4.20-4.75	5.30-6.20
Brazil	Kent	5.00-6.00	5.00-6.00	6.00-7.00	5.50-6.50	5.50-7.00	5.40-6.50	5.70-6.80
By road (kg)								
Spain	Keitt	2.00	2.80-3.00	2.00-2.20	1.70-2.00	-	2.10-2.30	2.60-2.90
Spain	Kent	2.00	2.00	2.00	1.75-2.00	2.00	1.95-2.00	-

Orange

November 2011

The market was fairly difficult. 'Naveline' from Spain only reached retail shelves during the first half of the month as late deliveries of southern hemisphere 'Valencia' were large. Demand was also fairly slow as the warm weather did not stimulate the consumption of citrus fruits, there was pressure from clementines and some batches of Spanish 'Naveline' were not sufficiently ripe. In this context, in spite of the only moderate volumes received, the average monthly price was fairly disappointing. The very first 'Salustiana' from Spain appeared at the end of the month.



PRICE	Type	Average monthly price euro/box 15 kg	Comparison with average for last 2 years
	Dessert oranges	9.00-9.50	- 8%
	Juice oranges	9.00-11.00	na

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
	Dessert oranges	↗	- 2%
	Juice oranges	↘	na

VOLUMES	Varieties by source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
		previous month	average for last 2 years		
	Valencia from South Africa and Argentina	end	-	Some stocks available in the first half of the month as a result of the substantial deliveries in October.	-
	Naveline from Spain	↗	- 2 %	Arrivals of 'Naveline' slightly smaller than average. First 'Salustiana' at the end of the month.	+ 5%



■ Syria, an important Mediterranean producer of citrus. With a 2011-12 harvest estimation of 1.2 million tonnes (Ministry of Agriculture figures), Syria is the sixth largest Mediterranean citrus producing country. Plantations—60% of which are orange groves—are concentrated in the coastal provinces of Tartus and above all Latakia in the north-western part of the country. The area is reported to be increas-

ing by about 500 ha per year. The Syrian citrus sector is thus increasingly visible internationally, with shipments going strong for the last two years. Shipments approached 270 000 t in 2009 according to the Syrian customs.

Source: Syrian customs

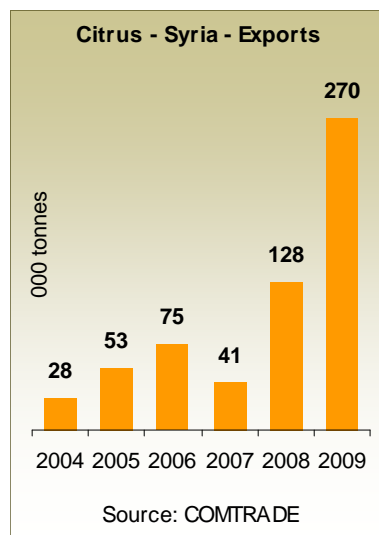
■ Orange variety of the month: 'Salustiana'. Very popular in Spain, this blond juice orange is medium-sized to large. The peel is of medium thickness with fine granulation. The flesh is delicate and sweet with a very pleasant taste. It is also seedless.



Source: CIRAD

■ And citrus even stores carbon! The IVIA has just published a very complete study of the carbon balance of a citrus plantation. The work is original in that it presents not only the emission resulting from cultural practices but also the important positive effects of sequestration by a perennial plant (gross carbon production by the tree, reincorporation in the soil in the form of fruits and leaves, etc.). The results are clearly positive with this balance showing that one hectare of citrus is capable of absorbing 6 tonnes of CO₂. In a press release, the agricultural advisor of the Community of Valencia underlined the positive effects of the regional orchards for the climate by sequestering 800 000 to 900 000 t of carbon.

Source: IVIA



Easy peelers

November 2011

The market was fairly sluggish, especially during the second half of the month. Shipments of clementines from Spain, forming most of supply, broadened and displayed more uneven quality from mid-November onwards. In spite of limited competition from Morocco and seasonal demand, prices at the import stage weakened and approached the average. The very first batches of 'Clemenvilla' from Spain appeared right at the end of the month. The season of 'Fine' clementine from Corsica started in earnest in mid-month and sales were good on a niche market basis.

■ Small citrus harvest in Mexico in 2012. According to the Mexican citrus growers' confederation, drought has limited flowering in the Tamaulipas and to a lesser degree in other states such as Nuevo Leon and Veracruz. Some regions were also hit by frost. The decrease is such that certain media talk of a risk of shortage. The president of the farmers' confederation CNC has called on the government to set up a compensation fund, especially as the spread of greening is an extra threat. Mexico is the world's fifth-largest citrus producing country with an annual harvest of more than 7 million tonnes. Nearly 60% of this consists of oranges mainly destined for the domestic market and processing.

citrus by means of a broad range of photos showing the main symptoms on fruits, leaves, trunk or branch. This is completed by an information sheet with details of the cycle of the disease, the most susceptible varieties, distribution and the risks of confusion. This initiative is to be hailed at a time when the globalisation of trade means an increased risk of the spread of sanitary problems.

Source: www.idtools.org

■ Easy peeler variety of the month: 'Nour'. It is a true clementine resulting from a mutation of 'Cadoux' found at Ouled Teima in the Souss. The fruit is medium-sized and often displays a small characteristic collar. The strongly orange peel is rough and fairly thick but is easy to remove. It is sweeter and less acid than a 'Fine' type clementine.

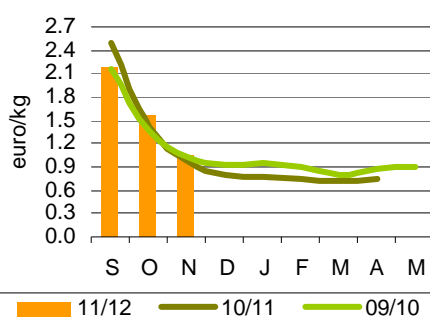


Source: CIRAD

Source: ATC

■ Congratulations to the University of Florida! A superb tool has just been provided for citrus professionals. The website <http://www.idtools.org/id/citrus/diseases/index.php> can be used to identify most of the diseases that affect

Easy peelers - France - Import price



PRICE	Type	Average monthly price euro/kg	Comparison with average for last 2 years
	Clementine	1.01	+ 5 %
	Other easy peelers	-	-

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
	Clementine	↗	- 2 %
	Other easy peelers	-	-

VOLUMES	Source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
		previous month	average for last 2 years		
	Clementine from Spain	↗	0%	Supply was average, consisting mainly of 'Oronules' during the first fortnight and then 'Nules'.	+ 5%
	Clementine from Morocco	↗	- 48%	Short supply of 'Fine' clementine. Exports focused mainly on the Russian and Canadian markets.	- 27%
	Clementine from Corsica	↗	- 24%	Late development of volumes (mid-month) because of rain. Average volumes during the second half of the month.	- 43%



PROMISES OF A REAL STAR



Tasty
Juicy
Seedless
Easy to peel
Luscious Flesh



Let us meet at
the Moroccan pavilion
Hall 1.1

The authentic
afourer
Morocco

Available
from December to May

Star of small citrus, the Afourer mandarin seduces by the originality of its **aromatic and subtle taste**. Its **juicy** and **seedless** flesh makes melt in the mouth. The Afourer mandarin owes its qualities to the exceptional microclimate of its production area: Marrakech, Morocco.



PERPIGNAN

GEDA-FRULEXXO platform
Phone: +33 4 68 85 75 50 / +33 4 68 85 61 77
Coed Grand Saint-Charles
66033 Perpignan Cedex - France

AGADIR

Phone: +212 5 28 84 62 20/30
Fax: +212 5 28 84 62 10
Rue du 2 mars - Quartier industriel
Agadir 80 000 - Morocco

CASABLANCA

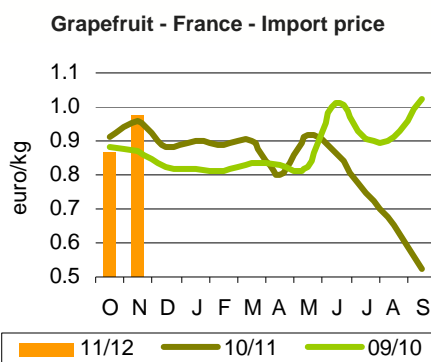
Phone: +212 5 22 95 33 00
Fax: +212 5 22 91 97 49
Km 5, Route d'Azemmour - BP 15 634
Casablanca 21 000 - Morocco



Grapefruit

November 2011

The market was fairly satisfactory for both tropical and Mediterranean grapefruit. Arrivals from Florida were average but demand was fairly brisk, especially thanks to a fair number of promotion operations. Prices remained distinctly higher than average. After a laborious start because of poor market conditions, shipments from all the Mediterranean sources increased markedly and were distinctly larger than average for Israeli and Spanish fruits. However, demand was there, especially as the last Mexican fruits came to an end in the first half of the month. Prices held up well until the end of the month when the seasonal slowing of demand began to be felt.



■ Spanish citrus: planting still slow in 2009-10. The 2009-10 statistics for the sale of certified citrus plants in the Community of Valencia do not indicate any recovery at all. At hardly more than two million, the quantities sold were rock bottom for the fourth year running—less than half of the quantities seen from 2000 to 2006. The farmers' association AVA-ASAJA considers that these poor sales illustrate the poor profitability of the sector and

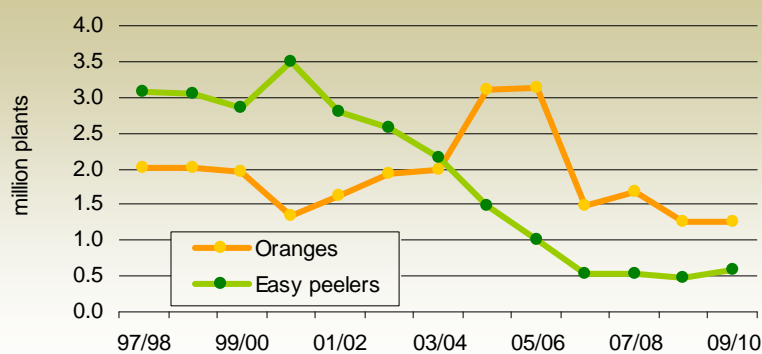
indicate the lack of effectiveness of the National Citrus Reconversion Plan. 'Nules' and 'Naveline' remained the varieties that sold best. Despite its problem of pips, 'Ortanique' was still the late cultivar for which there was most demand.

