May 2012 - No. 200

FRuiTROP

English edition

Banane
DE GUADELOUPE
& MARTINIQUE

La banane préférée des français* est le fruit de l'agriculture durable.
A ceux qui disent qu'une banane, c'est une banane, les 750 producteurs de Guadeloupe et Martinique répondent que choisir leur banane, c'est choisir une saveur liée à un terroir unique et préférer une agriculture qui préserve l'environnement, respecte les Hommes et pérennise l'économie locale.
Un vrai savoir-faire de nos régions dont nous pouvons tous être fiers.

*Etude Institut Ginger en mai 2011 auprès de 1003 individus de 15 ans et plus, échantillon représentatif de la population française.

LE BON GOÛT DE NOS RÉGIONS

www.bananeguadeloupemartinique.com

ORIGINE GUADELOUPE QUALITÉ

ORIGINE MARTINIQUE QUALITÉ

CAMPAGNE CO-FINANCÉE PAR L'UNION EUROPÉENNE ET L'OFFICE DE DÉVELOPPEMENT DE L'ÉCONOMIE AGRICOLE D'OUTRE-MER

ODEADOM

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE
MINISTÈRE DE L'AGRICULTURE DE L'ALIMENTATION DE LA PÊCHE DE LA RURALITÉ ET DE L'AMÉNAGEMENT DU TERRITOIRE

No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11.....200

*March 1994 - May 2012! Eighteen years! 200 carefully produced issues, a host of erudite articles about everything that fruits on our planet, masses of information carefully processed with scrupulous professionalism about the produce that we like so much and that is valuable for our health. A mine of documentary resources on production methods and chains, processing industries and the geography and economics of exports. An ocean of figures, ratios, statistics, observations and solid knowledge of the everyday news around the markets and world production volumes! This is **FruiTrop**! A good looking journal too, rich in appetising photographs with gourmet colours! A journal overflowing with never-failing enthusiasm—that of a small team led with passion under the benevolent eye of Hubert de Bon from the days of IRFA to that of CIRAD, by Denis Loeillet, Françoise Fajac and Alain Guyot, with the translator Simon Barnard for the English-language version, joined later by Catherine Sanchez, Eric Imbert, Caroline Dawson and the contributors Pierre Gerbaud, Cecilia Celeyrette, Thierry Paqui, Richard Bright and others. This excellent journal read by 15,000 professionals in 50 countries has now come of age. Eighteen years old and the 200th issue! A fine success, a good example to follow and to continue. Happy anniversary **FruiTrop** and best wishes for the future!*

***Gérard Matheron**,*
President Managing Director of CIRAD

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FRuiTROP

Contents

Banana

April 2012

April this year was not the frequently observed period of worsening and break in the trend in the banana trade. Nevertheless, demand was not particularly dynamic even though seasonal fruits were not strongly present and weather conditions were almost autumnal and fairly favourable for bananas. Sales seem to have suffered from the somewhat high prices and the often uneven quality of produce from certain sources. They were particularly slow in Southern Europe and smaller than normal in Germany. However supply was somewhat light. But arrivals from Africa were strong, especially in comparison with last year when political troubles had limited Ivorian exports. Likewise, shipments from the French West Indies gained momentum with the seasonal increase in production. Deliveries of dollar bananas displayed a deficit in spite of the return to average of shipments from Colombia after a light month of March. Weather conditions weighed on Ecuadorian productivity and exports were markedly short to all markets. Prices thus remained higher than average in the EU, especially in Northern and Eastern Europe. In contrast, the market remained very difficult in Spain even though arrivals from the Canaries were moderate.

© Régis Domergue

■ Strengthening of sanitary controls of banana against a background of a territorial quarrel in China. Are the Philippines losing their fourth-largest market? The strengthening of sanitary controls imposed since the beginning of March by the Chinese authorities is causing serious problems for Filipino exporters, whose goods are blocked in Chinese ports. It would seem, unofficially, that the Filipino banana industry is paying the price for the reappearance of a territorial dispute between the Philippines and China that goes back for more than thirty years; it concerns the Spratly Islands that have rich oil and gas reserves. The Philippines are one of the three largest banana exporters in the world, shipping some 2 million tonnes per year, of which 200 000 to 250 000 t goes to China.

Source: Reefer Trends

■ 'Prata' banana from Minas Gerais in Brazil soon to go for the world market. According to the chairman of the producers association in Minas Gerais, the export aid programme shortly to be set up by the federal authorities should enable 'Prata' to gain a foothold in the European market in 2013. Luis Raymondo de Souza considers that the longer postharvest life of the fruit in comparison with 'Cavendish' is a major asset. Meanwhile, producers in Sao Paulo state are putting pressure on the federal government to block the discussion started by President Correa in summer 2011 concerning the opening of the Brazilian market to Ecuadorean bananas. O tempora o mores...

