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FR*ui*TROP

English edition

<http://passionfruit.cirad.fr>

The international banana market:
from one world to the other

The reefer revolution and its
impact on the banana trade

Fruit conservation and quality:
ripening

Comme le dit SYLVIE,
Responsable d'une mûrisserie
à Rungis,

*« Je veille sur mes fruits,
heure après heure,
pour obtenir
leur pleine saveur. »*



Sylvie s'implique à chaque instant dans le processus de mûrissage des bananes, car en tant que collaborateurs de la Compagnie Fruitière, nous voulons que nos fruits soient les plus savoureux. Sylvie surveille toutes les heures le parfait épanouissement des bananes en ajustant au dixième de degré la température de la chambre de mûrissage.

Avec un des plus larges réseaux de mûrseries en Europe de l'Ouest, la Compagnie Fruitière livre ainsi plus de 400 000 tonnes de bananes à parfaite maturité à ses clients.

La Compagnie Fruitière compte plus de 16 000 personnes qui œuvrent chaque jour et à chaque étape, pour vous apporter le meilleur des fruits. Comme Sylvie, les fruits, on les aime.



COMPAGNIE
FRUITIERE

We love fruit. Les fruits, on les aime.



Prize for the greatest useless R&D project.

After 'banana beta carotene' or 'the banana vaccine against hepatitis', this month's prize for the greater R&D project that serves no purpose goes to an Indo-Australian project aimed at breeding a GMO banana with enriched iron content. The aim is to turn a thousand million humans in India into steel men, Asian Popeyes. We admire the grandeur, nobility and loftiness of the issue. Indeed, deficiencies in iron, zinc, beta carotene and other micronutrients are real public health problems. Furthermore, making these substances bio-available is the royal route to be preferred to pseudo-solutions that consist of providing food supplements known to be of little or no effectiveness, expensive and not part of the local diet, etc. It is indeed better to supply them using the method proposed. But once again this seems to be a question of staying in the lamplight and seeking more to make progress in science than in obtaining real effects on the population. If the aim is that of increasing the amount of iron in the diet, it would be better to promote the consumption of foods produced locally that are available in substantial quantities, cheap, appreciated by consumers and have known uses. In the case of iron, mention can be made of ground dried turmeric (100 g provides 230% of the recommended daily intake of iron) and pepper (160%). It might be a good thing to get rid of the lamp and broaden our horizons...

Thierry Lescot & Denis Loeillet



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Cover photograph: Denis Loeillet

Banana

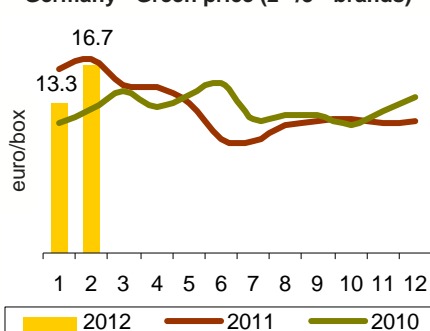
February 2012

The market remained well-oriented for most of February. Demand held at a fairly good level. However, the spell of very cold weather at the beginning of the month affected business in Eastern Europe and sales continued to be fairly slow in Southern Europe. France and the major Northern European markets continued to be busy until the last third of the month when slowing resulting from school holidays was felt. Overall supply was also short although fairly large quantities arrived from the West Indies and Surinam. Those from Africa were also substantial, with the Ivorian deficit compensated by still large shipments from Cameroon. But cumulated volumes from the dollar zone were moderate. The quantities of fruits from Colombia and Ecuador delivered in the EU were moderate, with exporters in Ecuador making up for the production shortfall by favouring the EU market at the expense of the United States, Russia and the Mediterranean. Shipments from Costa Rica remained smaller than those of previous years, especially as allocation favourable to the United States aggravated a production deficit problem. This resulted in an upward price trend until the last third of the month when the situation stabilised. The average monthly price was lower than the excellent figure achieved in 2011 but still distinctly higher than the average.

NORTHERN EUROPE — IMPORT PRICE

February 2012 euro/box	Comparison	
	previous month	average for last 2 years
16.70	+ 25%	+ 11%

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

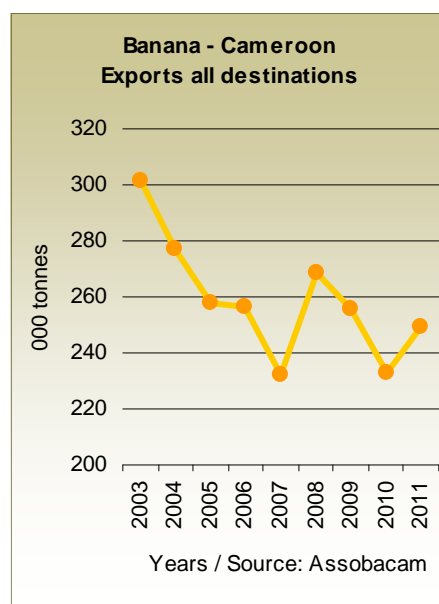


■ Banana fever continues in Asia. Investments in the banana sector are continuing actively in the Philippines, where a new project has just been added to those mentioned in **Fruitrop 190**. The Philippine group Anflo has announced that it wishes to invest USD 5 million in setting up a plantation with export capacity of 15 000 t per year in the east of the island of Mindanao. The fruits will be sold by Unifrutti on the Japanese and Middle Eastern markets. To the west, the Japanese importer Sumifru and the Australian group Indochina Gateway Capital wish to acquire jointly a 5 000-hectare concession on the Cambodian island of Koh Kong. This investment reported to total USD 325 million and entirely devoted to bananas is still at the project stage. Finally, a little further west again, the Desai Fruits and Vegetables group wishes to increase its banana export capacity from 60 000 t to 90 000 t by investing a little more than USD 1 million in the Gujarat area in India to meet demand from the European and Mediterranean markets.

Sources: Reefer Trends, local press



© Luc de Lapeyre



■ Exports from Cameroon to double in 2013? 500 000 tonnes of bananas from Cameroon on the international market! This is the goal that the minister of trade has given the sector—starting in 2013. The Cameroon Development Corporation, a public sector body, is reported to have started to invest what will total USD 30 million to double the present estimated production capacity of some 170 000 t. A diversification of outlets is planned downstream, with the increased presence of Cameroonian bananas on regional markets such as Gabon, Nigeria and Chad. Cameroon exported slightly more than 247 000 tonnes of bananas in 2011. This is more than in 2010 but much less than the record of more than 313 000 t set in 2003.

Sources: Reefer Trends, Cameroon Today

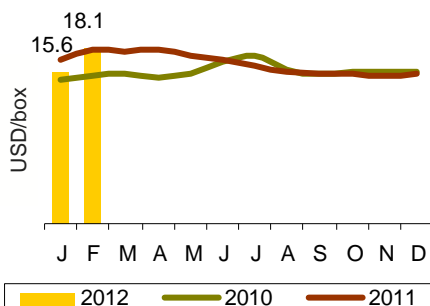
EUROPE — RETAIL PRICE

Country	type	February 2012		Comparison	
		euro/kg		January 2012	average for last 2 years
France	normal	1.53		+ 11%	+ 6%
	special offer	1.31		+ 14%	+ 5%
Germany	normal	1.33		+ 18%	+ 7%
	discount	1.16		+ 19%	+ 11%
UK (£/kg)	packed	1.23		+ 3%	+ 2%
	loose	0.75		+ 3%	- 13%
Spain	plátano	1.83		+ 3%	- 2%
	banano	1.36		+ 6%	- 2%

Banana

UNITED STATES

USA - Green price (spot)

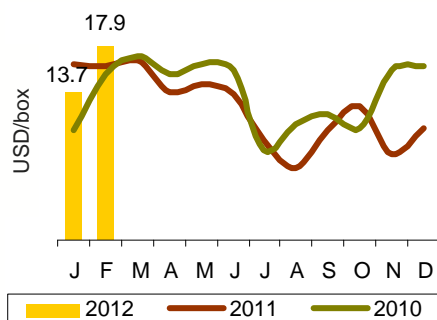


USA — IMPORT PRICE

February 2012 USD/box	Comparison	
	previous month	average for last 2 years
18.10	+ 16%	+ 9%

RUSSIA

Russia - Green price

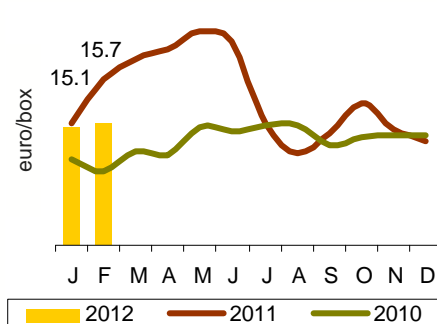


RUSSIA — IMPORT PRICE

February 2012 USD/box	Comparison	
	previous month	average for last 2 years
17.90	+ 31%	+ 14%

CANARIES

Spain - Platano green price*



CANARIES — IMPORT PRICE*

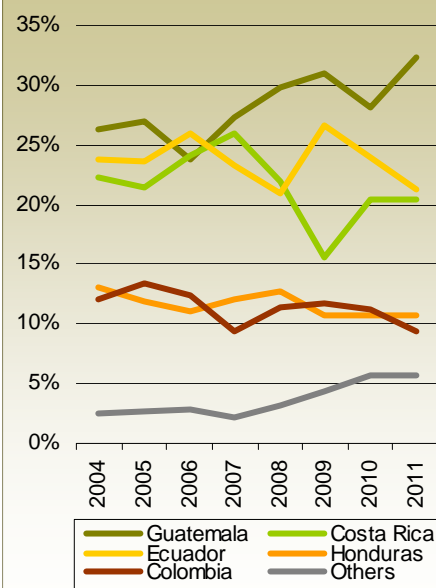
February 2012 euro/box	Comparison	
	previous month	average for last 2 years
15.70	+ 4%	+ 2%

* 18.5 kg box equivalent

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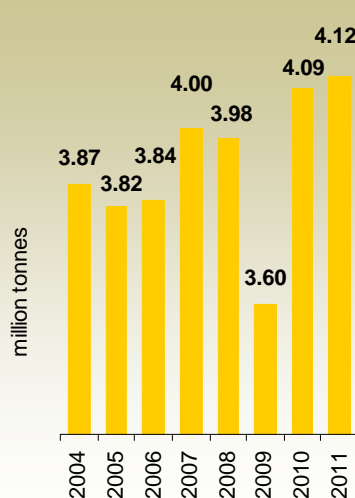
■ US banana market. The record 4.1 million tonnes imported in 2011 confirms the American market growth trend. However, the movement is fairly small when compared with the major manoeuvres in progress in source countries. Guatemala, the country of 'the bird that eats snakes' in Nahuatl, also seems to be taking bites out of its competitors. Guatemala increased its market share from a about a quarter to a third between the mid-2000s and 2011. This growth has been at the expense of all the other major sources supplying the US. Mexico is another major winner but in the featherweight category. Imports from this source peaked at 30 000 to 35 000 tonnes per year until 2007, and then rocketed, reaching 150 000 tonnes last year.

Source: US customs

Banana - USA - Imports
Market shares by origin

Years / Source: US customs

Banana - USA - Imports



Years / Source: US customs



© Denis Loelliet

EUROPE — IMPORTED VOLUMES — FEBRUARY 2012

Origin	Comparison		
	January 2012	February 2011	cumulated total 2012 compared to 2011
French West Indies	=	+ 68%	+ 53%
Cameroon/Ghana	=	+ 17%	+ 13%
Surinam	=↗	+ 58%	+ 62%
Canaries	=	+ 6%	+ 4%
Dollar:			
Ecuador	↗	0%	+ 2%
Colombia*	=	+ 2%	0%
Costa Rica	=↘	na	na

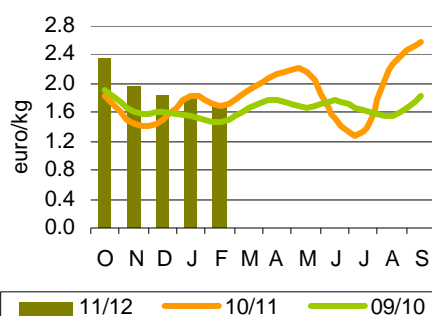
Estimated thanks to professional sources / * total all destinations

Avocado

February 2012

The market was fairly difficult even though supply was modest. Arrivals of 'Hass' were no more than average. However, the Chilean season was extended, especially in Northern Europe, and shipments from Israel peaked markedly in February. In contrast, shipments from Spain were particularly small, in particular as a result of production loss following frost at the beginning of the month, and Mexico was almost completely absent from the market. The deficit in supply of green varieties increased as the first shipments from Kenya and Peru did not compensate the ending of the Israeli season. Cold weather accentuated the seasonal slowing of demand caused by school holidays. Prices lost ground as a result. They held at a satisfactory level for 'Hass' but dipped noticeably to below average for green varieties.

Avocado - France - Import price



■ Good Californian avocado harvest in 2012. After the small 2011 season, the Californian harvest will be back to full strength this season. With 180 000 to 190 000 t expected, the harvest will be more than 30% larger than in 2011 and 20% larger than average. But the figure is still far from the records of more than 240 000 t and 270 000 t in 2009-10 and 2005-06 respectively. As regards the calendar, the volumes of 'Hass' should peak from mid-April to mid-August. This will interfere with the ambition of Peruvian exporters to achieve strong development of their shipments to the US market during this period. The forecast also reveals an interesting structural change: the production area is tending to shift northwards. It is true that the San Diego region near the Mexican border is still dominant, but the Ventura area some 250 km further north is gaining weight. Water is cheaper there and farm labour easier to find because of the proximity of Los Angeles.

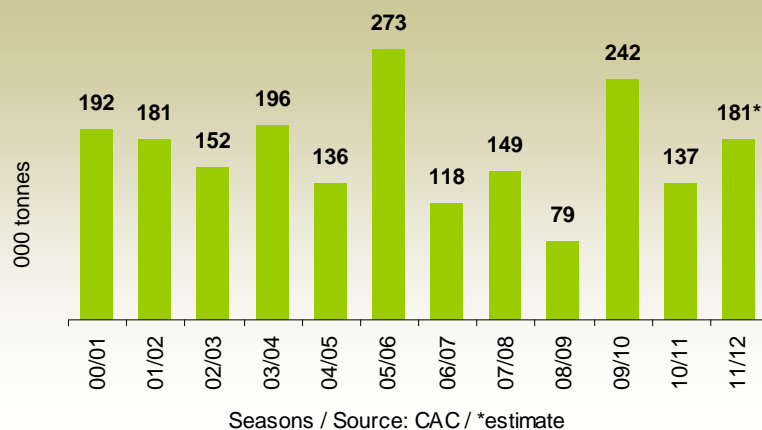
Sources: CAC, The Packer

■ Promotion of avocado in the United States. Mexican exporters have such firm belief in promotion on the US market that they are asking for more! The Association of Michoacán Avocado Growers, Packers and Exporters (APEAM) decided to add USD 8 million to their 15 million dollar promotion budget for 'Hass' avocado in the United States by means of a contribution levied on each box sold. Given the sums allocated to other sources, nearly USD 40 million will be spent on the promotion of 'Hass' this year. This should be effective in the light of the annual 10% growth of the market since the early 2000s. This is something to think about in Europe...