Source: Valencia Fruits

■ Uruguayan citrus soon available in the United States. The Uruguayan Minister of Agriculture has announced that the public consultation procedure, the last stage in the market access protocol, would start before the end of the year. The US authorities will then have 60 days to decide whether to open the frontier. Uruguayan professionals hope to be able to export about 3 500 t in 2012 and reach a 'cruising speed' of some 10 000 t per year in 2013. The Uruguayan citrus crop is about 300 000 t per year, grown mainly in the north-west provinces (especially Salto and Paysandu). Exports total about 100 000 to 120 000 t per year, with practically all the goods shipped to Europe (EU-27 and Russia).

Source: El Observador

Citrus - Spain - Certified plants sales in the Valencian Community



Source: GVA

PRICE	Type	Average monthly price euro/box 17 kg box eq.	Comparison with average for last 2 years
	Tropical	15.50-16.50	+ 7%
	Mediterranean	12.00-12.50	+ 3%

VOLUME	Type	Comparison	
		previous month	average for last 2 years
	Tropical	↗	+ 1%
	Mediterranean	↗	+ 9%

VOLUME	Source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
		previous month	average for last 2 years		
	Florida	↗	+ 1%	Average cumulated monthly arrivals. Volumes light in the first half of the month and subsequently large.	+ 16%
	Mexico	na	na	Last stocks sold during the first half of the month.	na
	Israel	↗	+ 13%	Large volumes in November after a very laborious start to the season in October when market conditions were poor.	- 40%
	Turkey	↗	- 1%	Very moderate volumes during most of the month and then a distinct increase in arrivals at the end of the month.	- 25%

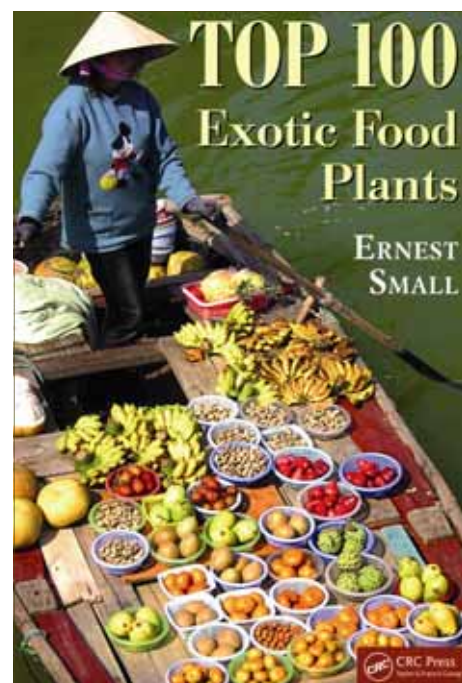
Sea freight

November 2011

Historically the reefer charter market tends to strengthen in November as northern hemisphere citrus and potatoes start to move, poultry charterers rush to fulfill Russian import quotas and large units start to position for the southern hemisphere seasonal fruit business. While the market certainly tightened for the small segment, aided by a higher fish catch off Mauretania, operators of larger tonnage continued to struggle. With Russian demand for US poultry in terminal decline the two other principal factors responsible for the lack of demand were inter-related. Firstly there was a dip in the output of Ecuadorian bananas, caused by weather-related conditions. Secondly, the majority of the bananas that were exported were shipped in reefer containers with Maersk's weekly Ecumed service lifting 600,000 boxes of fruit, the majority of which would ordinarily have been shipped in reefer vessels chartered from the Spot market by the Med traders. The direct and indirect consequences of the modal switch were felt almost immediately: in week 44 the Russian banana market collapsed, partly because fruit destined for similarly weak Med and Black Sea markets on the Ecumed service ended up in Novorossiysk. By the end of week 49 Russia had imported 29% more bananas year-on-year than in 2010 – a massive leap after years of little growth. The impact was felt in St Petersburg where the average ex-quay value was recorded at an historic low of US\$6 per box in week 48. If the combined cost of fruit and freight is above US\$11 per box the losses incurred in the short term are surely unsustainable. Yes, but unsustainable for which stakeholder? While a reduction in supply would ordinarily drive up the exit price, weak international markets caused primarily by the entry of the lines into the traditional Spot trades, dampened demand for Ecuadorian bananas – since September independent producers have traded

at a figure well below that of the official US\$5.50 per box. A fragmented market will continue to undermine confidence in receivers: pricing is unlikely to recover, as a result leaving the independent Ecuadorian producer out of pocket. In order to fulfill their commitments on the MSC/CSAV and Ecubex and Ecumed services, JFC and the Banex Group who take the majority of slots had to source additional fruit, presumably at the official price. If market reports from Russia are accurate, both paid a hefty price, with their CIF commitment well above that of the sales price. Unless they reduce their exposure the new environment presents both with permanently greater risk. And should Banex and JFC reduce or withdraw from the services to protect their profitability, there would be implications for the Ecubex and Ecumed services, which would make even less economic sense than they do already. Maersk needs JFC and Banex more than vice versa – it cannot afford to sail light into St Petersburg or Novorossiysk... Finally, the decline in charter market activity in Q4 can also be attributable to a change in strategy of the largest Spot tonnage operator Seatrade – with so much cargo defecting to the liner alternative Seatrade has sought to tie up as much that remains as possible. It has reached a point where price has become a secondary consideration – capacity utilization is the principal aim. While some may criticize Seatrade for not taking a stand and acting in the interests of the sector, the operator can point to the majority of container lines that have adopted a similar contribution-based strategy.

■ Find out everything about edible exotic plants. The book *Top 100 Exotic Food Plants* describes the main fruits, vegetables, culinary herbs, spices and nuts that are now widely available in the 'exotic' departments of supermarkets or in specialised shops. In addition to sections covering botany and agriculture, there is also much practical information about uses, packaging and economic and social aspects.


www.crcpress.com


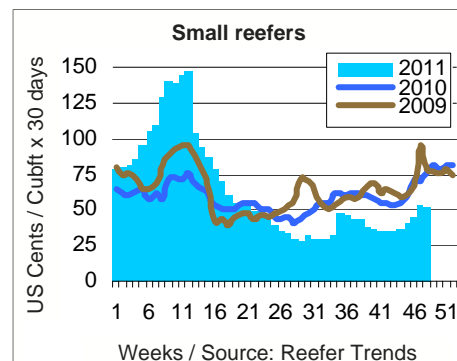
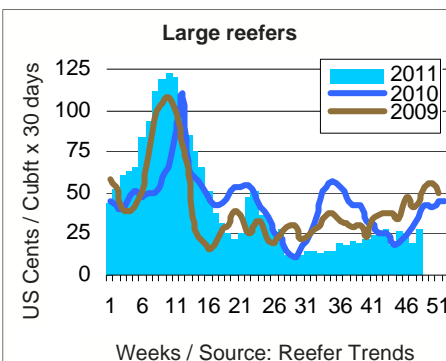
Web: www.reefer trends.com
Tel: +44 (0) 1494 875550
Email: info@reefer trends.com

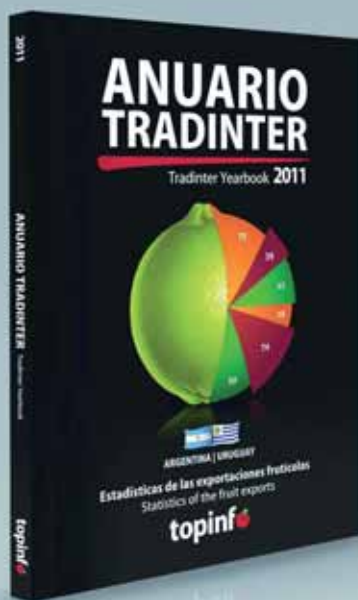
reefer trends

The independent news and information service for the reefer and reefer logistics businesses

MONTHLY SPOT AVERAGE

US\$/cents/cubic foot x 30 days	Large reefers	Small reefers
November 2011	22	48
November 2010	28	69
November 2009	38	79





Tradinter Yearbook

Statistics of all fresh fruit exports
Companies' profiles
Argentina & Uruguay



Tradinter Report®

Weekly market reports

Specialists in Argentina's fresh produce business •

Production areas, crop progress and condition, forecasts •

**Market comprehension
(studies, analysis, weekly shipments) •**

**Argentine independent consultants
reliable and unbiased fresh fruit market information**

www.top-info.com.ar

Top Info Marketing S.A.
Vélez Sarsfield 259 - (1640) Martínez
Buenos Aires - Argentina
Tel./Fax +54 (011) 4798-1755/4792-6419
marketing@top-info.com.ar

Mediterranean strawberries

Transforming the try scored in 2010-2011!

European supply stable at most

The consumption of fresh strawberries in Europe during the winter period (October to April) seems to have reached a plateau in recent years. European Union imports have oscillated at around 250 000 to 260 000 tonnes, sometimes reaching a maximum of 270 000 à 280 000 t, with a stagnation of Spanish exports (220 000 to 230 000 t) and stabilising of imports from Mediterranean third countries (36 000 t). These extra-community volumes from the Mediterranean basin are shipped mainly from Morocco (20 000 to 23 000 t depending on the year); shipments from this source are subject to a tax applicable from 1 April onwards. They are completed by shipments from Egypt (6 000 to 11 000 t) and Turkey (5 000 to 7 000 t). Exports from Israel and to a lesser degree from the Gaza Strip seem to have decreased markedly in recent years, reaching 1 000 t whereas they still totalled 3 000 t in 2005-06.