Source: InfoHass



Avocado - California - Evolution of production



Seasons / Source: CAC / *estimate

PRICE	Varieties	Average monthly price euro/box	Comparison with the last 2 years
	Green	4.40-4.60	- 12%
	Hass	7.30-7.50	0%

VOLUMES	Varieties	Comparison	
		previous month	average for last 2 years
	Green	↘	- 23%
	Hass	↘	+ 4%

VOLUMES	Source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
		previous month	average for last 2 years		
	Chile	↘	+ 41%	Arrivals of Hass decreasing but still substantial until the end of the month.	- 20%
	Mexico	=	- 76%	Volumes for the EU remained marginal.	- 45%
	Israel	=↘	- 10%	Arrivals of 'Hass' peaked at above the average but volumes of green fruits remained very moderate.	- 1%
	Kenya	↗	+ 50%	Start of the season in mid-month. Moderate volumes consisting mainly of 'Fuerte'.	+ 50%
	Spain	=	- 16%	Volumes stable and smaller than average, especially for green varieties.	- 7%

Pineapple

February 2012

The situation was fairly difficult on the pineapple market in February. In the first half of the month, the severe cold spell that affected the whole of Europe slowed business as pineapple consumption decreases in cold weather. The period was also marked by the holding of the Fruit Logistica show in Berlin that occupied a fair proportion of operators for a week. But prices were fairly stable. The situation worsened considerably in the second half of the month even though the cold spell finished. Demand slowed distinctly with the winter school holidays and even though supply of 'Sweet' was limited buyers could not be found. So small stocks formed and this further complicated sales. The falling prices stabilised in the last week of the month but sales were still very slow.

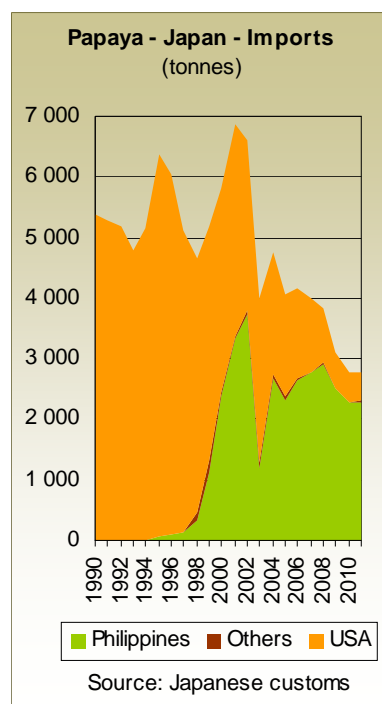
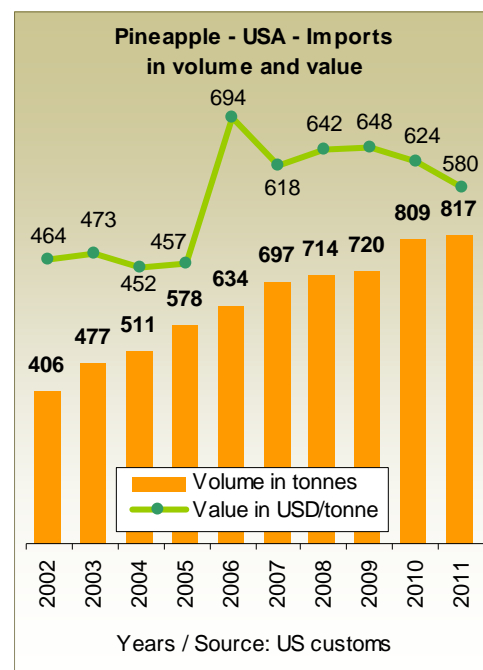
Supply of 'Sweet Cayenne' was still very small. Although sales were fluid, prices were fairly low.

Like 'sea' pineapple, sales of 'air' pineapple slumped as a result of the very cold weather. Supply was fairly irregular over the month as a whole. The small supply in the first half of the month may have resulted from random testing carried out to check maximum residues of ethephon. In the second half, weather conditions (drought) in production zones may have resulted in small supply. The 'Sugarloaf' pineapple market was fairly stable with limited supply selling at from EUR 1.80 to 2.00 per kg depending on the week.

Supply and demand decreased on the 'Victoria' market. Sales were slow because of the cold weather during the first half of the month. The winter school holidays also slowed demand, which was patchy over the month.

■ Pineapple market in the United States: ever more but still less... Yes, Americans have never eaten more pineapple than in 2011. But might the market be reaching its limit? Imports of 817 000 tonnes last year confirm that the increase in volume is very slow. Customs value trends are worrying. After holding at between USD 620 and 650 per tonne from 2007 to 2010, they slid to USD 580 per tonne in 2011, a clear recession. This must worry the Costa Rican exporters who cover 85% of the market.

Source: US customs



■ Imports of genetically modified papaya authorised in Japan. The process started in 1999 by Hawaiian producers to open the Japanese market to the 'Rainbow' variety has finally reached completion. It is the first genetically modified horticultural produce for consumption without processing to be authorised in Japan. Developed by Cornell University, the variety made it possible to re-launch the papaya industry in Hawaii that had been devastated in the 1990s by the ringspot virus. The US authorities thus hope to be able to regain the Japanese market that has been almost completely lost to the Philippines since the early 2000s.

Source: FoodNews

PINEAPPLE — IMPORT PRICE

Weeks 5 to 9	Min	Max
By air (euro/kg)		
Smooth Cayenne	1.65	1.90
Victoria	2.80	3.80
By sea (euro/box)		
Smooth Cayenne	5.00	8.00
Sweet	5.00	9.00

PINEAPPLE — IMPORT PRICE IN FRANCE — MAIN ORIGINS

Weeks 2012		5	6	7	8	9
By air (euro/kg)						
Smooth Cayenne	Benin	1.75-1.90	1.70-1.90	1.70-1.90	1.70-1.90	1.70-1.90
	Cameroon	1.75-1.90	1.70-1.90	1.70-1.90	1.70-1.90	1.70-1.90
	Ghana	1.75-1.85	1.65-1.85	1.65-1.85	1.65-1.85	1.65-1.85
Victoria	Réunion	3.30-3.80	3.20-3.80	3.00-3.60	2.80-3.50	3.00-3.70
	Mauritius	3.00-3.30	3.00-3.30	3.00-3.30	3.00-3.30	3.00-3.50
By sea (euro/box)						
Smooth Cayenne	Côte d'Ivoire	-	7.00-8.00	-	5.00-6.50	5.00-6.50
Sweet	Côte d'Ivoire	7.00-9.00	7.00-9.00	6.00-8.50	5.50-6.50	6.00-8.00
	Cameroon	7.00-9.00	7.00-9.00	6.00-8.50	5.50-6.50	6.00-8.00
	Ghana	7.00-9.00	7.00-9.00	6.00-8.50	5.50-6.50	6.00-8.00
	Costa Rica	7.00-8.50	6.50-8.50	5.50-7.00	5.00-6.50	6.00-7.00

Mango

February 2012

The situation at the beginning of February was the same as it had been in January. Moderate deliveries from Peru, the source dominating European supply, enhanced the maintaining of good market conditions with high prices. From the third week of the month onwards, the trend reversed gradually and prices fell. Several factors account for this change. The maintaining of high prices since the beginning of the year caused supermarket chain purchasers to lose interest and this reduced the gap between supply and demand. The intensely cold weather that affected a large part of Europe in mid-February also reduced demand. This trend was then intensified by the winter school holidays, when consumption of tropical fruits does not tend to increase. In parallel, supply from Peru increased while consumption decreased, leading to the forming of stocks at points of entry to the market. Heavy rainfall in the production zones tended to cause a deterioration in the quality of the fruits sold. Supply from Peru consisted mainly of large fruits that were more difficult to sell.

Shipments from Brazil decreased in February and reached their annual low point of around 20 to 30 containers per week. The scarcity of 'Tommy Atkins' first led to the maintaining of high prices. Affected by the general market trend, these weakened in the second week of February. After selling at around EUR 6.00-6.50 per box at the beginning of the month, these fruits had lost EUR 1.00 per box at the end of the period.

The air mango market supplied almost solely by Peru displayed the opposite pattern to the sea mango market. The decrease in shipments resulting in particular from a change in source zone caused prices to rise.

Litchi

February 2012

February marked the rapid ending of the season for sales of litchi from Madagascar as the last shipment arrived at the beginning of the month. Purchasers' lack of interest in these ageing fruits affected the prices of the last batches sold. A few batches were still available in mid-month at 'open' prices, depending on quality. The South African season was extended until the end of the month. In the absence of any competition, the price of South African litchis firmed slightly in the last sales. However, they were fragile and the batches received had to be sorted, affecting the overall returns from sales. A few batches of 'MacLean' from South Africa reached the market at the end of the month. They were difficult to sell and supply soon ceased.

A few small batches of 'Wai Chi' were shipped from South Africa by air and were sold with difficulty. The poor keeping quality of the fruits hindered sales and supply was soon halted. The price of EUR 5.00 per kg did not hold for long and most of the fruits received were negotiated at lower prices.

Small shipments of litchis from Australia reached the market in the first half of February following those that had arrived at the end of January. Shipped by air, these fruits were offered at around EUR 9.00 per kg. The high price and



the lack of interest in litchi after the Indian Ocean season made sales difficult. Supply was soon stopped for reason of lack of customer enthusiasm.

As sales of Indian Ocean litchis ended in February, a preliminary estimate of the results is provided below.

Litchi from Indian ocean
Volumes sent in 2011-12

tonnes	by air	by sea
Mauritius	80-100	-
Réunion	180-200	-
South Africa	300-350	1 600
Madagascar	510-530	13 530

LITCHI — ARRIVALS (estimates)
Tonnes

Weeks 2012	5	6	7	8	9
By air					
South Africa	-	-	5	-	-
Australia	1	1	-	-	-
By sea					
Madagascar	20	-	-	-	-
South Africa	420	200	50	-	-

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

Weeks 2012	5	6	7	8	9	Average February 2012	Average February 2011
By air							
Australia	9-11	9.00	-	-	-	9-10	-
South Africa	-	-	-	5.00	-	5.00	-
By sea							
Madagascar	1.50-1.80	1.40	-	-	-	1.45-1.60	-
South Africa	2.00	1.75-2.50	2.00-2.50	2.50	2.00-2.50	2.05-2.40	-

MANGO — ARRIVALS (estimates)
Tonnes

Weeks 2012	5	6	7	8	9
By air					
Peru	80	60	50	60	50
By sea					
Brazil	790	700	570	640	770
Ecuador	22	-	-	-	-
Peru	2 660	3 360	4 330	3 360	3 560

MANGO — IMPORT PRICE ON THE FRENCH MARKET — Euro

Weeks 2012	5	6	7	8	9	Average February 2012	Average February 2011
By air (kg)							
Peru	Kent	4.20-4.50	4.00-4.80	4.30-5.00	4.50-5.50	4.30-5.00	2.60-3.85
By sea (box)							
Peru	Kent	5.00-6.50	5.00-6.50	4.00-6.00	4.00-5.00	4.40-5.70	2.70-3.80

Grapefruit

February 2012

The market was a little less difficult, especially during the second half of the month. Demand was fairly brisk in Northern Europe and improved a little in France. Supply remained short. Arrivals from Florida remained distinctly smaller than usual and stocks had returned to a moderate level at the beginning of the month. Prices firmed, especially during the second half of the month, and then rose to considerably higher than average at the end of the month. In the Mediterranean, the increase in supply from Israel and Turkey was compensated by a sharp decrease in arrivals from Spain. As happened for Florida, prices firmed at above average at the end of the month.

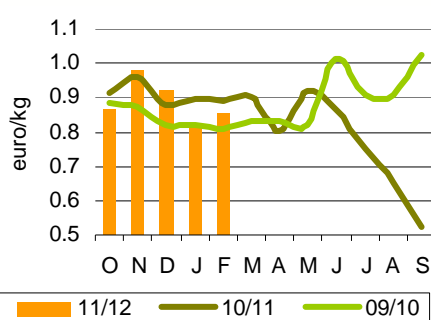
■ Restructuring of Israeli citrus groves continues. Less grapefruit, much less orange and more easy peelers. This trend was confirmed in the Israeli planting statistics for 2010-11, published in a recent USDA report. Grubbing up concerned 530 ha of mainly 'Shamouti' (238 ha), 'Jaffa Late' (88 ha), 'Star Ruby' (88 ha) 'White Marsh' (46 ha). At 654 ha, a slightly larger area, plantings consisting mainly of easy peelers (461 ha). Once again, 'Or' was a favourite among planters. Planted at a considerable rate in recent years, the variety was grown on 3 600 ha in 2011, forming about 20% of the area under citrus in Israel.

Source: USDA



© Eric Imbert

Grapefruit - France - Import price



■ Brazilian orange concentrated juice still forbidden in the United States. *Dura lex, sed lex!* This is the essence of the United States Food and Drug Administration (FDA) to Brazilian juice professionals in the carbendazim affair (see **Fruitrop 197**). The revealing of levels of up to 55-60 ppm of this fungicide that is forbidden in the United States led to the closing of the frontiers to Brazilian concentrate in January and the problem does not seem to have been settled. The maximum of 10 ppm currently in force in the United States will not be raised, even though the Environment Protection Agency (EPA) considers that 80 ppm is not a danger to health. The maximum permitted in the EU is 200 ppm. Brazilian growers have chosen to adapt rather than take the case to the World Trade Organisation. Fundecitrus, the body

that provides support for growers in questions of control of pests and diseases, has decided to remove carbendazim and its derivatives from the list of chemicals recommended for the treatment of diseases such as black spot. Alternatives do exist but are more expensive, with the cost of spraying 200 trees doubling from about USD 15 to nearly USD 30, an additional weight for growers who are already experiencing a strong increase in cost price. In addition, time is necessary—at least 18 months according to Brazilian professionals—for the pesticide to disappear totally from produce. Faced with this break in supply, the United States is purchasing NFC, which already formed nearly two-thirds of the volumes imported from Brazil before the problem arose.

Sources: FoodNews, Fox News, Reuters

PRICE	Type	Average monthly price euro/box 17 kg box eq.	Comparison with average for last 2 years
	Tropical	16.50-17.50	+ 4%
	Mediterranean	10.00-10.50	- 6%

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
	Tropical	↗	- 14%
	Mediterranean	=↗	- 3%

VOLUMES	Source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
		previous month	average for last 2 years		
	Florida	↗	- 14%	Exports to the EU and Japan were smaller than average, especially during the second half of the month.	- 3%
	Spain	↘	na	Substantial supply until mid-February and then a distinct decrease.	na
	Israel	=↗	- 3%	Stronger rate of exports to the EU but still less than average.	- 18%
	Turkey	=↗	- 10%	Exports still short for all destinations but an increase in shipments to the EU.	- 15%

Orange

February 2012

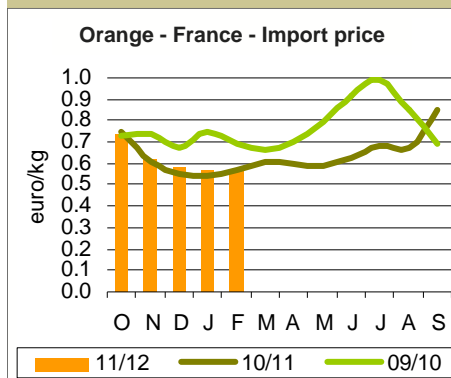
The market remained very difficult in spite of the change in variety. However, a slight improvement was observed in the first half of the month. The cold spell stimulated demand and the quality of Spanish fruits improved with the switch from very ripe 'Naveline' to 'Navel' and the first 'Lanelate'. However, demand slowed markedly in the second half of the month when the quality problems caused by frost in Andalusia began to appear. Prices were slightly firmer for a while and then dipped to well below the average. The 'Maltese' market remained fairly satisfactory in spite of the large supply.

■ Detection of citrus canker: dogs to the rescue! After being man's best friend, is the dog going to turn to orange trees as well? This is the impression left by the techniques tested by Tim Gottwald, a researcher at USDA, for the detection of certain citrus diseases. Dogs, with their very fine sense of smell, are currently being trained to identify trees infected by citrus canker and the first results show that the reliability of the method exceeds 98%! Practical applications could soon be available, not only in citrus groves but also in nurseries and possibly in packing stations. Tests are in progress to find out whether dogs can also detect greening.

Source: Southeast AgNet

■ The positive role of citrus in the prevention of strokes. A study conducted at the University of East Anglia and published recently in the Journal of the American Heart Association shows the positive role of citrus fruits in the prevention of strokes in women. The results of 14 years of monitoring of a sample of 70 000 women showed that the risk of stroke was 19% less in the persons who ate the most orange or grapefruit, whether in the form of fruit or juice. The physiological reason would seem to be the positive effects of the flavonoids naturally present in citrus fruits on the functioning of blood vessels.

Source: Medical News Today



■ Serious citrus production losses caused by frost in California. According to the growers association Citrus Mutual, the numerous frosts in December and January caused harvest losses of 15% in 'Navel' and 35% in easy peelers. However, the decrease in the quantities available in California, which covers most of the US fresh citrus market, has not benefited the import sector. Volumes received from Spain totalled some 50 000 t at the end of February when the season was practically over. This is more than 10 000 t less than in the preceding season. It was the result of rain and warm weather in January that affected the keeping quality of Spanish fruits.

Source: Reefer Trends



© Eric Imbert

PRICE	Type	Average monthly price euro/box 15 kg	Comparison with average for last 2 years
	Dessert oranges	8.25-9.00	- 14%
	Juice oranges	8.00-8.50	- 16%

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
	Dessert oranges	↗	+ 12%
	Juice oranges	↗	+ 55%

VOLUMES	Varieties by source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
		previous month	average for last 2 years		
	Navel group from Spain	=↗	+ 12%	Brisk sales. Switch from 'Naveline' to 'Navel' and 'Navelate' at the start of the second third of the month.	- 9%
	Salustiana from Spain	↗	+ 63%	Very large volumes, especially during the first half of the month. Quality often uneven.	+ 33%
	Maltese from Tunisia	↗	+ 23%	Supply remained larger than average.	+ 32%

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Rencontrez-nous
au Medfel



Easy peelers

February 2012

The market remained difficult because Spanish shipments remained strong, but the fruits were often fragile. Although the 'Nules' season finished at the beginning of the month, shipments of 'Clemenvilla' were prolonged and 'Hernandina', at their season, also suffered from an advanced station of ripeness. In addition, as every year, it was not easy for 'Ortanique' to gain a foothold on the market. This difficult context weighed on sales of top-of-the-range cultivars ('Nadorcott' from Spain and Morocco and 'Or' from Israel) and prices were considerably lower than average. Moroccan and Israeli exporters therefore sought to diversify their outlets by shipping to non-EU destinations.

■ Easy peeler variety of the month: Ortanique. This tanger, a tangerine x orange hybrid, was found in Jamaica. Its external and internal qualities are very variable according to climatic conditions. As a rule, the fruit is of average size to large, with the lower part slightly flattened and often bearing a small embryo. Pulp characteristics—tender and very juicy—are excellent. However, although peel colour is attractive under Mediterranean cultivation conditions, its weak point is that it is very thin and the fruit is difficult to peel.

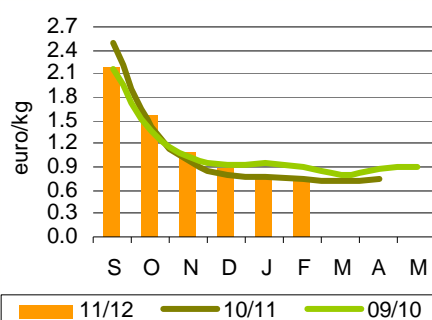


perhaps be paid to the performance as regards value. In spite of an extremely difficult context, the ex-packing station price should be fairly close to that of the two excellent preceding years according to observations by our market news service. The season illustrates once again the success of the differentiation performed courageously by the Corsican clementine sector, with the awarding of a PGI being the high point. It is a very encouraging example for grapefruit growers in the island who also seek recognition of the specific features of their fruit.

Sources: CEBFL, CIRAD

Source: CIRAD

Easy peelers - France - Import price

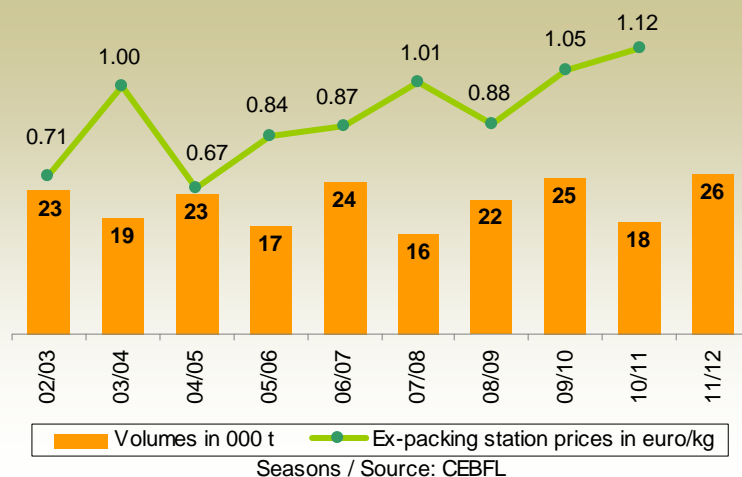


■ Clementine from Corsica: a record vintage in more than one respect! Shipments of clementines from Corsica exceeded 25 700 t in 2011-12, the largest volume since the mid-1990s. But more attention should



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Clementine from Corsica - Volumes and ex-packing station prices



Seasons / Source: CEBFL

PRICE	Type	Average monthly price euro/kg	Comparison with average for last 2 years
	Clementine	0.68	- 9%
	Hybrids (Spain)	0.89	- 14%

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
	Clementine	↘	+ 16%
	Hybrids	↗	+ 39%

VOLUMES	Source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
		previous month	average for last 2 years		
	Clementine from Spain	↘	+ 41%	End of the season but arrivals still larger than average. Most fruits very fragile.	0%
	Hybrids from Spain	=	+ 42%	Prolongation of the 'Clemenvilla' season and somewhat late start to the 'Hernandina', 'Ortanique' and 'Nadorcott' season. Some varieties were fragile.	+ 10%
	Hybrids from Morocco	↗	+ 17%	Increase in the supply of 'Nadorcott'. Volumes larger than average in spite of an increase in exports to non-EU destinations.	+ 18%
	Hybrids from Israel	↗	+ 50%	The 'Or' season got under way. Volumes larger than average in the EU in spite of an increase in shipments to other markets.	+ 35%

Sea freight

February 2012

A TCE monthly average of less than 40c/cbft means that the December through to February 2012 quarter is the lowest on record for the period. With a number of vessels idle the final yield to the owner pools will undoubtedly be even lower. While the figure may be satisfactory during the May to September off-season it's a disaster for the mode at a time when the market should be nearing its peak.

The charter market was inundated with capacity partly as a result of top quality tonnage being redelivered to operators by the banana majors at the end of 2011 and partly due to the containerization of the banana business into the eastern Med and Black Sea, which reduced demand. Throw a 10% increase in bunker costs year-on-year and you have simultaneous hits to the head of the reefer business, the solar plexus and below the belt!

The impact of the rise in cost of fuel cannot be underestimated. The escalating cost of bunkers means that there can be as much as a 40c/cbft difference between a good and poor calculating vessel on the same voyage. The TC fixture returns made by Del Monte and NYKCool were nowhere near replicated by the yields on the banana voyages fixed by the traders on fuel-inefficient tonnage.

With the fuel cost of ballasting across the Atlantic on speculation a minimum USD 350K it was no surprise that operators of larger units chose to take their chances on the eastern seaboard, particularly as there was good demand for fish cargoes out of Ireland, the North Sea and Mauretania.

As a direct and indirect consequence of the high cost of bunker fuel the charter market has become more multi-tiered than it has ever been. And while the

lines can target cargo for containerization, it is the endemically high cost of fuel that denies the reefer the ability to compete. In such a high cost, low margin commercial environment it is much more likely that it was fears over rising costs that drove the banana majors into the arms of the third party service providers than it was a preference for the alternative mode per se. Many of the services that switched were operating on load factor levels well below optimum.

Unless there is a permanent downward shift in the price of oil, or until the lines stop subsidizing the cost of fuel the majority of reefers now trading will be at a disadvantage. On the positive side the mode appears not to have lost market share of the Chilean grape exports and this season may even regain some ground lost to the lines.

Finally, although the TCE return for the small segment was also historically weak for the month, at least the fleet was active and lay time therefore limited. The segment benefitted from an increase in the catch quota for the Irish fishing fleet as well as strong demand off Mauretania. *Illex Argentinus* were elusive in the South Atlantic but there are hopes the jiggers will be busier in March.

■ Tribute to Dr Luiz Andrea Favero.

Always driven by infectious optimism, he performed research work and studies with enthusiasm and professionalism. He made a point of sharing his work with his colleagues and students and had a talent for the management of multidisciplinary teams in which everyone's opinion was listened to and discussed. A rural development specialist, he devoted part of his career to the study and defence of Brazilian horticultural sectors. Always alert to development opportunities on the international fruit market, he established links with several universities, European research centres and operators—convinced that exchanges of knowledge are correlated with economic development. His contributions to **FruiTrop** are an illustration of this. I was fortunate to share various work and missions with Luiz Andrea Favero, whose death we have only just learned. I take this opportunity to pay a tribute to him.

Luiz Andrea Favero was vice-coordinator of the post-graduate programme in administration and rural development at the Federal Rural University of Pernambuco (Recife, Brazil). The holder of a doctorate in economics and rural sociology from University Paris X, Nanterre, he also did work on international agricultural markets at University Paris I, the Sorbonne.

Pierre Gerbaud



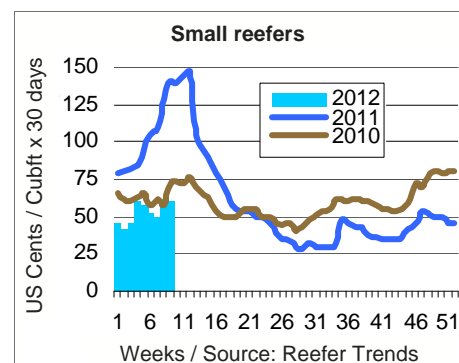
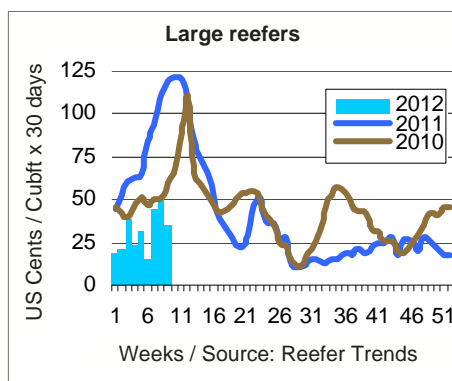
MONTHLY SPOT AVERAGE

US\$/cents/cubic foot x 30 days	Large reefers	Small reefers
February 2012	39	55
February 2011	89	115
February 2010	47	56

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The international banana market

From one world to the other

The change in the rules governing the supply of the European Union, the largest import and consumer market in the world, has modelled and will continue to model for many years international trade in terms of flow, economic stakeholders, supply zones, the distribution of value-added among stakeholders, etc. Beyond the economic aspect, bananas are also a highly political subject. The banana is both the most-traded tropical fruit in the world and also a sector that has tested—sometimes extremely unwillingly—all the procedures of the settlement of differences of the former GATT and the WTO. The subject has exhausted all possibilities for action and the dossier is marooned in an unusual legal no-man's-land. Bananas are thus not just a world market estimated to total about 16 million metric tonnes. They also form a formidable political terrain in which different views of what international trade should be and its role in economic development affront each other.