The development of the processing sector in recent years should be borne in mind at the same time. Even though EU imports of frozen strawberries are irregular and depend on conditions on the fresh fruit market, they now total between 45 000 and 65 000 t

from the Mediterranean Basin sources alone. A further 30 000 tonnes is exported from Spain.

Spain is adjusting supply to demand

Areas under strawberry have decreased in Spain in recent years, replaced by other small red fruits such as raspberries but seem to be stabilising at a total of slightly less than 7 000 ha (6 800 ha in 2010-11), giving a production

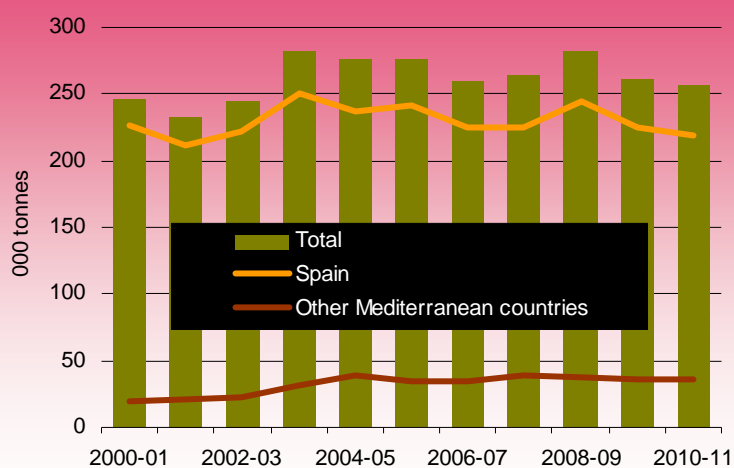
potential of around 270 000 t according to the figures given by the Spanish Ministry of Agriculture. The Huelva region is still the main production zone with over 94% of national production (6 400 ha). The professional organisations ASAJA, COAG, UPA, FAECA and Freshuelva grouped as an inter-branch association now work within Interfresa (market management, R&D and promotion) to achieve a better match between supply and demand, with outlets chosen for the best-quality fruits and industry markets for second grades. The varietal range has also broadened in recent years, with a significant decrease in 'Camarosa', which probably accounts for only 15 to 20% of the area, and an increase in 'Candonga', which exceeded the 50% mark in 2010-11. Early varieties account for more than 20% of the plantations. The 'Ventana' variety, whose taste and keeping qualities leave to be desired, has gradually been replaced by 'Festival' and now by other varieties such as 'Primoris'. New varieties like 'Albión', 'Aguedilla', 'Coral', 'Antilla' and 'San Andrea' are also gaining positions gradually in the production calendar.

After a 2010-11 season during which competition was finally not very fierce as a result of the staggering crops in the various production zones, the 2011-12 season promises to be normal and weather conditions are fairly favourable so far. However, some complementary sources are still not very visible.





Mediterranean strawberries - EU-27 - Imports



Source: European customs (October-September)

Contained development in Morocco

Production has increased in Morocco since the early 1970s. Initially in the Agadir area, production increased in the 1990s as Spanish operators relocated the sandy land with good water supply in northern Morocco, between Kenitra and Larache. The areas increased from 12 ha in 1990 to 3 000 ha today. However, they decreased a little in 2010-11 after the halting of production in zones with a flood risk after the particularly rainy 2009-10 season. The objective is nonetheless 5 000 ha by 2015. In order to accompany this development and improve the quality of production, in 2006 operators in the Larache zone set up the *Association Marocaine des Conditionneurs et Exportateurs de Fraises* (AMCEF, Moroccan Strawberry Packers and Shippers Association) that works on the reduction of the cost of logistics and also on phytosanitary harmonisation in order to adapt the sector to export market requirements. Growers are also often helped by Spanish agriculturalists. Nearly 80% of the area is still cultivated using small tunnels but the proportion of large tunnels might become preponderant within the next five years. 'Camarosa' is still the main variety supplied, especially as it is well-suited to industry requirements. However, the area devoted to it is decreasing steadily (90% in 2007 and only 50% in 2010-11) to the benefit of new varieties ('Festival', 'Splendor', 'Candongra', 'San Andrea') and even more recent varieties grown under licence for large European groups.

Very strong growth in Egypt

Egyptian strawberry production has also increased since the 1990s. Development has

Mediterranean strawberries — EU-27
Imports (October to September) - tonnes

tonnes	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Total, incl.	246 072	232 457	245 188	282 273	276 173	276 131	258 800	264 463	282 519	260 892	255 767
Spain	226 969	210 752	222 346	250 867	237 400	241 564	224 668	225 099	244 648	224 700	219 103
Other Mediterranean countries	19 104	21 705	22 842	31 406	38 773	34 567	34 133	39 364	37 871	36 192	36 664
Morocco	14 990	17 850	17 140	24 078	28 123	22 897	20 419	23 883	18 242	16 794	23 433
Egypt	1 889	2 100	3 351	3 562	4 282	4 674	6 096	6 162	11 831	11 337	6 540
Turkey	93	138	361	244	2 904	3 307	4 895	7 706	7 055	7 601	5 526
Israel + Gaza strip	2 089	1 574	1 954	3 416	3 369	3 550	2 542	1 547	633	458	1 100
Tunisia	5	2	2	-	2	-	18	2	-	-	33
Jordan	38	41	34	107	93	140	162	63	109	3	32

Source: European customs

accelerated more strongly since the mid-2000s with areas increasing from 3 800 ha in 2006 to more than 12 000 ha today, giving a production potential of more than 200 000 t. Until now, production was mainly in the north of Egypt but as strawberry, together with grapes, is one of the main lines of development of the Egyptian fruit industry, large areas have been planted in new production zones in the south of the Nile Valley within the framework of the Lake Nasser irrigation programme. The production calendar starts at the end of November and continues until April/May but the export window is in fact smaller than this. Many European importers use this source to provide continuity between the end of European production and the beginning of the Spanish season in January. Development should continue thanks to the qualitative improvement of production in recent years and the testing of new varieties, including 'Sweet Charlie' among others, to replace 'Chandler' and 'Selva'. Exports of fresh strawberries were still modest at the beginning of the 2000s (1 000 t in 2000 and 3 000 t in 2005) and are reported to have increased considerably in the second half of the decade (21 000 t in 2006 and 67 000 t in 2009), supported by HEIA (Horticulture Export Improvement Association). However, at 11 000 tonnes, EU market imports are still modest in comparison with the potential.

An eventful 2010-11 season

The 2010-11 season was marked by the distinct lateness of Spanish production and short supply from Egypt and Israel (sandstorms and the Arab Spring political crisis). Indeed, after a complicated 2009-10, the Spanish strawberry sector was particularly unlucky in the 2010-11 season. This started off with a delay in production of about two weeks following the cold spells that affected southern Spain in December and January. The first significant volumes therefore only reached the market at the beginning of February with an increase in quantities in the second half of the month and production of all plants in mid-March. Peak production was therefore in mid-April but the fresh strawberry season was then halted because of the sudden, early start of production in the other European strawberry zones in April as a result of the summer-like spring. However, the harvest was finally fairly good: 245 000 t from Huelva according to the figures provided by Freshuelva in comparison with 228 000 t in 2009-10. Exports decreased a little but nonetheless reached 219 000 t according to the Spanish customs (- 2% in comparison with 2009-10).

In contrast, the 2010-11 season was very positive for Moroccan operators after a catastrophic 2009-10 season with flooding and damage to tunnels caused by wind. Conditions were excellent with no major meteorological incidents. It did start a little late however but the more marked lateness of Spanish pro-

duction (early February) and a delayed start and damage suffered by some Middle Eastern countries (Egypt and Israel) allowed Moroccan operators to sell a good proportion of their production as fresh fruits at very good price levels. Peak production was in mid-March and the rest of the crop was sold for processing in April. Prices dipped only a little when Spanish production developed in Week 12. Fresh exports were thus at a good level in 2010-11 after a decrease in the preceding years (22 800 t, that is to say 41% more than in 2009-10), but without repeating the performance of 2004-05 when the total reached 28 100 t.

Favourable weather conditions for 2011-12

The signs are fairly good so far for 2011-12. Weather conditions were excellent in the autumn even if they disturbed planting a little by affecting the initial rooting of plants. Some sources may still display only a moderate presence on the European market this year. This is the case in particular for Israel as a result of the failure of Agrexco, even though the season started with a new structure and the Israel government has authorised a very partial lifting of the Gaza Strip blockade to allow the passage of several lorries going to Europe, following an agreement. Operators are therefore prudently turning to Egypt to start the season. However, the latter source may also be penalised by the political disturbances that have shaken the country and there is a risk of the limiting of shipments—at least by air—at the beginning of the season, in parallel with the decrease in tourism (charters). For secure supplies, operators should therefore soon turn to Morocco and then to Spain once the seasons have started in these countries ■

Cécilia Céleyrette, Consultant
c.celeyrette@infofruit.fr



© Eric Imbert

THE CARRIER BEYOND OCEANS



The carrier beyond...

- Beyond expectations of their clients with one of the world's biggest and most diverse fleet of modern reefer ships
- Beyond limits with extensive capacity and experience in the carriage of perishables as well as vehicles, yachts, project and deck cargoes
- Beyond tradition, by pioneering new services and fostering existing trade lanes

**Seatrade Reefer Chartering is truly the carrier
beyond oceans**



Seatrade Reefer Chartering N.V.
Branch Office: Atlantic House (4th floor)
Noorderlaan 147, PO Box 10.012
2030 Antwerp 3, Belgium

Contrat publié par l'Observatoire des Marchés du CIRAD - Toute reproduction interdite

Tel. (32) 3 544 9493
mailbox@seatrade.com
www.seatrade.com



Seatrade

REEFER CHARTERING N.V.