Very schematically, the international dessert banana market is divided into a few large import zones: the EU is in the lead with consumption at 5.2 million tonnes, followed by the United States and Canada (4.1 million tonnes between them), Russia and Eastern Europe (excluding EU countries) with 1.5 million tonnes, Asia including Japan (2.1 million) and numerous individual markets that can be grouped geographically, such as the Mediterranean market (0.7 million), the Middle East (0.3 million) and Latin America (0.8 million). As regards sources, geographical origins are fairly concentrated, with 46% of supply from Central America, 30% from South America, 15% from Asia and 3% from Africa. European production is some 600 000 to 700 000 tonnes, all of which is sold in the European Union.

Only the EU draws its supplies from such a broad diversity of sources, together with its own production in the Caribbean, the Canary Islands and Madeira. Indeed, in addition to the classic dollar origins (Ecuador, Colombia, Costa Rica, etc.), it imports bananas from many ACP countries in Africa (Cameroon, Côte d'Ivoire, Ghana), the Caribbean (Dominican Republic, St Lucia, Dominica, etc.) and other ACP states (Surinam and Belize). The United States is supplied entirely

by imports from central and South America. Only bananas from Ecuador are sold in Russia and Japan imports this fruit from the Philippines alone. It should be noted that banana is a very internationalised fruit. Indeed, 22% of Cavendish type dessert bananas is traded internationally; this is 15.5 million tonnes of the total 71 million tonnes produced.



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A COMOÉ a day keeps the doctor away



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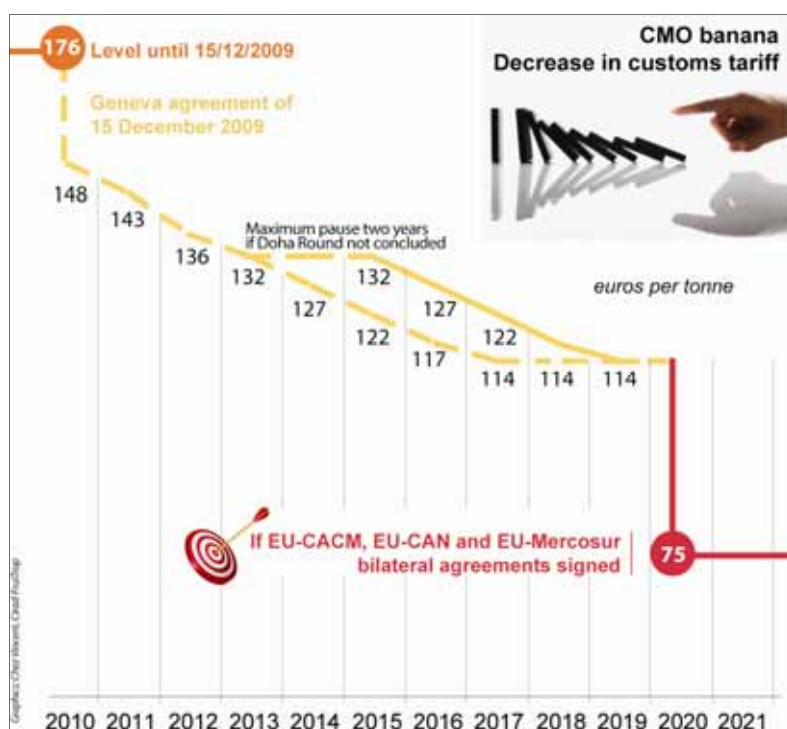
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In addition to this classic structuring via supply and demand, it can be noted schematically that on the one side there are supporters of a free, untrammelled market in which the most competitive, best organised or strongest parties gain market shares, and, on the other side of the chess board, those who defend the idea that the large commodities markets should contribute to making international trade fairer by conserving a position for each type of source or organisation in a vision of trade that would serve economic development in a large range of supplier countries. The latter view was dominant in the setting up of the Common Market Organisation of Banana (CMOB) by the EU in 1993. At the time, the system included quotas by source, customs dues differentiated by type of supplier and aid for European production. Finally, the CMOB made it possible to keep a balance between the different types of source (ACP, dollar and European production) and conserved existing trade organisation while allowing it to evolve. The movement of market shares by type of supplier and the immense peaceful restructuring of the import and ripening chains were proof of this.

However, the CMOB of the mid-2000s was fairly different to that initially decided on 1 July 1993. The 'unravelling' took place with the various reforms that the EU was obliged to implement, whether these, like continuous strong headwinds, came from outside (USA, Ecuador, etc.) or from within (from Germany for example). The implementation of the 'tariff only' reform of 1 January 2006 was finally just



the last, definitive act of a process that had started in 1993 and that led the European market to adopt the dogmas of a deregulated market. The EU market is now managed by means of differentiated, degressive customs tariffs: zero for the ACP countries and EUR 176 per tonne for the other sources in 2006, with a low point set for the moment at EUR 114 per tonne in 2018. European producers benefit from unlimited access to their domestic markets and a programme of aid (POSEI) with funding of some EUR 280 million. Reform has taken place here too. In 2006, compensatory aid for loss of income was changed into aid partly decoupled from volume and the price fetched on the market. European production covers some 10 to 12% of consumption in EU-27.



The effects of the switch to a tariff only regime?

The reform of the CMOB resulted in very strong restructuring of the international market. The American and European markets took different and even opposing routes from 2006 onwards. Five years later, the American market is performing well. All the indicators are green. Customs values and the information provided by Sopisco (spot bananas at the green stage) both indicate increasing produce value at the import stage. The spot import price increased by 5% in 2011 in comparison with 2010 and even set a new all-time record of USD16.5 per box (current dollars). The spot price doubled from 2004 to 2011. The increase is so strong that there is no point in checking whether inflation in the US accounts for the rise in prices. There is clearly an unprecedented increase in value on the US banana market. The upward movement started in 2008 in the middle of the commodities crisis. American operators succeeded in per-

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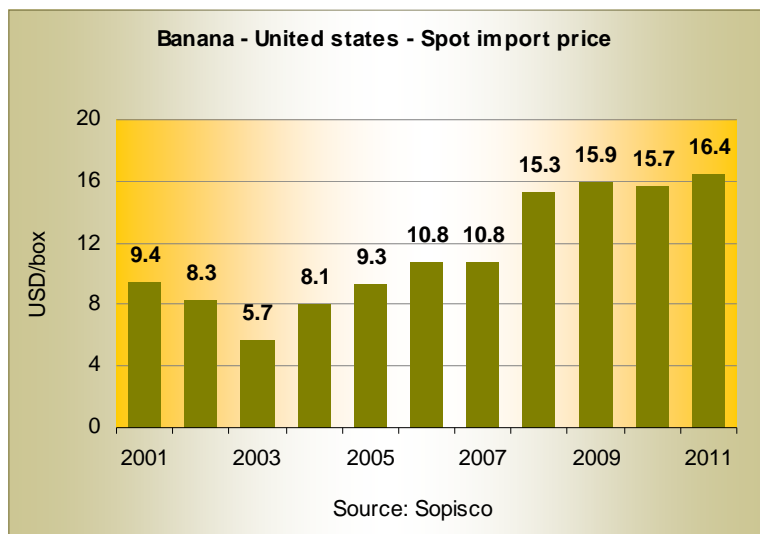
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suading retail distributors that the purchase price should be increased to cover their increased cost prices. One might have thought that it would be a short-lived phenomenon, with the decrease in tension in commodities from mid-2008 automatically causing a fall in contract prices and spot prices. But this was without allowing for the structure of the market and the imperious need of the multinationals to obtain in the US what they could not succeed in Europe, that is to say a sufficiently large margin. The most astonishing feature is that consumption has increased. Imports during the last twelve-month period for which the figures are known (November 2010 to October 2011) totalled 4,156,000 tonnes in comparison with 4,087,000 tonnes a year earlier. When exports of 515,400 tonnes—mainly to Canada—are deducted, net supply is seen to have increased by 2% to a record 3,641,000 tonnes. And what happened to retail prices? Defying all the laws of classic economics, they even increased by 5% to USD1.35 per kg (provisional figure) in 2011. It should be remembered that retail prices rose by nearly 20% from 2007 to 2008, accompanying the increase in green prices.

It has to be observed that another banana world is possible, at least at the import and retail distribution stage. Organisation and regulation can add value to a market. The United States obtained from the market and its operators what it used regulations to forbid for Europeans. It remains to be known whether Latin American suppliers are satisfied with this 'new deal', because not everybody can gain access to American markets. This is no doubt where the American neo-classical vision of things stops! However, some facts are clear nonetheless. The sources organised around the large world exporters or very strongly contractualised are opting to ship their fruits to the United States at the moment. But Ecuador, with the largest reserves of spot bananas in the world, is turning to the Russia and the EU. In the first ten months of 2011 it sold 7% more bananas (+ 71 000 tonnes) in the EU, while reducing its presence in the United States by 10% (- 81 000 tonnes).

The EU in free fall

The situation is much more contrasted in the European market, which now seems to be hyper-sensitive to the world banana context. In a way, the CMOB had partially cushioned the volatility of the sector. It is difficult to demonstrate this feeling shared by all operators, both upstream and downstream, using an analysis consisting of figures. Indeed, the curve of the German benchmark prices (German import price — second and third brands as reference



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LE BANANIER

Un siècle d'innovations techniques

André Lassoudière

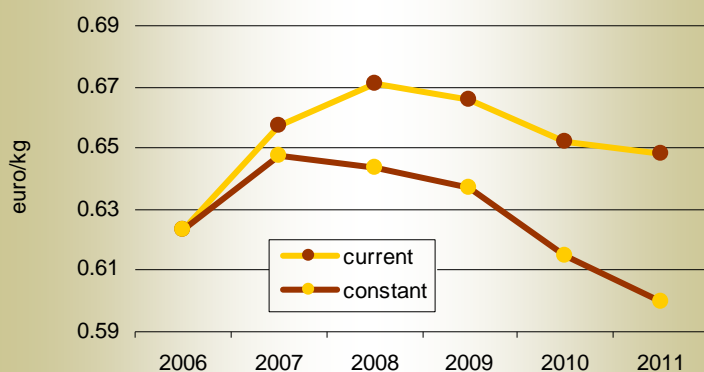
Dessert banana production has increased in a spectacular manner since the end of the nineteenth century. This book traces the history of the crop and describes the results of agricultural research up to 2010 in response to questions asked by the sector concerning meeting the requirements of an export crop, improving productivity, fighting plant diseases and soil contamination, knowing which varieties are resistant and viewing the present challenges of sustainable production. It is a synthesis of research, innovations and practices in numerous countries.

André Lassoudière, a research scientist at CIRAD from 1967 to 2008, devoted his entire career to bananas. In the banana sector he worked above all as an expert for planters, professional organisations and development institutions, in particular in Africa and the West Indies. His missions took him all over the world.



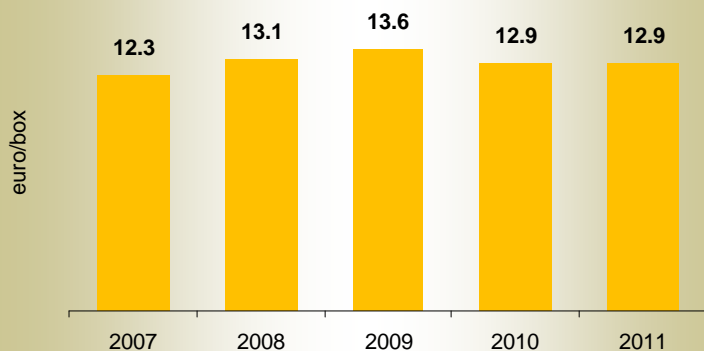
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**Banana - France - Import price
in current and constant euros**



Source: CIRAD, Insee

**Banana - Germany - Import price
(2nd and 3rd brands)**



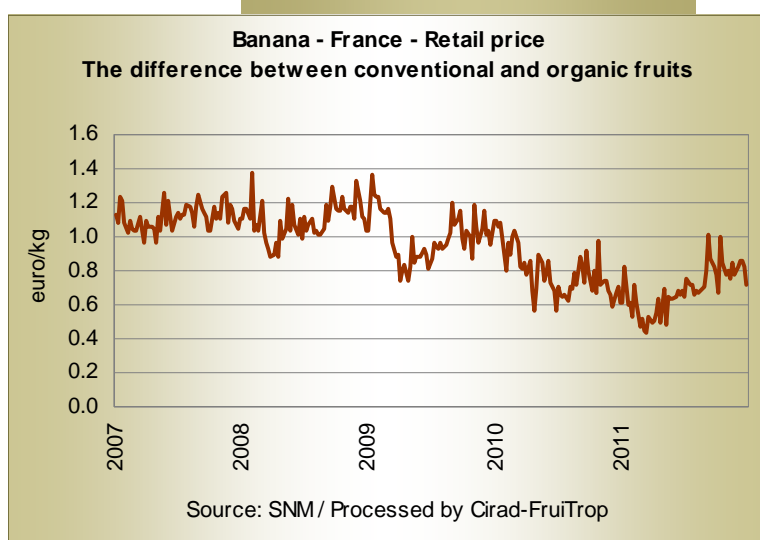
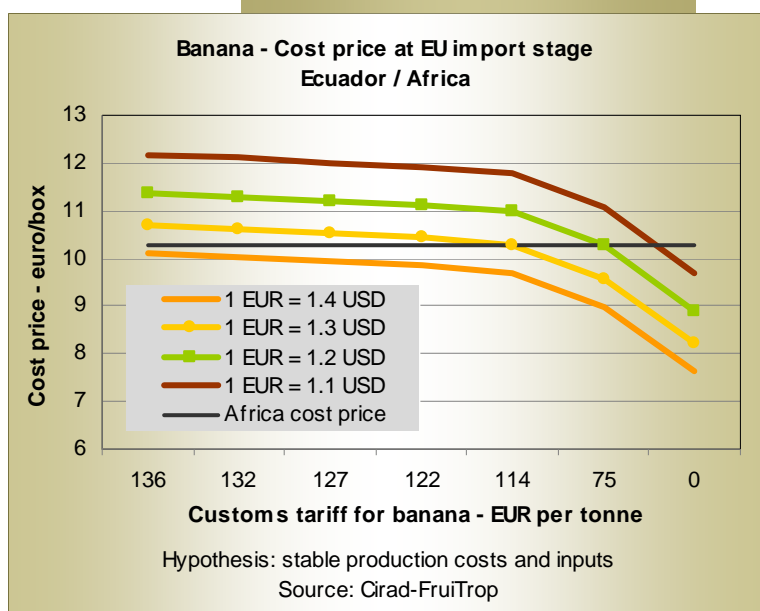
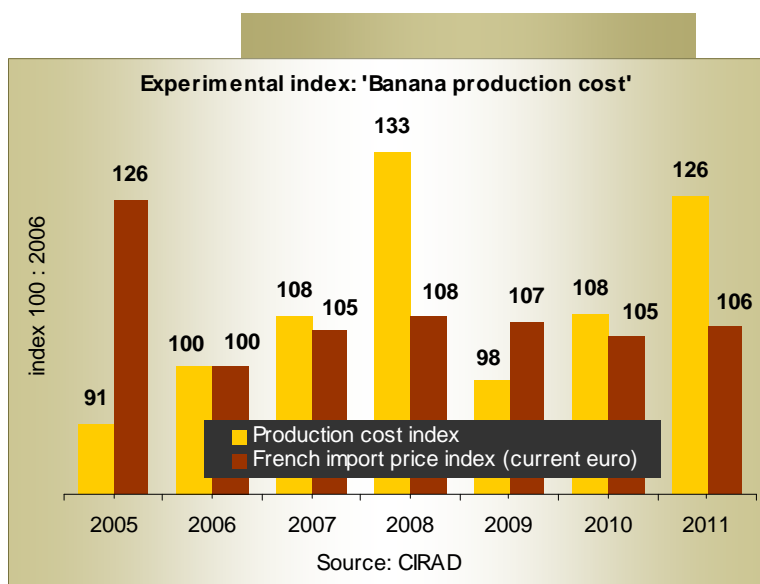
Source: CIRAD-Fruitrop