GENERAL AGENT FOR SEATRADE GROUP INC. CURAÇAO N.A.

Charter market

Fears that a tipping point may soon be reached for the specialised reefer intensified as the mode suffered the worst off-season in two decades

While the container lines upped the ante in the race to convert cargo by introducing new 'reefer-heavy' services, the banana majors for the first time showed they were ready to take a gamble by shipping limited volumes of fruit on third party boxline strings.

The second half of 2011 was as dynamic and interesting away from the spot market as the market itself was dull and lifeless. The battle for market share of the banana business intensified, with container lines targeting banana distributors in the eastern Mediterranean and Black Sea for the first time. The incursion of the lines into trades hitherto dominated by the spot traders had a dramatic impact on the demand for reefer tonnage.

Hamburg Reefer Chartering, formed only last year to consolidate a critical mass of smaller units in the hands of one operation is to disband at the end of 2011. The 270'cbft segment has been worst hit by the growth of containerization, higher fuel costs and increased competition from the larger vessels.

For the second time in less than six months fanfare greeted the inauguration of a brand new reefer terminal – only for the operators in the Italian port of Livorno to discover that the annual 100K MT base breakbulk banana cargo on which they had counted was to disappear into containers offloaded into rival ports.

Both Star Reefers and Green Reefers posted losses in the third quarter of 2011 with Star saying the year had been the most challenging in recent history. Seatrade's two new Moroccan services designed to satisfy demand for citrus shipped into St Petersburg provided the solitary piece of

good news for the reefer business – largely because it represents a switch back to the specialized mode after a disappointing season for cargo interests in 2010/11.

Period (12-month) business fixing went as forecast: although Geest retained the four Seatrade Stream vessels for its Caribbean banana service, the mid 80s c/cbft fixture for a multiple year charter was not achieved by Star when it extended four units to Fyffes or by Seatrade when it extended two vessels to Turbana for its Colombia to US east coast service. With ever more cargo containerizing and not enough reefer capacity removed permanently from the market, competition for the business that remains in the dedicated mode has become intense with Seatrade particularly aggressive in the pursuit of every opportunity.



© Pierre Gerbaud

THE WORLD OF FRESH PRODUCE

FRUIT LOGISTICA

BERLIN, 8-10 FEBRUARY 2012

WWW.FRUITLOGISTICA.COM



FRUCHTHANDEL
MAGAZINE

Contenu publié par l'Observatoire des Marchés du CIRAD - Toute reproduction interdite

Promo-Intex · 66, rue de Paris · 78 600 Maisons-Laffitte
Tél +33.1.39.62.11.93 · Fax +33.9.70.06.82.33
www.fruitlogistica.com · p.canovamenke@promo-intex.com



Messe Berlin



© Benoit Leverrier

Operators must certainly be concerned over what appears to be a mass defection away from the dedicated reefer towards containers. It emerged during September that Chiquita is to containerise its US west coast supply from Puerto Quetzal in Guatemala, while the multi-national has also reorganised its transatlantic schedule in order to take advantage of a low-cost MSC service from Costa Rica into Bremerhaven.

After having worked to switch Russian banana charterer JFC away from reefers into the Black Sea, the Russian multi-national itself switched allegiance from MSC to Maersk. JFC volumes form the backbone of the Ecumed service, which launched in November.

The pressure elsewhere is also building: with Dole abandoning its five-vessel service from Ecuador into the Mediterranean, Del Monte redelivering Family Class units to NYKCool and Fyffes signing a three-year reciprocal service deal with Maersk on one of its two transatlantic strings, reefer operators are being battered by a number of headwinds. Maersk meanwhile has also confirmed that it will have a direct Santa Marta (Colombia) to Hamburg service in 2012, and that its CRX service from Costa Rica will be full-year instead of the current six months.

With a similar number of reefer vessels chasing an ever dwindling amount of cargo it is no surprise that operators are resorting to cutting rates in order to retain charterers and cannibalise business from competitors. With more containerships and therefore more slot capacity due onto the market over the course of the next 12 months and an historically high number of reefer containers likely to be manufactured in 2011, the possibility of a recovery in 2012 is surely unlikely.

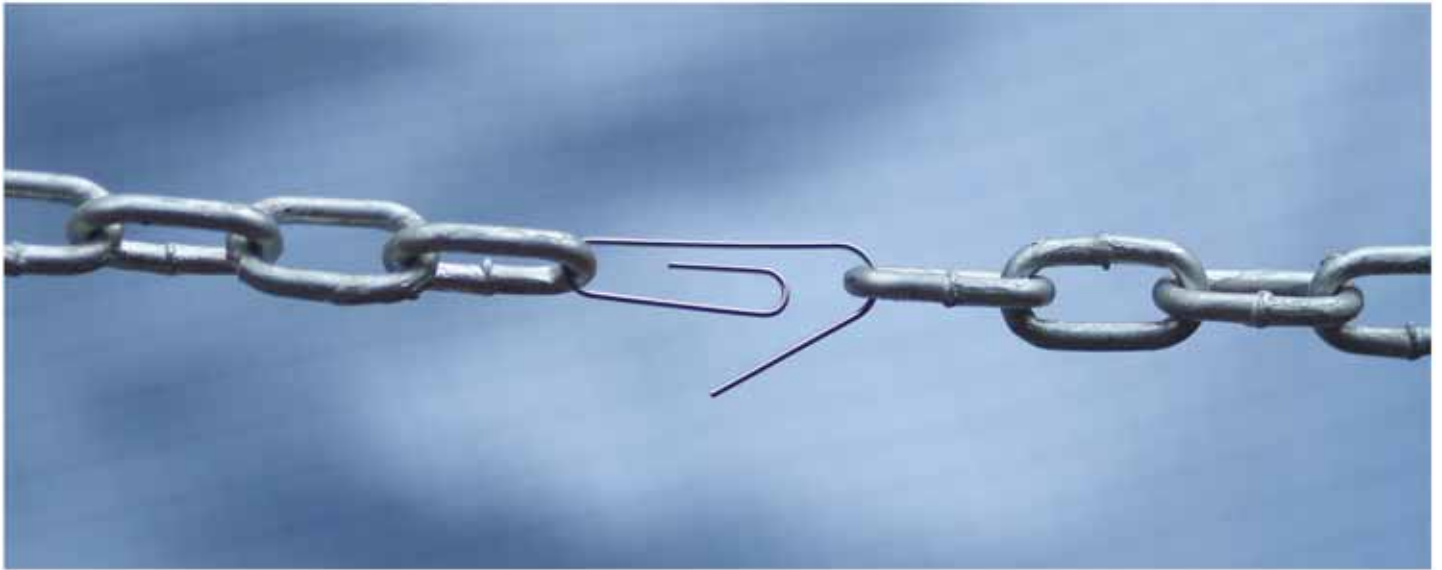
Beyond next year the prospects are equally bleak: if the tipping point has indeed been reached the only factors preventing a wholesale modal shift are insufficient vessel slot capacity and reefer equipment or inadequate infrastructure at either end of the supply chain. If it is accepted as a possibility that Seatrade's Atlantic and Baltic Klippers are the last two specialised reefer vessels ever to be built, the lifespan of the mode can for the first time be counted out.

Vessel owners and operators have a choice on how to defend their remaining assets. There is still a possibility that a dignified and profitable exit can be achieved, although for this to happen a consensus on how quickly the fleet should be downsized will need to be made.

Developments in the liner sector provide no comfort for reefer operators: with so much more third party container ship slot capacity to be delivered onto the market in the next 2-3 years and the global economy stubbornly refusing to emerge from recession, the container market is also under severe pressure. In circumstances where the lines are desperate for any sort of contribution to voyage costs and demand for reefer product is perceived as more recession-proof than demand for white goods, reefer owners and operators can surely expect to be hit by even more aggressive pricing tactics...

Assuming no slump in global economic output the rise in container capacity is still forecast to exceed demand by as much as 10% over the next three years. Capacity in the container market will rise 29% in the three years ending in 2013, according to data from London-based Drewry's quarterly Container Forecaster report. Demand will grow by as little as 19% in the period, it said. It went on to say that the gap wouldn't substantially improve for five years. Global growth will slow this year as "crisis-hit" advanced economies struggle and Europe's debt woes prove "tena-

Information... your weak link?



Reefer Trends is an independent news and information provider, financed exclusively by revenue from subscriptions.

First published in 2003, it provides a number of services for users along the reefer logistics chain: the Reefer Trends weekly charter market brief is *the* benchmark publication for the specialist reefer business – it tracks the charter market for reefer vessels, as well as fruit and banana production and market trends that influence charter market movement.

The weekly publication has close to 200 paying subscriber companies from 34 countries worldwide. The list of subscribers includes all the major reefer shipping companies and reefer box operators, the major charterers, reefer brokers, banana multi-nationals, the major banana exporters in Ecuador, Costa Rica, Panama and Colombia, terminal operators in the US and Europe, the world's leading shipping banks and broking houses

as well as trade associations, cargo interests and fruit importers on all continents. It is also circulated within the European Commission and the World Trade Organisation.

As well as the weekly Reefer Trends report it provides a separate online daily news service, covering developments in the global fruit, banana and logistics industries. The daily news is e-mailed direct to the desktops of several thousand subscribers worldwide.

Reefer Trends' consultancy clients include shipbuilding yards, banana majors, banks, brokers and equities analysts. Reefer Trends provides sector reports and forecasts for brokers and charterers. It has also acted as an expert witness in a chartering dispute.

For more information on subscriptions, please contact:
info@reefertrends.com or visit www.reefertrends.com

reefer trends

cious," the International Monetary Fund said last month.

An increase in the delivery of vessels has helped send freight rates plunging 70% since a 2010 peak. Container lines have booked orders for new ships for a combined US\$57bn, according to an estimate by information service provider Alphaliner. Over the next four years, new ships will add capacity equivalent to 4.5m standard 20-foot containers, or TEU, versus today's 15.2m TEU, according to Alphaliner.

However shipping lines are betting demand will catch up with supply sooner than Drewry's analysis shows. Eivind Kolding, CEO of the world's largest shipping company Maersk Line, believes that overcapacity probably will last a year at most. That will still be long enough to put some smaller container lines out of business, he said. Maersk hasn't announced any plans to cut capacity.

New services

In late November CMA CGM said it was to upgrade its MedCaribe service to include port calls in Costa Rica, Spain, France and Italy. The container line said the move

was targeted specifically at increasing reefer trade flow between the Caribbean, Central and South America and southern Europe.

The exact rotation for the service will be: Manzanillo in Panama, Moin in Costa Rica, Caucedo in the Dominican Republic, Fort de France in Martinique, Algeciras, Livorno, Genoa, Sète, Barcelona, Valencia, Tangiers, Pointe à Pitre in Guadeloupe, Port of Spain in Trinidad, La Guaira in Venezuela, Cartagena in Colombia and back to Manzanillo.

Although the first vessel in the rotation was the 300-plug Louisa Schulte, the company confirmed that this vessel is to be phased out. CMA's intention is to operate the 16-port, 42-day rotation service with an homogenous fleet of 6 x 2,500 TEU vessels, all with 500 reefer plugs from January 2012.

It is highly likely the MedCaribe service has been upgraded to accommodate Del Monte, which will be distributing bananas and pineapples through its own distribution channels in southern Europe for the first time next year after its long-established partnership arrangement with the Orsero Group comes to an end in December.

However the service should also have room for bananas sourced from the Dominican Republic for UGPBAN to move through its distribution systems in the south of France. Currently, all UGPBAN's Dominican Republic fruit is shipped on CMA via Martinique into the northern French port of Dunkirk.

Unlike Maersk's Ecumed service, CMA's extended MedCaribe is built on solid foundations. The principal reason why the FWI banana industry can count on bargain freight rates is that the eastbound transatlantic (banana) leg is treated as more of a backhaul service. The load factor and cargo value westbound is typically much greater, as it supplies the utterly-dependent-on-mother-France departments with meat and dairy as well as dry goods. The upgraded MedCaribe service will bring Panettone and Parmesan cheese to Martinique and Guadeloupe as well as Camembert, Chablis and Champagne.

An additional advantage is that CMA will also be able to offer a solution into southern Europe to west coast South American



© Denis Loelliet



© Denis Loeillet

reefer shippers via transshipment on the westbound leg in Panama.

Meanwhile MSC added a second weekly service from Ecuador at the start of November in conjunction with CSAV. The 6-vessel service departs from Guayaquil and calls at Balboa in Panama before transiting to Bremerhaven, Rotterdam and Antwerp. MSC is providing 5 of the units while CSAV is to dedicate one vessel. The size of the ships and number of slots has not yet been confirmed.

The string is the third operated by MSC out of Central and South America targeted at grabbing market share from the core specialised reefer banana trades: MSC operates one service into the Med and another from Costa Rica into Bremerhaven, which recently caused Chiquita to switch allegiance to the third party boxship mode.

The more successful the lines are in switching banana charterers from the specialised reefer, the greater the fear that a tipping point for the specialized mode has been reached. If in the short term the ground lost to the lines cannot be regained then it will be forever lost: once the culture of an inbound receipt, handling and delivery system changes it tends not to revert. This is why the lines' performance in the first 3-6 months of 2012 will be critical – if the service they provide is

adequate, the days of reefer are surely numbered.

Greensea

Green Reefers and Seatrade have announced they have withdrawn their units from the Hamburg Reefer pool to start their own 48-vessel operation from the beginning of 2012. Green Reefers will supply 20 of the vessels, which will all be in the range up to 315'cbft.

The GreenSea Pool will continue a large part of the activity presently carried out by the Hamburg Reefer Pool. The new pool will offer 'high quality transport solutions on smaller ships at competitive terms'. The chartering activity will be carried out by GreenSea Chartering with a new office in Antwerp. Green Reefers will have a shareholding of 50% in each of GreenSea Pool and GreenSea Chartering. The tonnage controlled by Alpha Reefer Transport, Lavinia and friends will then again be marketed by Frigoship.

The stakeholders were understandably reluctant to comment in detail on the dismantling of the Hamburg Reefer pool, which was only established in May last year. The impact on the market is more likely to be negative than positive for the operators with Greensea now competing with Frigoship and the larger segment for a declining number of Spot cargoes.

Ironically the split may benefit Frigoship more than Green or Seatrade: with a reduced fleet of vessels geared to deepsea transshipments the operator will be able to depend on trade generated by the vertically-integrated integrated Laskaridis operation. The more modern tonnage operated by Greensea will arguably feel the drift towards containerisation of fish and poultry more sharply.

Meanwhile in November Green Reefers posted a loss before tax of US\$8.9m for Q3, compared to a loss of US\$11.4m in the corresponding quarter last year. The company said it had lowered operating costs, but that this could not compensate for the spot rates throughout the quarter that were below levels of the last seven years. The company said that it had to go back to 2001-2003 to find an equally low level of spot rates.

As the majority of the Group's vessels are fixed for spot voyages, it said that gross

freight income was at an all time low. It said that this was mainly due to a lack of cargo, fish in particular, which is the principal cargo for Green Reefers. The company also blamed extensive competition from refrigerated containers for downward pressure on rates.

Green said that the future development for the Group would to a high degree depend on the quantities of fish and fish quotas. The Group is also exposed to developments in Eastern Europe and Russia, markets which traditionally have a demand for specialised reefer tonnage. However with what is normally is a peak season for the industry, Green expects that the market will improve during the next months.

There is no doubt that the market for the smaller vessels is shrinking – and while the owners of the units can, to some extent, take remedial action by demolishing ships, it is a sad fact that the biggest threat to their medium and long-term survival arguably comes from within.

In the first half of 2011, 24 of the 31 vessels confirmed demolished had a cubic capacity of less than 400'cbft – more than enough one would reasonably assume to redress the supply/demand equilibrium. However throughout the 'off-season' the small segment continued to suffer as a result of intrusion of the larger units into their core trades – even loading part cargoes the larger vessels could generate higher TCE yields than the less fuel-efficient smaller tonnage.

Until this cannibalisation of business is resolved the small segment has another unpredictable and competitive variable with which it has to contend. Until the reefer business can find a way of demolishing its large old ladies, the smaller segment will struggle to justify its existence. Without wishing to sound sensationalist this is the single most important factor on which the future for both ends of the reefer spectrum depend.

Star Reefers

In presenting its Q3 results the London-based specialised reefer owner said 2011 had been one of the most challenging years on record. The company recorded a net loss of US\$14.1m compared to a net loss of US\$3.7m for the corresponding

period in 2010. While Gross revenue came in at US\$69.6m, up from US\$52.2m, net operating revenue fell to US\$32.7m from US\$40.5m. The reduction in revenue was due to reduced rates, somewhat mitigated it said by increased capacity.

The company said that high bunker prices were a major contributing factor to the low TC returns, which were also impacted by the aggressive pricing of container lines to secure additional cargo volumes for their excess capacity by further penetrating the traditional reefer trades.

Star said that reefer owners had reacted to these challenges by placing some of their older and less efficient vessels into lay-up or using the high steel prices to scrap some of their older vessels. But it said many reefer owners had chosen to carry on trading at rates which were frequently below operating costs.

The drift to containerisation aside, this is the single greatest source of frustration for all reefer owners – if charterers know that operators will continue to fix cargoes at uneconomical rates, the reefer market will clearly never recover. On the other hand if there is more capacity supply than there is demand, the market dictates that the buyer is stronger than the seller: charterers tend not to let sentiment cloud their



© Denis Loeillet

judgement. Likewise, when the market is strong operators are equally unforgiving.

Of course, fixing below cost can only continue for a limited period. That demolition has not been as extensive as is necessary for a degree of rate restoration is superficially a sign that owners remain more optimistic than pessimistic about the short term.

Equally it may conceal a different issue: with the value of reefer vessels plummeting and many units mortgaged when the medium-term future of the sector looked secure and when second-hand values were high, the outstanding balance on the loans is today worth more than the vessels themselves – i.e. there is negative equity. In order to recoup the outstanding value of the assets the banks have little choice but to insist that the vessels continue trading.

Morocco

Seatrade has confirmed it is to provide not one but two liner services for citrus and tomatoes from Morocco to St Petersburg this winter. Citrus shippers blamed what they say was the hasty and poorly-thought through introduction of Maersk's Marus

service for doing so much damage to the Russian market last year and have reverted to the reefer - partly because the mode gives them greater control over their supply chains and partly because they expect performance and service levels to be superior.

Details of the services are as follows: a weekly small-vessel service will run from Nador in the Mediterranean to St Petersburg. The second is a bi-weekly service from Agadir to St Petersburg with larger vessels carrying citrus below deck and in containers. Tomatoes will also be shipped in containers. Both services are for the account of the charterers. In alternating weeks Baltic Shipping is reported to running its own service for Russian importers.

This does not mean that the Maersk Line service will be running empty: independent i.e. non-FFM and MFB affiliated exporters will continue to use the Danish line. Pre-season local estimates put Marus weekly volumes at between 100-110 boxes per sailing. However the reduction in demand for the service may have been the reason behind the line's decision to postpone the start of the service.