— source: CIRAD) is fairly stable. The 2011 import price was EUR 12.9 per box, that is to say the same as in 2010 and also the 2007-2010 average. A collapse is sought. But as in all analyses, the devil is to be found in the details. First, it can be seen that world supply has never been normal since 2006. Often serious climatic events reduced production capacity in dollar zones, ACP producer countries and EU production areas. Meteorological phenomena played a regulating rule, replacing that played by the CMOB before 2006. In economics, it cannot be considered that a price that remains stable over such a long period is good for the sector as reflection in constant euros changes the result. Indeed, even if inflation in the EU was small, it was significant over a 5-year period. Current prices in France since 2006 display average growth of 0.8% and a fall of 0.7% per year in constant euros. Finally, the value of a kilo of bananas at the import stage in France fell by 7% in constant terms!

Finally, if a decrease in returns is observed, costs should also be observed. Here again there is an accumulation of bad news. The 'production' cost indicator developed by CIRAD shows an increase from index 100 in 2006 to 126 in 2011 (provisional figure); this is not far from the record 133 attained in 2008. At the same time, the banana import price index for France rose from 100 to 106 (in current prices). In plain terms, value-added is decreasing in the sector. Operators are squeezed between falling returns and increasing production costs. Once again, supermarkets will be accused of intercepting this decrease in value at the upstream stage in the sector. This analysis is also counter-intuitive. The hypothesis is refuted by an examination of retail prices. They have remained stable overall in current euros in the EU and have thus fallen in constant euros. It is thus easy to conclude that the whole sector, everybody together, has destroyed value-added.

Everything about cost competitiveness

And the movement of exchange rates has not reversed the trend. In supplier countries whose currencies are weak against the euro, such as Costa Rica and Colombia, in 'dollarised' economies such as Ecuador, the exchange rate effect is a powerful remedy for falling sales prices and increased production costs. Although this might seem—but only in certain respects—a benediction for America, it is a curse for Africa. The advantage is cancelled out for a West African producer tied to



the euro. These producers are also being hit head-on by the decrease in value on the European market, which is practically their sole export destination.

In contrast, as the import customs dues for their bananas are paid in euros, the cost for Latin American producers increases when their currencies lose value. The scheduled decrease in euros tariffs is not always followed by an equivalent decrease in dollars or local currency. For example, the strong appreciation of the euro in 2011 cancelled out the decrease in customs dues. This being said, what is true today in exchange rates is no longer true tomorrow. Exchange rates are an exogenous factor with regard to the banana sector. The decrease in the euro against the dollar since the end of 2011 has hit the competitiveness of dollar bananas somewhat and given a breathing space to competing suppliers. The respite was short-lived as the euro started to appreciate again in January.

To be competitive or cease to exist! This is clearly more of a statement than a question. But navigation is difficult among the production costs in each source country, the movements of prices of raw materials, exchange rates and decreasing customs tariffs. The subject is also delicate as the differences in competitiveness between countries are great. Indeed, how can one compare the costs of a family grower in Machala and those of a plantation managed by a multinational corporation? How can the freight costs or unit prices of inputs for a small growers' cooperative be compared with those of a company with thousands of hectares of banana? To further the discussion, CIRAD has used figures from professional and official sources to compare the FOB (European port) prices from Ecuador (source: Ministry of Agriculture) and Africa (calculations using survey data), varied the euro/dollar exchange rate and finally applied the falling EU customs tariffs as laid down in the Geneva Accord.

The conclusion is very clear. With the customs tariff applied in 2012 (EUR 136 per tonne) and with an exchange rate of USD 1.3 to 1.4 to EUR 1, the competitiveness levels are equivalent in the two zones. The decrease in the customs tariff will therefore be devastating for ACP sources, for all community production areas and even for certain dollar producers. It is true that European producers have a substantial aid plan (POSEI), but this will not be sufficient if the situation in the banana sector continues to worsen. For ACP producers, sector support (Banana Accompanying Measures for 10 ACP countries with an allocation of EUR 190 million) should therefore be devoted entirely to improving competitiveness and increasing value-added.



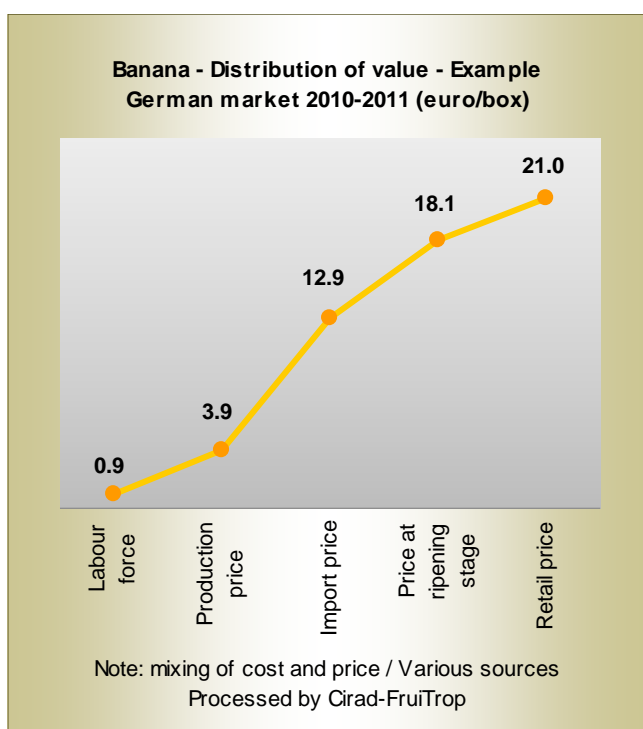
Attention should also be paid to producers of fair trade and/or organic bananas as both of these markets are threatened by a very rapid increase in the quantities available world-wide. Supply of fair trade bananas is increasing as a result of a certification policy that extends the benefits of the label to large plantations. It remains to be seen whether demand in Europe is lively enough to take the surplus without weighing on selling prices. In addition, the fair trade and organic movement has strongly encouraged large operators to positively increase social impacts on the populations of production zones while reducing the environmental costs of export banana production. Private labels and certification systems have therefore blossomed, doubtless contributing to make a certain improvement to the environmental and social aspects of ba-

nana. However, they have reduced the market potential for existing labels such as that of fair trade. The example of the organic banana market is edifying in this respect. Supply is increasing strongly, driven by retail distributors who wish to shift the fruit out of the specialised department and make it available to the largest number of shoppers possible, thus causing a tendency for a price convergence between organic and conventional bananas. If the example of organic bananas reveals the ongoing process there is reason for concern. Thus some production sources and especially certain ACP producers in the Caribbean, who also have to face an increase in agricultural constraints with the arrival and spread of Black Sigatoka disease, must make a difficult choice as regards reconversion. The problem is that the search for an economic sector to which these producers could turn is still in progress.

Increase value and distribute it better

These reflections centred on the notion of sustainability are very beneficial for the sector and the corresponding initiatives taken by the WBF are essential. Even if the ongoing work will make it possible to examine the details, it is already possible to estimate the distribution of value along the chain. As in the case of production cost, variations from one chain to another are considerable. On the basis of experience in Ecuador, a farm worker receives 3 to 4% of the total value of the chain. Let us imagine a world in which this share were to be increased to 5%. The worker's wages would increase by 30% and his life would change, while the retail price would increase by only EUR 0.02 per kg! This calculation might well seem too theoretical, simplistic and imperfect as the issues are not just wages but also the working and living conditions of the first players in the sector. But the calculation is useful nonetheless so that everybody can see that the road to be travelled is perhaps not as long and complicated as all that. It will be even shorter when everyone has understood that on the one hand it is possible to halt the worsening of value-added and even to increase it, and on the other hand distribution can be somewhat fairer. If not, there is still 'something rotten in the state of Denmark' ■

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Contribution to the World Banana Forum
Working Group 02: Distribution of Value

Second conference of the World Banana Forum
(Guayaquil, Ecuador, 28-29 February 2012)



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The reefer revolution

and its impact on the banana trade (with specific reference to Ecuador)

Any analysis of the history of the global banana business is not complete without an acknowledgement of the impact the specialized reefer vessel has had on the evolution and form of the banana trades. With such seismic changes taking place all along the banana supply chain, never has the relationship between the product and the mode of its transportation to market been so important to appreciate.

The modern reefer vessel was designed and built principally for the transportation of bananas, the world's fifth most-traded agricultural commodity after cereals, sugar, coffee and cocoa.

Between the 1960s when bananas were first bulk shipped in boxes (as opposed to stem-hung below-deck) and 2010, control of the mode of shipping was as much a source of competitive advantage for the banana companies who dominated the global banana trade as was ownership of banana plantations at source and management of the ripening centres in major markets. All the banana multi-nationals were initially fully vertically integrated: Chiquita, Dole, Del Monte, Fyffes, Noboa, JFC, Sorus, Sunway, Sumifru, Lapanday, Unifrutti and Compagnie Fruitiere have all either owned or chartered the reefer vessels that shipped the majority of their bananas from source to market.

However since 2000 and particularly since the deregulation of the EU banana market in 2006 there have been some significant changes to the architecture of the banana supply chains and, as a consequence, how the trade is conducted. Firstly, commercial and/or political pressures obliged Dole, Chiquita and Fyffes to divest production in Latin America. Commercial pressure was also the reason for all three to arrange sale/leaseback agreements on part or all of their reefer fleets.

Secondly several of the major European retailers have signaled their intention of circumventing the 'traditional' supply chain models (buying from the brands) and sourcing direct from producers.

Containers and container lines

However it is the extraordinary growth in the containership fleet coupled with the concomitant increase in investment in competitive reefer container capacity that has, without doubt, had the most dramatic direct and indirect impact on the structure of the global banana trade. This



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Reefer fleet profile			
Year	Million cbft	Number of vessels	
2000	293.9	873	
2001	292.8	863	
2002	290.7	855	
2003	288.8	846	
2004	284.5	832	
2005	279.1	815	
2006	277.9	809	
2007	277.1	806	
2008	276.1	804	
2009	265.7	773	
2010	253.7	743	
2011	241.4	709	
Reefer vessel demolition			
Year		Number of vessels	
1992		11	
1993		46	
1994		25	
1995		14	
1996		14	
1997		11	
1998		19	
1999		46	
2000		22	
2001		12	
2002		11	
2003		17	
2004		18	
2005		7	
2006		6	
2007		8	
2008		35	
2009		35	
2010		38	
2011		52	
Containership fleet development (’000 TEU)			
Year	Newbuilds	Scrap	Fleet
2006	1 384	29	9 472
2007	1 366	33	10 805
2008	1 380	86	12 099
2009	961	351	12 919
2010	1 379	131	14 167
2011	1 263	50	15 380
2012	1 371	60	16 691
2013	1 364	75	17 980

Source: Drewry Maritime Research

expansion has simultaneously questioned the long-term viability of the specialized reefer ship and is the principal reason for the shrinkage of the specialized reefer fleet.

But an analysis of the changes in numerical terms alone is too simplistic: there are other specific factors that led to the reefer mode being developed and utilized for bananas than the port-to-port leg of the supply chain: the reefer vessel's size and shallow draught allowed it access to small ports close to banana production. Technically, the vessel's ability to quickly cool and then maintain cargo temperature obviated the need for investment in independent quayside infrastructure and cold storage.

The majority of specialized reefer vessels currently trading were built for speed at a time when the cost of bunker fuel was a fraction of what it is today. A banana could (and still can) be picked in Ecuador shipped through the Panama Canal and across the Atlantic and arrive in Antwerp, the world's largest banana port, within 14 days. With such a limited shelf life, the quicker the banana arrives at its destination port, the greater the flexibility the marketer/distributor has to optimize customer service and therefore pricing.

There have been a number of changes that have eroded the historical competitive advantage held by the specialized reefer over the container ship – some as a result of the growth in the global economy and some as a result of action taken by the lines. Because as well as having sufficient slot and reefer box capacity to challenge the hegemony of the reefer for the first time the container lines have also addressed the technical aspects of the supply chain at which they have historically been at a disadvantage.

Maersk Line was the first to offer a direct transatlantic banana service from Guayaquil, Ecuador (to St Petersburg, Russia) in February 2009. This was followed by its direct Ecumed service into the eastern Mediterranean and the Black Sea in November 2011. Container lines MSC and CSAV also now offer a direct 'reefer-heavy' service from Ecuador into northern Europe.

Secondly, despite reported low overall load factors and a slight speed disadvantage, the container lines can compete on cost with the specialized reefer services because they are so much more fuel-efficient. The modern generation of container vessels has been designed with a priority focus on size and fuel-economy, not speed. The reefer vessels that have built since the turn of the mille-

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num are certainly more fuel efficient but cannot compete on a unit-cost basis (i.e. cost per banana box) with vessels eight to ten times their size.

Thirdly there have been significant advances in the performance and reliability of the reefer container, which combined with greater emphasis on service quality for the reefer trades has led to a marked reduction in the ratio of claims against the container lines by cargo interests. Most recently the development of the low-cost StarCare modified atmosphere solution also enables the reefer containers to carry bananas over longer distances. Maersk Line, which developed the technology claims the specially designed containers are able to maintain 'outstanding product quality' for up to 45 days.