Ports

The second half of 2011 week saw a number of significant port-related developments: firstly the new reefer terminal in Livorno was inaugurated. The €25m terminal on Italy's west coast has an annual throughput potential of 400K MT. The 36,000 sqm terminal has a cool store capacity of 12,000 sqm, equivalent approximately to 9,000 pallets.

The new terminal had been expecting to handle Dole's Latin American exotic fruit and hoping it would be able to create an alternative distribution link into the wholesale market hubs of Bologna, Padua, Verona, Florence and Milan to Genoa, Vado and Trieste for southern hemisphere citrus and deciduous fruit. This plan was dashed when Dole revealed it was to containerize its Med banana shipments on the MSC California Express service, which calls at Civitavecchia and Genoa!

Secondly NYKCool confirmed the sale of its facility in the Argentinean port of San Pedro. Despite the sale the Stockholm-based specialised reefer owner and operator will continue to use the Argentinean



© Eric Imbert

port through which to ship citrus. NYKCool this season loaded 130K pallets of citrus through the port.

Elsewhere Peel Ports, the UK's second largest port group blamed the rising tide of containerisation for the 60% decline in throughput in less than a decade at Sheerness. Imports of fresh produce through the port, which was once the UK's leading gateway for deepsea shipments have slumped dramatically. In 2003-04 Peel said that it handled more than 1m MT of produce: but this figure dropped to just 440k MT and has already fallen a further 18% this year.

Although Danish wind turbine manufacturer Vestas is waiting on planning permission from the council and a funding decision from the UK Government rival ports are already soliciting business from the reefer operators that currently call at Sheerness in the expectation that both permission and funding will be granted. NYKCool's Coolman banana service is the largest single volume contributor - it will be interesting to see where it relocates.

With Dover already stretched to capacity, the UK's leading banana port of Portsmouth must be favourite, particularly as it is expanding its facilities. However with Fyffes moving its banana string from Central America and Belize into a Maersk container service, then it may not need any additional capacity!

Finally, the Italian multi-national Orsero Group timechartered the Carmels Ecofresh and BioTop. Both vessels, which serviced Agrexco volumes into southern Europe were laid up in Haifa over the summer months awaiting potential buyers once Agrexco was declared insolvent. The fixture is strategic for Orsero: the units were due to serve the newly-built reefer terminal at the French port of Sete. The €25m port was constructed with GF Group funds on the bedrock of a guaranteed annual 200K MT of throughput from the Israeli marketer. When Agrexco ceased trading the newly-opened terminal was denied throughput – the charter will maintain a flow of product.

On the assumption that the group managed to negotiate favourable terms the new service should be able to offer a cost-competitive solution for all of Israel's produce shippers who want to export into southern Europe. Container lines Zim and Cosco have chartered space on the hybrid reefer/box vessels.



© Eric Imbert

Modal developments

A contract signed between NYKCool and Vlissingen terminal operator Kloosterboer means Zeeland Seaports can lay claim to being the largest reefer port in the Netherlands. The port says that with the arrival of NYKCool its unique position as a dedicated reefer port is secured for the coming years. Together with the export of mostly locally grown potatoes and onions to Western Africa and Russia the total number of conventional shipped pallets will amount to approximately 450,000 in 2012.

The strategy of Zeeland Seaports and Kloosterboer is focussed on the achievement of centralizing the handling of specialized reefer vessels in Vlissingen. For this reason investments have been made in terminals, quays, cranes, manpower and infrastructure. For the receipt of fruit in reefer containers, Kloosterboer's target is to attract short-sea services. Due to an optimal barge connection between Antwerp and Rotterdam, many containers are shipped to Vlissingen. Currently, a depot function for reefer containers is being discussed with several shipping companies.

Meanwhile in Rotterdam an inland waterway Fresh Corridor intermodal initiative has been developed jointly by the Frugi Venta association of companies and the port. A contract was signed last Friday to transport fruit-laden reefer containers on



© Pierre Gerbaud

inland waterway vessels within the Port of Rotterdam area. In the first instance 6,000 forty-foot reefer containers per year will be barged – boxes that, until now, have been transported by truck.

In the tender procedure following the research, the combination Barge Center Waalhaven, Barge Line Today and Post Kogeko won the one year contract. Bakker Barendrecht, De Jong Coldstores, Hillfresh, Hispa Fruit & Vegetables BV and Olympic Fruit combined to award the contract. "Delivery by inland vessels is an important part of this centre's concept for fresh products, which the Port of Rotterdam Authority would like to realise by 2015. The partners can then start to transport more than 60% of the containers using inland vessels," the port said. Within the Cool Barge project, Sea-Invest's Rotterdam Fruit Wharf is expected to account for 3,000 of the 6,000 expected containers.

Maersk

Maersk Line sister company Maersk Container Industry (MCI) announced in November that it planned to spend US\$170m in the development of a factory to build reefer equipment (boxes and machinery) near the container port of San Antonio in Chile. The reefer expansion in Chile is a 'strategic complement' to MCI's existing reefer production in Qingdao, which is producing at full capacity in China's busiest reefer region.

The San Antonio plant will start operating by the end of 2013 and expects to reach total planned output of 40,000 reefer boxes and 30,000 reefer machines a year by early 2017. MCI currently produces 41,000 reefers and 37,000 reefer machines at its plant in Qingdao in China, but is expanding production there to reach 50,000 reefers by 2013. If a reefer box costs US\$16K to manufacture, MCI's annual sales revenue will be in the region of US\$1.5bn by 2017. It is unlikely that Maersk Line will be buying all the reefer boxes MCI Chile produces – even today its uptake is approximately 50% of its Qingdao production ■

Richard Bright, Consultant
info@reefertrends.com

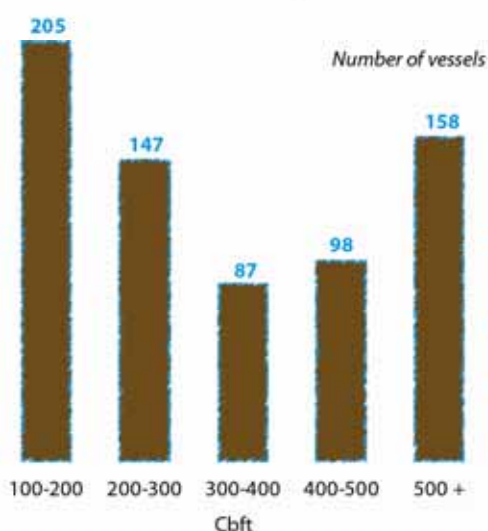
SPECIALISED REEFER FLEET

The second half of 2011 saw a step increase in competition for reefer cargo - with ever more low-cost slot capacity and reefer equipment being thrown at core reefer trades by the container lines, specialized reefer operators find themselves operating in a smaller pool battling each other for a dwindling cargo base. For a semblance of supply demand equilibrium for reefer capacity to be restored, vintage tonnage needs to be permanently removed from the market at a much faster rate. The first six months of next year will be crucial to the short-term future of the mode: should charter market behaviour between February and May, when demand for reefer capacity peaks, disappoint, many owners will likely take the opportunity to exit the sector. On the other hand should the container lines discover that the Med and Black Sea banana trades are too costly to service there is a possibility, albeit remote, that the reefers might return. However in the medium to long term the prognosis has not changed - unless more newbuilds are commissioned the sector will have all but disappeared by 2020!

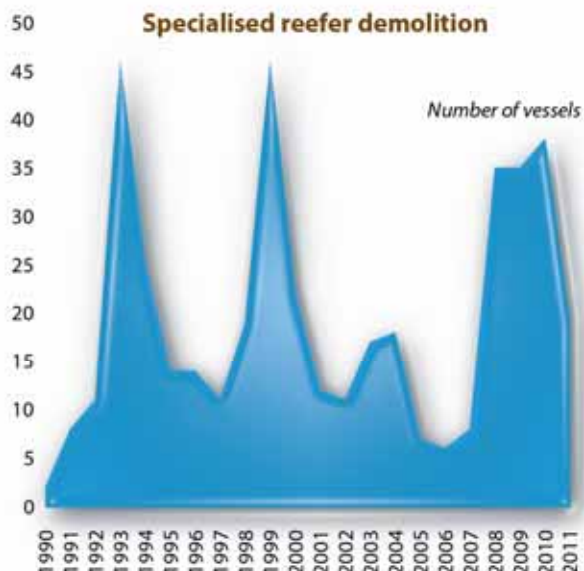
Worldwide trade of perishable reefer commodities - 2009



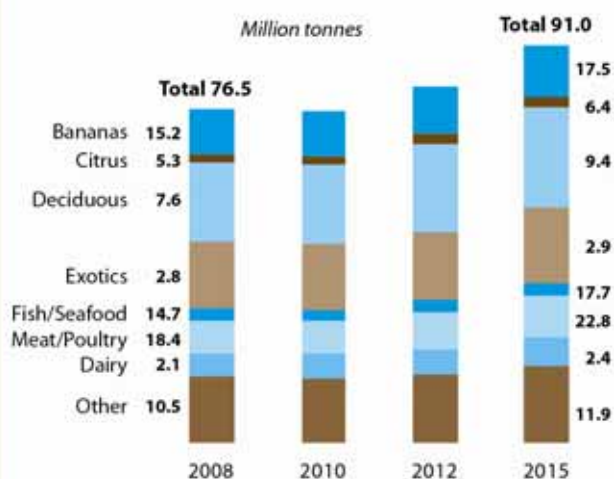
Reefer fleet profile



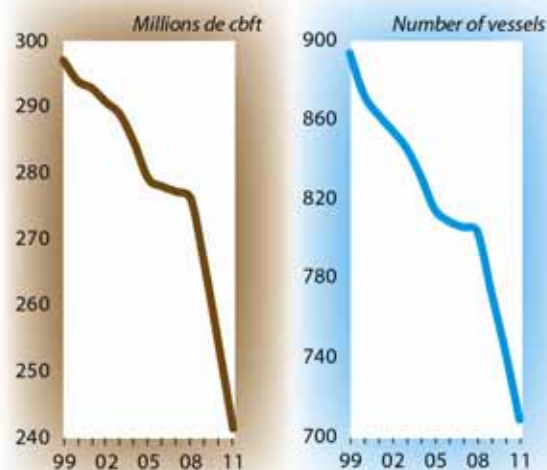
Specialised reefer demolition



Projected seaborne perishable reefer trade



Evolution of specialised reefer fleet



Source: Reefer Trends, Drewry/Seatons / Graphics: Chez Vincent - Criad



Agropolis International is an association created in 1986 by French research and higher education institutions in Montpellier and Languedoc-Roussillon region that are totally or partly focused on **agriculture, food, biodiversity** and **environmental** issues.

Agropolis International—in addition to its role as an international scientific platform oriented towards Mediterranean and developing countries—is a forum for interactions between numerous stakeholders and open to all partners involved in rural and economic development.

Agropolis International is an original pivotal point for collective exchange and partnership building. Agropolis—4 key features:

A portal providing easy access to

- expertise and skills of the regional scientific community
- documentary resources

A place for building national and international partnerships

- hosting external laboratories of foreign organizations
- setting up programmes for visiting delegations and supporting international conferences and colloquia

A go-between and support for collective projects

- implementation, coordination and management of inter-institutional projects with national and international scope
- interfacing with agricultural and economic development stakeholders
- promotion of the regional scientific community

A service management tool

- assistance for guest researchers and professors (Euraxess Centre - Languedoc-Roussillon)
- organization of meetings, *in situ* and *ex situ* scientific events

together. With 47 associated members, including 28 scientific institutions, 5 local authorities and numerous rural and economic development stakeholders, **Agropolis International** is an original pivotal point for collective exchange and partnership building.



Agropolis International

Avenue Agropolis
34394 Montpellier CEDEX 5 France

www.agropolis.fr • www.agropolis.org • www.agropolis.org/es
m.agropolis.fr



Pitahaya (*Hylocereus* spp.)

Yellow, red... a few keys for knowing and recognising these fruits better

Photographs: Fabrice Le Bellec

Origin and distribution

Numerous cultivated or gathered species in Latin America bear the name pitahaya. This

vernacular name contributes to difficulties in botanical classification. However, all the pitahayas are members of four main genera: *Stenocereus*, *Cereus*, *Selenicereus* and *Hylocereus*. Only *Hylocereus* is discussed here, for which there are numerous contradictions in botanical classification, probably explained by similar morphological characteristics and/or the influence of environmental conditions. However, recent studies clarify these disagreements. Bauer's nomenclature (2003) is used in this article. This, for example, reclassified yellow pitahaya as *Hylocereus* whereas it had previously been classified as *Selenicereus*.

Pitahayas originate above all in Latin America—mainly in Mexico and Colombia. However, one is probably native to the Lesser Antilles (*Hylocereus trigonus*). Distribution is now world-wide in the tropics and subtropics, but *Hylocereus undatus* is the

most cosmopolitan species. In their zone of origin, *Hylocereus* fruits are traditionally

picked and eaten locally. These species are only very rarely grown on a large scale, except in Colombia, Mexico, Costa Rica, Nicaragua, Malaysia and Vietnam. *H. undatus* has developed strongly in the latter country with nearly 2 000 hectares used for the crop today. Elsewhere, pitahayas are considered as promising new fruit species and are grown at various scales in Australia, Israel and Réunion for example.

Only a few species are marketed today, mainly as 'yellow pitahaya' and 'red pitahaya', which hides a considerable diversity of cultivated species. Furthermore, natural or intentional hybridisation is easy and this has enabled the breeding of numerous fertile hybrids. For example, new varieties have been bred in Israel and Réunion to overcome problems of self-incompatibility in cultivated clones.

Although pitahayas (*Hylocereus* spp.) were domesticated during the pre-Columbian period, they were still practically unknown outside their area of origin—Latin America—until the mid-1990s. The fruit is now in the 'small exotics' category in numerous shops, even if it still plays a minor role. Pitahayas would seem to have numerous commercial strong points. The unusual shape and the colour of the fruit make it attractive. It has also been found that it has excellent properties for both the food industry and health.



© Guy Bréhinier



Flowers of *Cereus peruvianus*



Flower of *Selenicereus grandiflorus*

Use of the fruit

The pulp of the fruit is refreshing and the texture is similar to that of kiwi. It can be eaten alone in fruit salads. The juice is used to make beverages and in the preparation of sweets and sorbets that have a characteristic fuchsia colour. The flowers can be cooked and eaten as a vegetable. *Hylocereus* species are also used for medicinal purposes. For example, the stems and flowers were used traditionally by the Mayas in Central America for their diuretic and cicatricial properties. Recent studies mention other medicinal properties: an aqueous extract of *Hylocereus* is reported to enhance the healing of wounds in diabetics and help to dissolve and prevent the formation of calculi. Finally, some researchers suggest that consumption of red pitahaya might play a role in the prevention of cardiovascular diseases. Although these antioxidant properties remain to be confirmed, red pitahayas are undoubtedly a valuable source of a natural red pigment (betalain) that is soluble in water and can respond to increasing demand from industry.

Cultivation of pitahaya

Hylocereus are hardy plants and prosper under very different ecological conditions. In Mexico, they are found in regions with extremes of rainfall (340 to 3,500 mm per year) and from sea level to 2,750 metres. They can withstand high temperatures of up to 38-40°C, but some species display stem necrosis at temperatures lower than 12°C. Even though *Hylocereus* are semi-epiphytic and a priori would therefore prefer semi-shaded cultivation conditions (conditions provided in nature

Pitahaya — The main species grown in the world

Species	Average weight	Skin colour	Flesh colour	Common name
<i>H. costaricensis</i>	250-600 g	Red	Red-violet	Red pitahaya
<i>H. megalanthus</i>	120-250 g	Yellow	White	Yellow pitahaya
<i>H. purpusii</i>	150- 400 g	Red	Red	Red pitahaya
<i>H. monacanthus</i>	200-400 g	Red	Red-violet	Red pitahaya
<i>H. undatus</i>	300-800 g	Pink-red	White	Dragon fruit
<i>H. undatus subsp. luteocarpa</i> *	100-480 g	Pale yellow	White	-

* recently described in Mexico, this subspecies has not yet been marketed

Fruits of *Hylocereus megalanthus*

© Guy Bréhinier

by trees), some species grow perfectly well in full sun: *H. undatus*, *H. costaricensis* (Photo 8) and *H. purpusii* for example. However, too much sun and insufficient water supply cause stem burns. In Israel, optimal conditions are therefore achieved under shade netting (30% shade) and the cultivation of *H. trigonus* is only possible in the West Indies with about 50% shade. Excess water always results in flower and young fruit drop. *Hylocereus* can adapt to many types of soil as long as they are well-drained.

Pitahayas are semi-epiphytic plants that crawl, climb and bind naturally to all kinds of natural or artificial support: trees, wood and concrete posts, stone walls, etc. They fix themselves to the latter by means of their aerial roots. Pitahayas are thus grown up live or dead supports. Numerous types of training are used: vertical on wooden, concrete or iron posts and horizontal (picking table) or inclined training. The hardiness of these species means that cuttings can be planted directly in the field on condition that the material used is at the dormant stage and at least 50-70 cm long; watering must be regular so that the plants root. Recommended planting distances depend on the type of stake used: density can

Fruits and flower of *Hylocereus* spp.

Fruits of *Hylocereus trigonus*Fruits of *Hylocereus undatus*Hybrid (fruit in centre) of *Hylocereus costaricensis* (left) and *Hylocereus undatus* (right)

be as much as 6 000 cuttings per hectare in a fruit hedge system. The various types of stake must be between 1.20 m and 1.60 m long to make it easier to perform the different cultural operations 'with both feet on the ground'. Cropping begins 18 months after the planting of cuttings in the field. The flowering to harvest period is short for most *Hylocereus* species at 29 to 35 days depending on the environmental conditions, with the exception of *H. megalanthus* for which the period exceeds two months. Yields depend on planting density and are some 10 to 40 t/ha. The absence of peduncle makes picking delicate. Common picking techniques consisting of twisting the fruits often result in damage to the epidermis. Secateurs should therefore be used for harvesting.

Flowering and pollination

Hylocereus flower in successive waves. *H. costaricensis* has 6 or 7 each season while *H. undatus* has 5 to 6 and *H. megalanthus* 3 to 5. Flowering is at three to four-week intervals. It is thus possible to see flower buds, flowers, young fruits and even ripe fruits on the same plant at the same time. Anther dehiscence takes place several hours before the complete opening of the flower. There are numerous, heavy pollen grains that are not very dusty. The flower opens at about 8.30 pm and the stigmata dominates the stamens. The flowers bloom once only and then close (whether fertilised or not) during the morning following anthesis.

In the countries of origin, the reproduction of allogamous clones of these two species is ensured at night by pollen-eating bats or moths (Sphingidae, species of the genus *Manduca*). There do not seem to be any fructification problems in the main producer countries in Latin America and Asia. However, natural production of fruits in introduced clones is practically nonexistent in some countries (Israel, South Africa, Madagascar, Réunion and the West Indies). Self-incompatibility of clones of the species and/or an absence of effective pollinisers—crosses between the two species are possible—seem to be the reasons for this productivity problem. The lack of genetic diversity and/or the absence of pollination agents in some production zones mean that manual and cross pollination are required to ensure fruit production. This is simple and reliable and the resulting fruits are of excellent quality.