Fourthly the container lines have come to understand that shipping a reefer container demands greater discipline throughout the supply chain than shipping a dry van. Historically, one of the disadvantages of shipping a reefer container long distances has been the need for the in-port transshipment of the container from one service string onto another. There is a greater risk to the integrity of the cargo if the electricity supply to the reefer box is interrupted, which happens multiple times when a reefer box makes such a move. There is no such risk for dry vans, which make up 80% plus of all container traffic.

Finally there has been significant investment in improvements to port and hinterland

infrastructure in the banana exporting nations that negates the advantages previously held by the specialized reefer. AP Moeller Maersk is again at the forefront of such investment: in August 2011 subsidiary APM Terminals signed a USD 992m, 33-year concession contract to design, finance, construct and operate a new container terminal on the Atlantic coast of Costa Rica. The terminal will act as a centre for banana, pineapple and melon exports but also a regional hub for reefer traffic in the Caribbean basin. The company has also spent a reported USD 20m on the first stage of land preparation for a terminal at the Ecuadorian port of Posorja, which it says will be used principally for the banana trade.

Impact

The incursion by the container lines into the banana business has had a significant impact on all the traditional stakeholders in the supply chain. Unsurprisingly those most affected are the specialized reefer owners and operators, not least because they have been unable to compete with the aggressive pricing strategies of the liner operators.

One way in which declining demand for the specialized reefer can be measured is the trend in number of Panama Canal transits for the mode. The west coast South America to the US east coast, EU, Russia and Med trade lane is by far the busiest for the reefer.

It should come as no surprise that, according to Panama Canal Authority data, the number of specialized reefer vessel transits in 2011 fell to their lowest level in more than a decade. The total of 1,479 transits between October 2010 and September 2011 compares to 1,718 in 2010, 1,972 in 2009 and 2,166 in 2008. The highest figure for the past decade was recorded in 2004 when there were 2,316 transits. The year-on-year fall of 239 transits is equivalent to more than 4 vessels per week. With the number of units servicing the seasonal Chilean trade more-or-less constant, the reduction is therefore predominantly attributable to the conversion of the Ecuadorian banana trade to third-party container line services.

More fundamentally however the rapid conversion to third party containerization is in the process of transforming the structure of the transatlantic banana business. Until 2007/08 the absence of an alternative to the specialized reefer logistics model was a barrier to entry to customers at both ends of

Banana — Ecuador — Summary of container shipment trends (sum of FFE from January to September)					
Destinations	2009	2010	2011	Var. 2009-10	Var. 2010-11
Russia	7 003	18 772	31 928	+ 168%	+ 70%
USA	25 220	26 565	23 714	+ 5%	- 11%
Chile	5 198	6 084	8 799	+ 17%	+ 45%
Argentina	5 802	6 248	5 088	+ 8%	- 19%
Turkey	32	493	4 628	+ 1 441%	+ 839%
Netherlands	4 133	4 027	4 171	- 3%	+ 4%
Germany	1 934	2 172	3 648	+ 12%	+ 68%
Italy	4 436	3 334	3 637	- 25%	+ 9%
Belgium	2 719	1 755	2 912	- 35%	+ 66%
UK	1 963	2 584	2 331	+ 32%	- 10%
Japan	2 524	1 939	1 382	- 23%	- 29%
Slovenia	36	146	1 233	+ 306%	+ 745%
Lithuania	356	636	1 120	+ 79%	+ 76%
Others	3 658	8 209	10 794	+ 124%	+ 31%
Total	65 014	82 964	105 384	+ 28%	+ 27%
Carriers	2009	2010	2011	Var. 2009-10	Var. 2010-11
Maersk	15 745	22 737	30 522	+ 44%	+ 3%
MSC	514	7 360	26 009	+ 1 332%	+ 253%
Dole	20 161	19 484	14 384	- 3%	- 26%
CSAV	4 460	7 043	6 412	+ 58%	- 9%
Ecuador Shipping	4 557	4 296	4 491	- 6%	+ 5%
Hamburg Sud	2 621	3 340	3 942	+ 27%	+ 18%
CMA CGM	854	1 945	3 478	+ 128%	+ 79%
GWF	1 944	3 192	3 291	+ 64%	+ 3%
APL	1 791	2 633	2 638	+ 47%	0%
CCNI	1 648	2 343	2 495	+ 42%	+ 6%
Network Shipping	3 324	2 834	1 516	- 15%	- 47%
Hapag Lloyd	812	1 196	1 429	+ 47%	+ 19%
NYK	1 832	1 441	910	- 21%	- 37%
Baltic Shipping	827	551	864	- 33%	+ 57%
Others	3 924	2 569	3 004	- 35%	+ 17%
Total	65 014	82 964	105 384	+ 28%	+ 27%
Shippers	2009	2010	2011	Var. 2009-10	Var. 2010-11
Dole	18 915	18 639	18 174	- 1%	- 2%
Bonanza - JFC	3 097	7 455	15 670	+ 141%	+ 110%
Banex Group	1 508	7 702	9 356	+ 411%	+ 21%
Favorita	7 840	9 738	7 890	+ 24%	- 19%
Noboa	6 592	6 725	5 562	+ 2%	- 17%
Nelfrance	4 208	3 277	4 815	- 22%	+ 47%
Soprisa	680	885	2 774	+ 30%	+ 213%
Brundicorpi	1 399	2 674	2 131	+ 91%	- 20%
Forza	261	1 507	1 942	+ 477%	+ 29%
Proneban	-	242	1 920	-	+ 693%
Ribaki	1 627	1 679	1 702	+ 3%	+ 1%
Tecniagrex	21	565	1 686	+ 2 590%	+ 198%
Frutadeli	60	690	1 477	+ 1 050%	+ 114%
Palmar	1 400	878	1 434	- 37%	+ 63%
Others	17 406	20 308	28 851	+ 17%	+ 42%
Total	65 014	82 964	105 384	+ 28%	+ 27%

the supply chain. Today, instead of being dominated by a small number of major, vertically integrated players banana markets have fragmented as the barriers to entry have fallen: the creation of liner service strings between Latin America and Europe, Russia and the Mediterranean coupled with the availability of an historically high number of reefer boxes has facilitated the transfer of power away from the supply-led banana 'brands' and towards the customer who, for the first time, can contract transport capacity and therefore buy fruit FOB in country of origin.

With retailers able to source bananas directly from producers for the first time, the concept of banana branding has come into question. Historically the big banana companies have supported their brands with multi-media, above-the-line, consumer-pull campaigns. But with all the multi-nationals struggling to maintain margins in a more fiercely-contested marketplace since deregulation of the European market in 2006, the focus has shifted away from value-added, brand-building campaigns and towards cost reduction strategies.

One of the dangers of the reduction in profitability of the banana business is that there is likely to be a risk to other 'value' initiatives led by the multi-nationals such as the Rainforest Alliance. Unless the multi-nationals can leverage their social and environmental programmes into premiums, they run the risk of abandonment. With the exception of one or two of the more enlightened chains such as Norway's Bama and Germany's Rewe, most retailers tend not to lend direct support to such plans, preferring instead to go the Fairtrade route.

The experience in Europe contrasts with the renaissance of banana pricing in the United States. Unlike the EU, which sells bananas from Latin America, the Caribbean, West Africa and European Union producers, the US market is supplied exclusively with Latin American fruit via a limited number of multi-national distributors.

A consolidated market is the single most important point of difference with the EU and the reason for pricing growth and stability. This consolidation has been achieved principally because the multi-national distributors retain complete control of their supply chains. Del Monte, Banacol and Turbana ship their fruit on specialized reefer charters. And although Dole and Chiquita ship all of their fruit in the same containers used on the third party liner services, they



both own or control the vessels on which the containers are transported.

The container lines have yet to penetrate the US market and, at first glance, there is no reason in the short term to suggest this will change. However should the country's largest retailer Wal-Mart be successful firstly in sourcing its banana supply independently of the multi-nationals and secondly shipping it to the US using a third-party liner solution there is a possibility that the carefully constructed defences could be breached.

The direct liner services from Ecuador into St Petersburg and the eastern Mediterranean/Black Sea have also had some important and perhaps far-reaching consequences for all the stakeholders in the banana chain. Most obviously and immediately the reefer boxes have absorbed capacity that has historically been dominated by the specialized reefer – this has been the principal contributing factor to the catastrophic slump in Spot demand for the mode.

However the attack on the share held by the reefer is also an attack on long-established trading systems in which all the stakeholders have benefitted – although perhaps not all the stakeholders at the same time! But with the focus shifting away from supply chain control to one of low cost supply, any value that did once exist has effectively been destroyed.

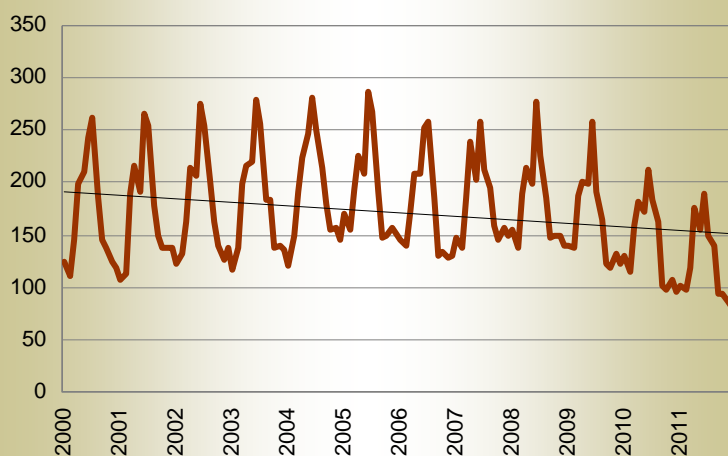
The fragmentation of the markets has undermined pricing in the region with new customers suddenly able to pick and choose from a much wider range of competitive offers. Ironically this has also impacted on the two Russian importers whose volume provides the backbone of the services. Unless there is a dramatic improvement in the market highly-gear JFC will either have to re-structure its USD 350m-plus short-term loans or start selling assets in order to meet its obligations.

On the plus side for the distributors both Maersk Line and MSC are so dependent on JFC and the Banex Group for the existence of the Ecumed and other services that they have no choice but to extend credit when times are tough. This is unlikely to last forever.

Consequences

With the banana majors and the traders acting more defensively because of the new environment created, in part, by the incursion of the lines it is, and will continue to be, the banana industry in Ecuador that will be impacted

Panama Canal transit information for specialised reefer vessels (number of vessels)



Source: Autoridad del Canal de Panamá

the most. Because global banana demand is relatively mature, the scale of demand for Ecuadorian fruit is, to a large degree a factor of the supply of competitive Dollar fruit. With Colombia, Costa Rica, Guatemala and Honduras closer to major markets and easier to do business in/with, it would be no surprise to see the majors and the traders prioritise relationships with producers and exporters in these countries.

Unless there is a significant surge in global demand for bananas Ecuador will always be a 'buffer' supplier. When supply is short elsewhere, there is enough flexibility built into the highly fragmented Ecuadorian production model for supplementary volumes to be sourced as and when necessary. This is not to denigrate the world's largest banana exporter – however it is true that the demand for Ecuadorian fruit is already subject to more variables than fruit from rival origins. The entry of the container lines has simply added more uncontrollable direct and indirect influences.

This has had and will continue to have a knock-on influence of state management of the banana industry: under the circumstances described, trying to enforce a law obliging producers and exporters to sign long-term procurement contracts is, and always will be, unworkable. This is because the state-decreed price will either be too low for the producers when demand outstrips supply or too high for the exporters when supply outstrips demand.

Draconian penalties for those guilty of infringement will either encourage producers and exporters to work further outside the

law or could possibly shrink the industry. This is because unlike other banana exporting nations who see per-box returns increasing, Ecuador may see average farm gate start to fall.

Claiming that a weak global economy is the reason for the likely reduction in Ecuadorian banana earnings does not wash when unit returns to the other Latin American banana economies in 2011 were higher than they were for the previous 12 months. If Ecuador wants to re-claim control of the destiny of its banana industry it may need to facilitate some radical changes to the structure of its industry and how its fruit is exported.

The scale of the investment in container vessels, reefer equipment, reefer container manufacturing and container terminals AP Moeller Maersk continues to make in order to capture market share of the reefer trades is breathtaking. Although other container lines, most notably MSC, are making headway in capturing a share of the Ecuadorian banana trade their efforts are pale in comparison to the Danish shipping giant.

One day, although perhaps not for another 5-10 years, AP Moeller Maersk will need to make a return on its investments. In the ever-more likely event that there is no modal alternative for charterers it will be the other stakeholders in the banana supply chain in varying degrees who will bear the brunt of the container line's dominant position.

The major difference between the trade dynamic today and the likely scenario in 2022 and beyond is that the container line, hitherto a banana trade facilitator, will have become as powerful an industry stakeholder as the retailer. And with a consolidated retail sector already able to enforce cost reduction back through the supply chain at the expense of the producer, the consequences of any increase in cost from an equally powerful stakeholder in the middle of the chain will be felt at the head of the chain, not at the point of sale ■

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Contributions to the World Banana Forum
Working Group 02: Distribution of Value

Second conference of the World Banana
Forum (Guayaquil, Ecuador, 28-29
February 2012)

Fruit conservation and quality

Ripening

The world of fruit is complicated! For botanists, a fruit is a plant organ containing a seed and so a pea pod is a fruit, as is a peach. For consumers, the word fruit immediately brings to mind a coloured, sweet fruit. But nature provides us with vast diversity—from chestnuts to blackberries, from strawberries to grapefruit. There are dry fruits, fleshy fruits, compound fruits (pineapple and figs), berries (melons, passion fruit, tomatoes), drupes (apples, mangoes and peaches), multiple fruits (blackberries and raspberries), complex fruits (strawberries), etc. Beyond this terminology that belongs to the world of specialists, the important thing for consumers is to have access to this range of forms, tastes and colours. Here, FruitTrop is starting a new series of articles on fruits conservation and quality.

It is interesting to note that most fruits, whatever the species, display the same features in ripening, such as changes in colour, texture, flavour and the formation of aromas. Fruits become attractive so that they are eaten. The changes on the plant or the tree take fruits to full maturity, as the prime objective is the dissemination of the seeds.