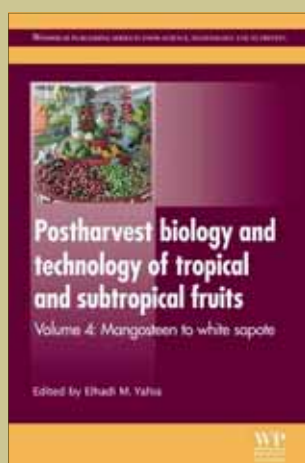


Pests and diseases

The development of pitahaya growing in recent years has naturally been accompanied by a cortege of diseases such as anthracnose caused by *Colletotrichum gloeosporioides*, root necrosis (caused by *Fusarium oxysporum*) and stem necrosis (caused by *Curcularia lunata* and *Botryosphaeria dothidea*). Various virus diseases (Cactus virus X) and bacterial diseases (*Xanthomonas* sp. and *Erwinia* sp.) have also been reported. Many factors enhance the development of these diseases, such as excessive rainfall, poorly decomposed compost and soil that is too moist or too dry.

Several pests also cause serious damage. For example, ants of the genera *Atta* and *Solenopsis* attack plants, flowers and fruits. *Cotinus mutabilis* perforates stems and *Lepidoglossus zonatus* sucks sap from stems, causing stains and deformations. Various species of aphids and scales have also been observed on flowers and fruits although they are not specific to *Hylocereus*. Rats and birds can cause serious damage, the former to flowers and fruits and the latter to ripe fruits. Pollen gathering by bees (*Apis mellifera*) is a hindrance and can even compromise manual pollination when this is obligatory (for example in the case of self-incompatible clones) ■

Fabrice Le Bellec, CIRAD
fabrice.le_bellec@cirad.fr



For more information:

Le Bellec F, Vaillant F, 2011. Pitahaya (pitaya) (*Hylocereus* spp.). In Postharvest biology and technology of tropical and subtropical fruits, E Yahia (Ed.), Woodhead Publishing Limited, volume 4: Mangosteen to white sapote, 209, 247-271.

www.woodheadpublishing.com/en/book.aspx?bookID=2386



Tissue culture production of tropical fruit plants

Your banana tissue culture plant specialist

A unique range of elite varieties

What we promise you

The most productive selected elite varieties

Prime bunch quality

Optimum homogeneity in the field

The best sanitary guarantees of the market

Unequalled responsiveness



Tel: +33 (0)4 67 55 34 58
Fax: +33 (0)4 67 55 23 05
vitropic@vitropic.fr

ZAE des Avants
34270 Saint Mathieu de Trévi
FRANCE
www.vitropic.fr

Contenu publié par l'Observatoire des Marchés du CIRAD – Toute reproduction interdite



Wholesale market prices in Europe

November 2011

					EUROPEAN UNION — EURO				
					Germany	Belgium	France	Holland	UK
AVOCADO	Air	TROPICAL ETTINGER HASS	DOMINICAN REP.	Box			12.80		
			ISRAEL	Box	4.25		4.50	5.38	5.82
			CHILE	Box	8.50			12.00	
			DOMINICAN REP.	Box			8.50		
			ISRAEL	Box				9.00	
			MEXICO	Box			8.08		
			PERU	Box		13.88			
	Truck	NOT DETERMINED BACON FUERTE HASS	CHILE	Box			7.94		
			SPAIN	Box					5.12
			SPAIN	Box			5.25		
			SPAIN	Box	8.50		8.20		
BANANA	Air	RED SMALL	ECUADOR	kg				4.88	
			COLOMBIA	kg			6.50	5.63	
			ECUADOR	kg				5.17	
	Sea	RED SMALL	ECUADOR	kg				2.29	
			ECUADOR	kg			1.70	2.01	
CARAMBOLA	Air		MALAYSIA	kg		4.66	4.86	4.00	4.66
	Sea		MALAYSIA	kg				3.17	
CHAYOTE	Sea		COSTA RICA	kg				1.39	
COCONUT	Sea		COSTA RICA	Bag				20.10	
			COTE D'IVOIRE	Bag			9.93	11.64	18.62
			DOMINICAN REP.	Bag				20.10	
			SRI LANKA	Bag					11.93
DATE	Sea	MEDJOL NOT DETERMINED	ISRAEL	kg	7.30		6.50	7.36	6.05
			IRAN	kg					2.09
		RAVIER	TUNISIA	kg				1.89	
			TUNISIA	kg					1.42
DURIAN	Air		THAILAND	kg				7.00	
EDDOE	Sea		COSTA RICA	kg			2.00	1.66	
GINGER	Sea		BRAZIL	kg	1.12	1.08		1.28	1.20
			CHINA	kg	0.85	0.78	1.90	1.22	0.87
GUAVA	Air		BRAZIL	kg				6.17	
KUMQUAT	Air		ISRAEL	kg			4.50	4.31	4.81
LIME	Air		MEXICO	kg			4.40		
	Sea		BRAZIL	kg	1.22		1.60	1.63	1.99
			MEXICO	kg			1.55	1.76	1.43
LITCHI	Air		MADAGASCAR	kg	7.50				
			MAURITIUS	kg				11.90	
MANGO	Air	KENT NAM DOK MAI PALMER	BRAZIL	kg			4.50	4.12	
			THAILAND	kg				7.80	
			BRAZIL	kg	4.00				
	Sea	ATKINS	BRAZIL	kg	1.19		1.13	1.50	1.24
			ECUADOR	kg					1.32
			BRAZIL	kg			1.41	1.78	
		KEITT	ISRAEL	kg		2.00			
			BRAZIL	kg			1.52		
		KENT	ISRAEL	kg		2.00			
			SPAIN	kg			2.50		
	Truck	KENT	SPAIN	kg					

					EUROPEAN UNION — EURO				
					Germany	Belgium	France	Holland	UK
MANGOSTEEN	Air		INDONESIA	kg				8.50	
MANIOC	Sea		COSTA RICA	kg			1.40	1.06	
MELON	Sea	CANTALOUPE CHARENTAIS GALIA HONEY DEW PIEL DE SAPO SEEDLESS WATER WATERMELON	BRAZIL	kg				1.55	1.34
			BRAZIL	kg				1.50	1.34
			BRAZIL	kg				1.40	1.16
			BRAZIL	kg	0.69			0.80	0.75
			BRAZIL	kg				1.13	
			BRAZIL	kg				0.69	0.50
			BRAZIL	kg					0.48
			ECUADOR	kg					0.55
PAPAYA	Air	FORMOSA	BRAZIL	kg	3.11			3.32	
			THAILAND	kg				4.69	
	Sea	NOT DETERMINED	BRAZIL	kg			3.40	3.70	3.84
			BRAZIL	kg					1.50
			ECUADOR	kg		2.07		1.80	1.58
PASSION FRUIT	Air	NOT DETERMINED PURPLE	COLOMBIA	kg	4.75		5.65	5.00	
			ISRAEL	kg			6.00		
			KENYA	kg				4.38	
			ZIMBABWE	kg				4.75	
		YELLOW	COLOMBIA	kg		8.50		8.36	
PERSIMMON	Sea		ISRAEL	kg				1.85	
PHYSALIS	Air	PREPACKED	COLOMBIA	kg				7.92	
	Sea		COLOMBIA	kg	5.21		7.50		7.76
PINEAPPLE	Air	MD-2 VICTORIA	GHANA	kg			2.10		
			GHANA	Box		11.50			
			MAURITIUS	Box				12.10	
			REUNION	kg			3.70		
			REUNION	kg			4.00		
	Sea	MD-2	SOUTH AFRICA	Box		12.50		12.25	
			COSTA RICA	Box	7.57		7.25		8.73
			COTE D'IVOIRE	kg			0.90		
			DOMINICAN REP.	Box			7.25		
			PANAMA	Box	7.25				
PITAHAYA	Air	RED	VIET NAM	kg		5.71		6.60	
		YELLOW	ECUADOR	kg				7.60	
PLANTAIN	Sea		COLOMBIA	kg			1.10	0.88	
			COSTA RICA	kg					1.16
			ECUADOR	kg			1.00	0.96	
RAMBUTAN	Air		INDONESIA	kg				7.50	
			VIET NAM	kg		7.00		7.85	
SWEET POTATO	Sea	NOT DETERMINED	EGYPT	kg					0.78
			HONDURAS	kg				1.25	
			ISRAEL	kg	1.13		1.80	1.06	1.25
			CHINA	kg				2.08	
TAMARILLO	Air		COLOMBIA	kg		7.10		6.58	
YAM	Air		BRAZIL	kg			1.95		
	Sea		GHANA	kg			1.25	1.08	1.16

Note: according to grade

These prices are based on monthly information from the Market News Service, International Trade Centre UNCTAD/WTO (ITC), Geneva.
MNS - International Trade Centre, UNCTAD/WTO (ITC), Palais des Nations, 1211 Geneva 10, Switzerland
T. 41 (22) 730 01 11 / F. 41 (22) 730 09 06

Pierre Gerbaud Consultant



Tel : 33 1 46 87 47 41
Mobile : 33 6 77 76 11 56

pierre.gerbaud@hotmail.com



Market information for tropical fruit
and vegetable professionals

Independent economic analysis

Specialised weekly newsletters
on litchi, mango, etc.

Quality control

FRUITROP

Your monthly journal on the web

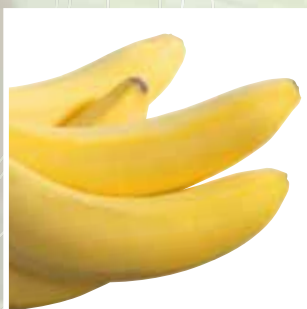


New Website

<http://passionfruit.cirad.fr>

3 500 articles in full text!

UNIVEG, Votre connexion DIRECTE vers la production



Grâce à sa production diversifiée
son infrastructure ultramoderne
et une équipe compétente et motivée
UNIVEG KATOPÉ FRANCE peut assurer
un approvisionnement fiable et
une gamme de services de haute qualité
à ses clients toute l'année.