The postharvest paradox

The sensorial (flavour and aroma), energy (mainly carbohydrate), and nutritional (micronutrients) features (micronutrients) are at their best in ripe fruits only. But the simple problem of how to achieve a sufficiently long storage period arises when they are to be sold on the market. Should they be picked before they are completely ripe? Reconciling storage time and quality is a compromise and difficult in practice as fruits do not all ripen in the same way. Very schematically, the fruits that ripen gradually are referred to as 'non-climacteric' and those that ripen suddenly are 'climacteric'.

Non-climacteric fruits

After growth, some fruits such as grapes, cherries and citrus ripen gradually on the plant and develop optimum attractiveness. The rate of ageing determines the possible

duration of survival on the plant—ranging from a few days to several weeks, depending on the species. Harvesting is generally performed on the basis of external signs of ripeness, such as change of colour, texture, etc. The characteristics of the fruit when picked will be practically the same as when they reach the consumer as long as conditions of release on the market are respected: time elapsing between picking and distribution, storage and transport conditions, etc.



© Régis Domergue

A few examples of climacteric and non-climacteric fruits	
Climacteric	Non-climacteric
Apricot Sugar apple Avocado Banana Carambola Guava Granadilla Kaki Kiwi Mango Papaya Peach Pear Apple Plum	Citrus fruits Pineapple Cherry Pomegranate Litchi Grape Tamarillo

Climacteric fruits

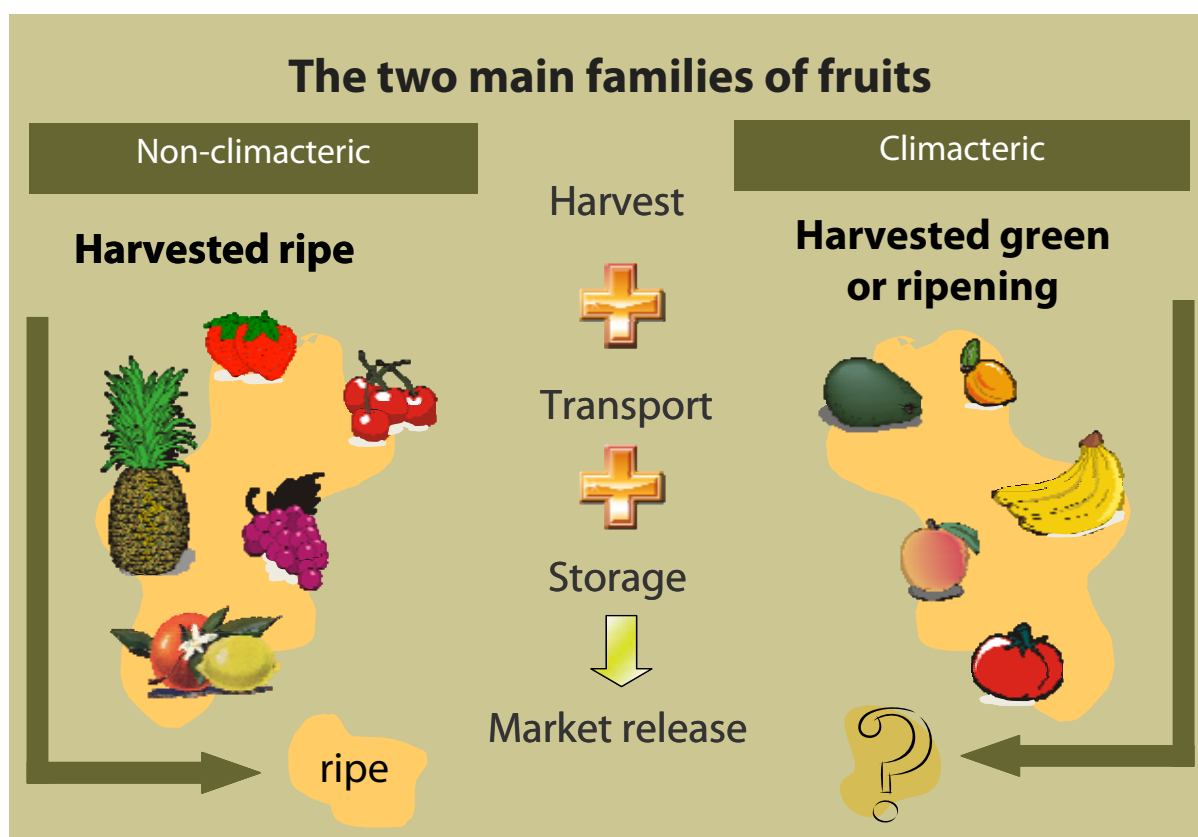
Other fruits such as bananas, mangoes and avocados ripen suddenly and change in a few days. As a result, if transport time exceeds that of the conservation period of ripe fruits, there is no question of waiting for the fruits to start ripening before harvesting them. They must be picked earlier than this. So what is the relation between the characteristics of fruits that are still unripe

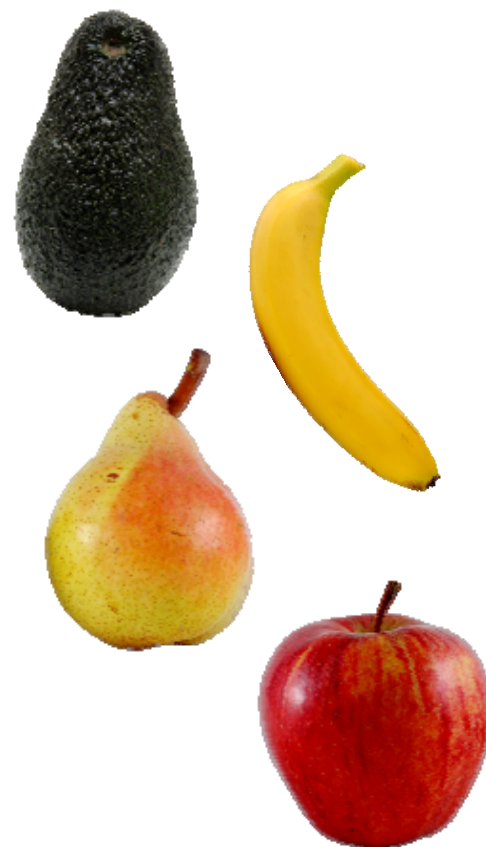
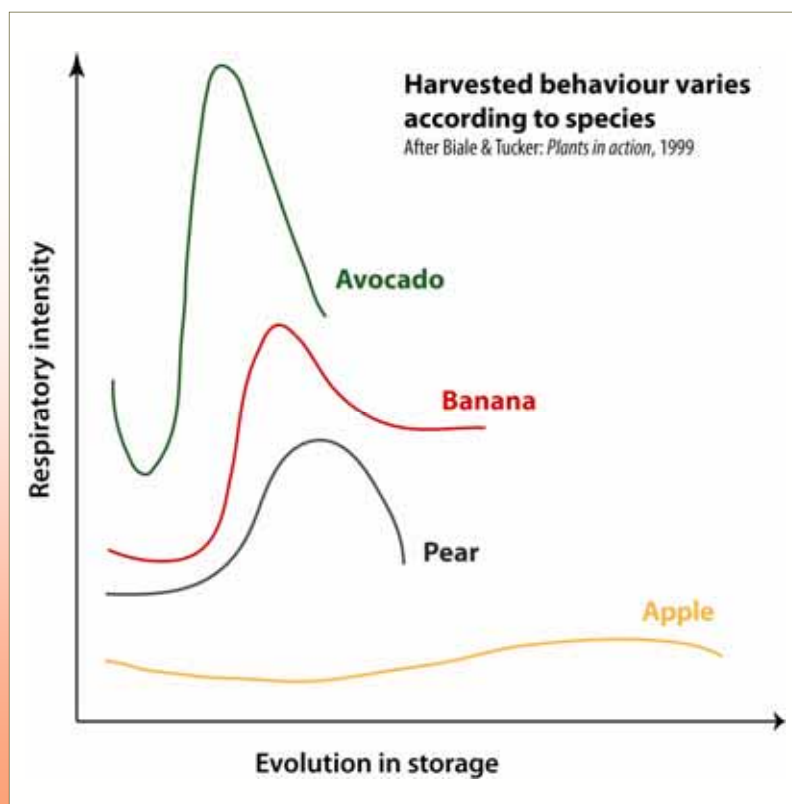
and those of the same fruits once that they have ripened?

Different metabolisms

Talking in terms of the 'sudden' ripening of climacteric fruits is sometimes justified and sometimes excessive. Indeed, the rate of start of ripening is not a constant and depends on the fruit species. A laboratory technique for the comparison of rates of start of ripening consists of measuring respiration intensity. Like every living organism, fruits use oxygen to provide the energy that they require for growth or survival. As there is, in parallel, release of carbon dioxide, this O₂-CO₂ exchange is considered as respiration and therefore provides some information about the metabolism of the fruit. For example, the respiration intensity of fruits is temperature-related. It increases at high temperature and fruits become senescent more rapidly, and decreases when the temperature falls as the rate of senescence is slowed.

Respiration intensity increases distinctly during the 'climacteric', when a climacteric fruit starts to ripen. The intensity and duration of the climacteric vary according to the species, but the pattern is always a wave that may be more or less





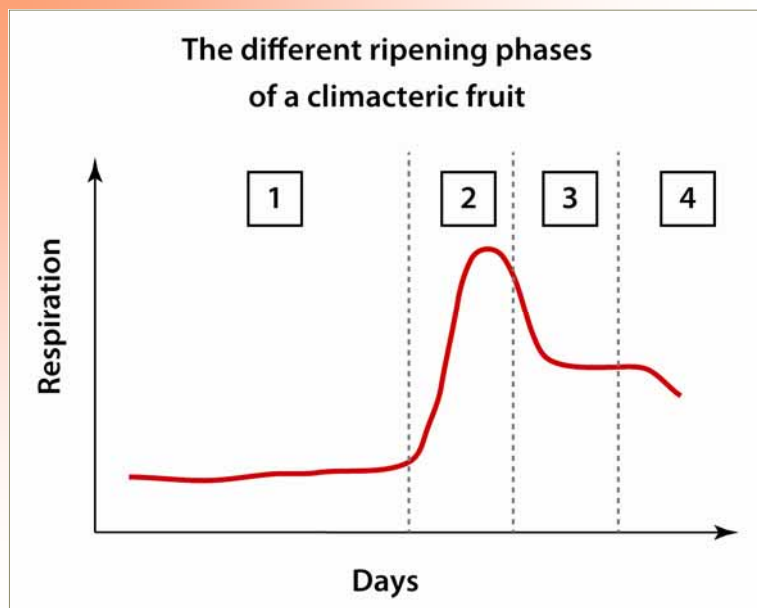
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marked. In contrast, the graph of the respiration of non-climacteric and non-senescent fruits is always a straight line.

Reference to the ethylene status is often made in differentiation between climacteric and non-climacteric fruits. While ethylene is known as a gas (a hydrocarbon), it is also a hormone that is synthesised naturally in plant products and is closely involved in the physiology of plants. It is also known as a ripening and senescence hormone.

When non-climacteric fruits are exposed to ethylene their respiration intensity increases temporarily. When they are returned to an ethylene-free environment, they recover their original respiration rate, showing that ethylene does not have a marked impact on their metabolism.

Climacteric fruits react when exposed to ethylene and their respiration intensity increases. This feature remains when they are returned to ethylene-free conditions as they have started to ripen. 'Exogenous' ethylene thus triggers the ripening of climacteric fruits. This feature is used expertly for bananas in the management of market releases.



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Ripeness

A ripe fruit is one whose seeds are fully developed and is ready to be picked. There is no ambiguity here for non-climacteric fruits. But can climacteric fruits be picked when not fully ripe? They are at a stage of ripeness at which they can be picked but are not ripe for eating. The term 'full mature green' is the most appropriate definition.

The ripening of non-climacteric fruits is often associated with a change in colour (veraison in grapes, loss of chlorophyll in pineapples, etc.). Ripening of climacteric fruits depends on the start of the climacteric. The curves above can therefore be categorised in four successive phases consisting of the following phases:

1. **pre-climacteric:** the fruit is green;
2. **climacteric:** the fruit starts to ripen;
3. **post-climacteric:** the fruit is ripe for consumption;
4. **senescence:** end of ripeness for consumption; the fruit deteriorates.

An untruth: climacteric fruits must be picked green to be able to ripen

It is sometimes stated that a climacteric fruit must be picked green and then allowed to ripen. This deserves a few comments.

Most climacteric fruits ripen very well on the plant. Eating apricots, peaches, nectarines, apples or plums chosen on the tree at the peak of the season is a great pleasure. They are truly ripe! However, fruits left on the plant continue to take up nutrients. In some cases they fill until they burst. This is the case of banana, for example. The peel of fruits on bunches left to ripen on the plant may split. Most avocados are excellent when picked ripe, but the fruit is often described as being unsuitable for ripening on the trees. Chilling is necessary or recommended for the good ripening of some temperate fruits. This is the case of 'Granny Smith' apple and 'Passe Crassane' pear, late varieties that would benefit from cold weather when still on the trees. When these fruits are picked at harvest ripeness rather than consumption ripeness, cold conditions



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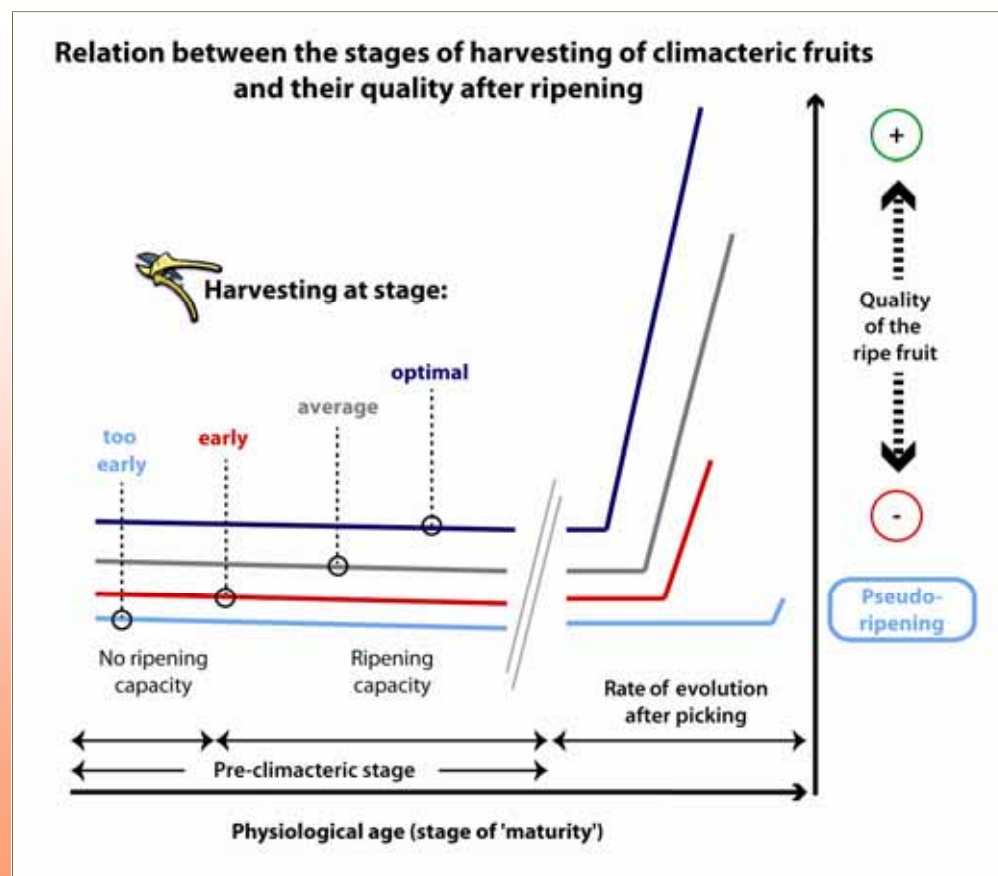
Ripening capacity and the quality of ripe fruits

Market constraints mean that certain climacteric fruits must be picked before they are ripe. So a stage of physiological development must be set (during the pre-climacteric phase) that allows the fruits to ripen after picking. The problem is that of identifying the best moment. This intermediate stage does not exist in nature as fruits are intended to ripen on the plant. From the physiological point of view, it is difficult to identify specific indicators for this stage, in contrast with the ripe stage for which several indicators are easy to read.

must be created artificially for ripening to be completed.

It is therefore an exaggeration to say that a climacteric fruit can only ripen after being picked. First, factors that can modulate the ripening of the fruit must be taken into account for each species or variety. Second, there should be a clear separation between the physiology of the fruit, which can ripen on the plant but without the quality required and sales constraints (fruits ripened after picking).

Possible references for the assessment of an appropriate harvest stage will depend on the types of fruit and the criteria will sometimes be empirical: shape, colour initiation, appearance of the peduncle, etc. These references vary in accuracy and give an average indication of 'intermediate' ripeness. Most of the more pertinent features such as firmness, sugar content and pulp colour are destructive indicators. Fruit batch validation will therefore be performed on the





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basis of sampling—adding the variability between one fruit and another.

Accurate assessment of the 'green mature' is thus a key factor that leads to a final point that is doubtless the most important feature of fruit management: the link between the stage of maturity at picking and the quality of the ripe fruit. As has been mentioned, the fruit on the plant takes up various compounds. A biochemical process takes place during ripening, with the breakdown of compounds and the action of precursors that results in the synthesis of new compounds. However, these changes can only reach the stage of development reached by the fruit at harvesting. The graph on the previous page shows the simulation of the case of a climacteric fruit that must be picked during its pre-climacteric phase, with harvest stages ranging from 'too early' to 'fairly suitable'. After storage, the fruits will be ripened or will ripen unaided in the distribution channels. It is clear that the later the harvest, the smaller the conservation potential and the faster the start of ripening with final quality guaranteed. Market release constraints give the favouring of high conservation potential a certain legitimacy but this affects the final quality of the ripe fruit. Furthermore, in addition to displaying less interesting taste qualities, fruits picked at an early stage are sensitive to storage conditions (susceptibility to cold, faster loss of moisture). These factors may accelerate deterioration and thus affect the final quality of the produce sold.

More of a problem, this quest for fruits with high storage potential may result in the harvesting of fruits that have not yet attained full ripening capacity. They cannot truly ripen. The acid content falls during storage and this slightly improves the sugar:acid ratio and there is logically a loss of firmness caused more by senescence (moisture loss and withering) than by ripening. From the technical point of view, this is more 'pseudo ripening' than true ripening ■

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Lines to be followed...

New approaches in agricultural practices (sustainable systems, mastery of input management, agro-ecological and environmental approaches) will improve the homogeneity of produce.

In parallel, new measurement apparatus such as infrared spectrophotometry (IRS) and the measurement of fruits by compression are non-destructive methods. If it can be shown that it is possible to establish a firm link between the values at a degree of ripeness and as each fruit can be measured, the variability of batches after sorting can be kept to a minimum.

Finally, the increasing mastery of postharvest technology means that know-how can be optimised—logistics, traceability, the performance and regulation of equipment (storage rooms, grading and packing lines, etc.). Batches will thus be better managed.

This progress must not be separated from the concept of the compromise required between storage potential for release on the market and final quality that must match consumer expectations. With the assurance of being able to supply quality produce, the various sectors will have a major asset for conserving and developing their markets.

Wholesale market prices in Europe

February 2012

					EUROPEAN UNION — EURO				
					Germany	Belgium	France	Holland	UK
AVOCADO	Air	TROPICAL	BRAZIL	Box			14.80	13.85	
	Sea	ARAD FINO FUERTE HASS	DOMINICAN REP.	Box			14.00		
			ISRAEL	Box	5.75				
			ISRAEL	Box	5.75				
			ISRAEL	Box	5.75		4.83	6.25	
			PERU	Box			5.13	7.50	
			CHILE	Box		7.80	6.69	9.75	
			DOMINICAN REP.	Box			7.75		
			ISRAEL	Box	8.00		6.75		
			PERU	Box			6.95		7.80
			GREECE	Box					6.00
	Truck	NON DETERMINE PINKERTON HASS	ISRAEL	Box	5.75		4.83	6.25	6.00
			SPAIN	Box	8.00		7.10	8.45	
	BANANA	Air	RED SMALL	ECUADOR	kg				4.88
	Sea	SMALL	COLOMBIA	kg			6.50	5.82	
			ECUADOR	kg		5.67		5.17	
			ECUADOR	kg			1.70	2.01	
CARAMBOLA	Air		MALAYSIA	kg		4.73	4.85	4.57	
CHAYOTE	Sea		COSTA RICA	kg				1.35	
COCONUT	Sea		COSTA RICA	Bag				15.50	
			COTE D'IVOIRE	Bag			13.00	9.25	18.29
			DOMINICAN REP.	Bag				19.00	
			SRI LANKA	Bag				19.00	10.19
			THAILAND	Bag				10.00	
DATE	Sea	MEDJOOL	ISRAEL	kg	7.20		7.50	7.61	6.24
		MOZAFATI NON DETERMINE	MEXICO	kg	9.88				
			IRAN	kg				3.13	
			ISRAEL	kg				3.49	
			TUNISIA	kg				1.89	1.68
DURIAN	Air		THAILAND	kg				7.00	
EDDOE	Sea		CHINA	kg			1.90		
			COSTA RICA	kg				1.67	
GINGER	Sea		BRAZIL	kg	1.15				
			CHINA	kg		2.10	1.50	1.19	1.22
			PERU	kg	1.23				
			THAILAND	kg				1.23	1.48
GUAVA	Air		BRAZIL	kg			4.40	5.47	
KUMQUAT	Air		BRAZIL	kg					3.60
			ISRAEL	kg				3.20	4.80
LIME	Air		MEXICO	kg			3.75		
	Sea		BRAZIL	kg	0.94		1.15	0.94	0.91
			KENYA	kg					0.90
			MEXICO	kg			1.80	1.44	0.89
LITCHI	Sea		SOUTH AFRICA	kg			2.30	2.87	2.85
MANGO	Air	KENT	BRAZIL	kg				4.70	
	Sea	NON DETERMINE NAM DOK MAI PALMER ATKINS KEITT KENT	PERU	kg			5.40	4.70	
			SOUTH AFRICA	kg			5.00		
			THAILAND	kg				10.00	
			THAILAND	kg				7.00	
			BRAZIL	kg	3.96				
			BRAZIL	kg				1.81	
			PERU	kg				1.81	1.36
			BRAZIL	kg					1.56
			PERU	kg		2.00			
			PERU	kg	1.17	2.00	1.59		

					EUROPEAN UNION — EURO				
					Germany	Belgium	France	Holland	UK
MANGOSTEEN	Air		COLOMBIA	kg				7.00	
			INDONESIA	kg				7.40	
			THAILAND	kg		7.50	9.50	7.00	
MANIOC	Sea		COSTA RICA	kg			1.30	1.12	
MELON	Air	CHARENTAIS	DOMINICAN REP.	kg			4.20		
		HONEY DEW	COSTA RICA	kg			0.90		
		CANTALOUPE	BRAZIL	kg	1.20			1.30	1.33
	Sea		HONDURAS	kg				1.10	1.20
		CHARENTAIS	BRAZIL	kg			1.50	2.00	
			COSTA RICA	kg			1.20		
		GALIA	BRAZIL	kg				1.30	1.08
			HONDURAS	kg				1.05	1.20
		HONEY DEW	BRAZIL	kg	0.80			1.25	0.90
			COSTA RICA	kg				0.82	1.08
		PIEL DE SAPO	BRAZIL	kg					0.89
			COSTA RICA	kg					0.92
			PANAMA	kg					0.96
		SEEDLESS WATER	BRAZIL	kg					0.76
		WATERMELON	BRAZIL	kg	0.40			0.65	0.59
			COSTA RICA	kg			0.55	0.60	0.67
			PANAMA	kg					0.58
PAPAYA	Air	FORMOSA	BRAZIL	kg	3.11			3.40	
			THAILAND	kg				4.69	
		NON DETERMINE	BRAZIL	kg	3.43		3.40	3.70	3.99
	Sea		ECUADOR	kg		1.71		1.65	1.88
PASSION FRUIT	Air	NON DETERMINE	COLOMBIA	kg	4.75		5.75	5.55	4.20
			THAILAND	kg			10.00		
		PURPLE	ISRAEL	kg				5.55	
			KENYA	kg				4.75	4.50
			SOUTH AFRICA	kg			6.00	5.55	
			THAILAND	kg				6.75	
			ZIMBABWE	kg				5.00	
		YELLOW	COLOMBIA	kg		8.75		9.35	
PERSIMMON	Sea		ISRAEL	kg	2.62			2.78	3.45
PHYSALIS	Air	PREPACKED	COLOMBIA	kg			8.25	8.33	7.50
	Sea		COLOMBIA	kg	4.89			6.11	
PINEAPPLE	Air	MD-2 NON DETERMINE SMOOTH CAYENNE VICTORIA	GHANA	kg			2.05		
			BENIN	kg			1.95		
			CAMEROON	kg			2.30		
			MAURITIUS	Box		11.75		12.45	
			MAURITIUS	kg			3.30		
			REUNION	kg			3.90		
			SOUTH AFRICA	Box	11.00			11.82	
	Sea	MD-2	COSTA RICA	Box	8.00		7.00		7.80
			COTE D'IVOIRE	kg			1.00		
			DOMINICAN REP.	Box			6.50		
PITAHAYA	Air	RED	ECUADOR	kg				7.60	
			VIET NAM	kg		5.67	8.00	6.52	
		YELLOW	COLOMBIA	kg			8.00		
PLANTAIN	Sea		COLOMBIA	kg			1.05	0.86	
			ECUADOR	kg			0.95		
			JAMAICA	kg					1.20
RAMBUTAN	Air		VIET NAM	kg		7.00	9.50	7.97	
SWEET POTATO	Sea		EGYPT	kg			0.80		
			HONDURAS	kg				1.35	
			ISRAEL	kg	1.08				
TAMARILLO	Air		COLOMBIA	kg		7.10		7.00	
YAM	Sea		BRAZIL	kg					1.08
			COTE D'IVOIRE	kg				1.13	
			GHANA	kg			1.33	1.11	

Note: according to grade

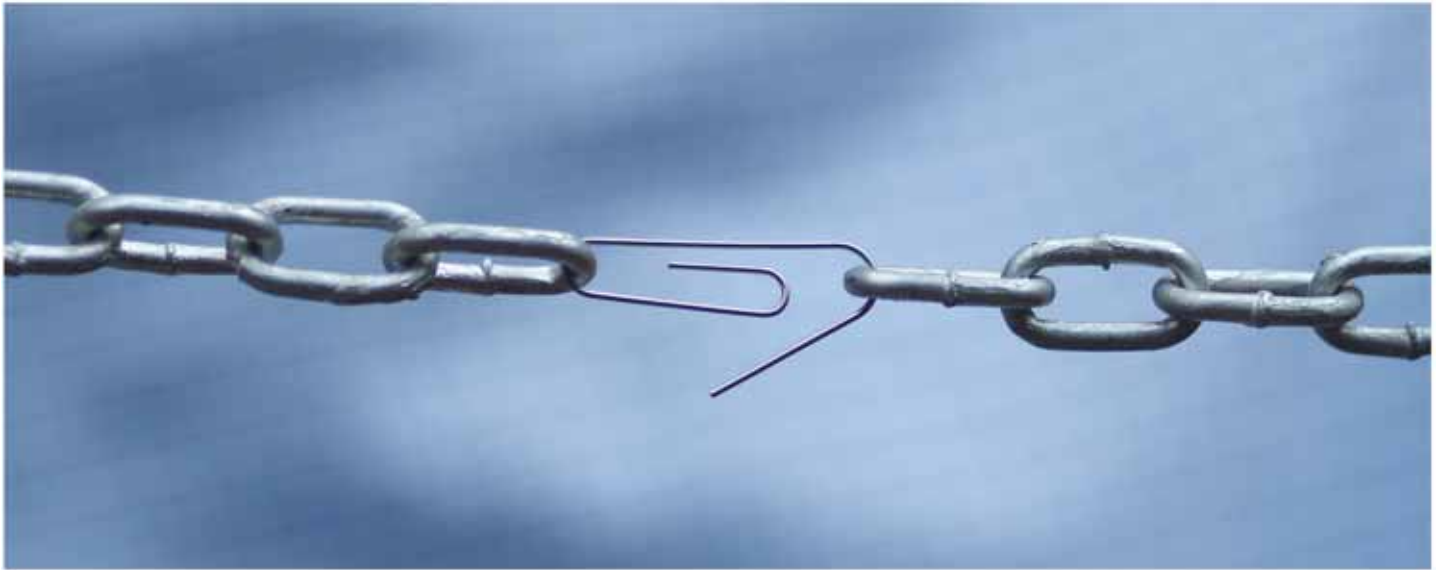
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