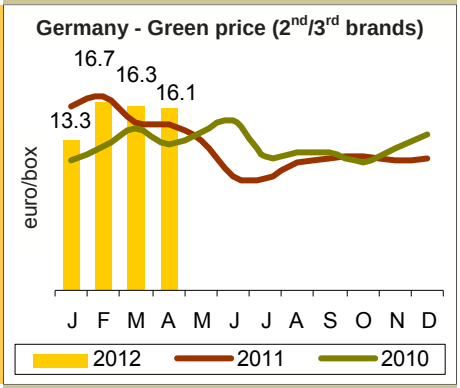
Source: FoodNews

© Clio Delanoue

NORTHERN EUROPE — IMPORT PRICE

April 2012 euro/box	Comparison	
	previous month	average for last 2 years
16.10	- 1%	+ 16%

EUROPE

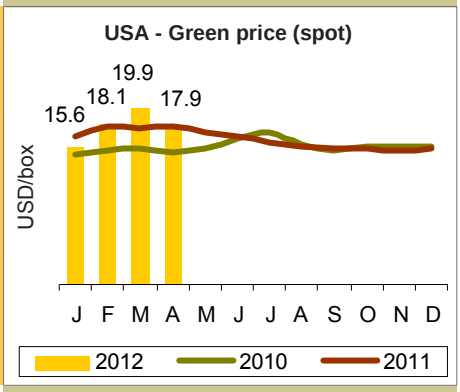


EUROPE — RETAIL PRICE

Country	April 2012		Comparison	
	type	euro/kg	March 2012	average for last 2 years
France	normal	1.60	+ 4%	+ 2%
	special offer	1.36	+ 10%	- 1%
Germany	normal	1.37	- 2%	+ 3%
	discount	1.25	+ 1%	+ 8%
UK (£/kg)	packed	1.24	+ 2%	+ 3%
	loose	0.70	- 2%	- 16%
Spain	plátano	1.74	- 4%	- 7%
	banano	1.39	0%	- 4%

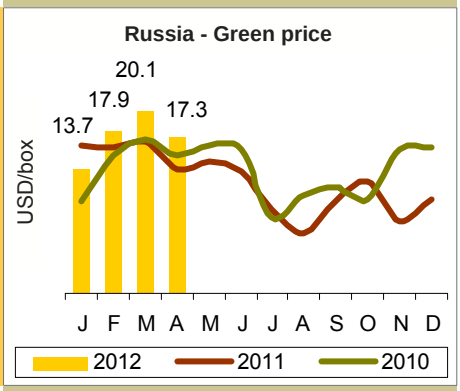
Banana

UNITED STATES



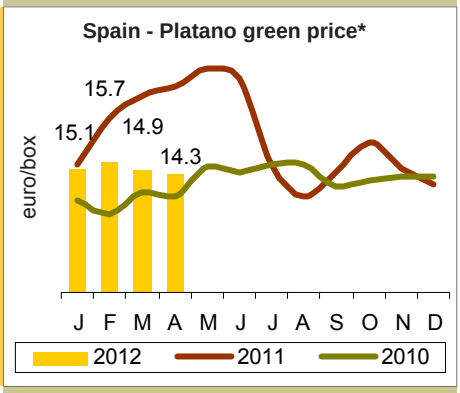
USA — IMPORT PRICE		
April 2012 USD/box	Comparison	
	previous month	average for last 2 years
17.90	- 10%	+ 9%

RUSSIA



RUSSIA — IMPORT PRICE		
April 2012 USD/box	Comparison	
	previous month	average for last 2 years
17.90	- 10%	+ 9%

CANARIES



CANARIES — IMPORT PRICE*		
April 2012 euro/box	Comparison	
	previous month	average for last 2 years
14.30	- 4%	- 21%

* équivalent colis 18.5 kg

■ Banana consumption in the first two months of 2012: stable in the EU, rising in the USA. Although it is often said that demand elasticity is nil as regards the retail price as bananas are the cheapest reference in the fruit and vegetable department, it has to be observed that it is strong with regard to the import price. The European market has demonstrated this once again. While supply is fairly strongly constrained by meteorological problems, especially in Ecuador, the green price is behaving very well. CIRAD's monitoring of the volumes sold in the EU shows that although imports in January 2012 were 2% higher than the 2009-10-11 three-year average, they fell by 2% in February. At the same time, the import price in Germany (source: CIRAD) increased by 13% in January and by 25% in February (in comparison with 2009-10-11)! Adding European production to this makes the first two months positive with total supply of some 850 000 t, that is to say 1% more than the three-year average. The European production heavyweights conserved their usual levels after much disturbance by damage of all kinds at the end of 2010 and beginning of 2011. As regards dollar banana imports, Ecuador is still struggling (- 8 000 t in comparison with 2011) but the volume shortfall was amply compensated by Costa Rica (+ 13 000 t) while the performance in Colombia was stable. The ACP sources came out quite well: + 1% during the first two months of the year. Unusually, Cameroon (+ 21%), Belize (+ 22%) and Surinam (+ 66%) were the driving force of the group and not the Dominican Republic (- 4 000 t, that is to say - 9%). But these nice results should be seen in relative terms as the beginning of 2011 (the year used for comparison) was very difficult for these sources.

The consumption trend was very good in the United States during the first two months of 2012 at 620 000 t. This was a 4% increase thanks to a substantial increase in direct imports (+ 3%) and a strong decrease in re-exports to Canada (- 4%). Guatemala, Honduras and Colombia displayed growth once again with + 22%, + 43% and + 13% respectively. Ecuador (- 25%) and Costa Rica (- 12%) dragged along behind. The price trend was very good in the United States (USD 17.6 per box in comparison with 17.4 in 2011 and 15 in 2010), confirming that the US market is light years from the EU market and that there is always scope for increasing the green price without having a negative impact on demand.

Source: CIRAD

Banana - January to February 2012 (provisional)				
tonnes	2010	2011	2012	Variation 2012/2011
EU-27 — Total supply	850 331	824 579	848 242	+ 3%
Total imports, incl.	754 534	737 901	746 812	+ 1%
MFN	594 960	594 624	602 280	+ 1%
ACP Africa	92 224	80 483	77 568	- 4%
ACP others	67 349	62 794	66 965	+ 7%
Total EU, incl.	95 797	86 678	101 430	+ 17%
Martinique	26 223	16 542	25 891	+ 57%
Guadeloupe	7 735	6 576	9 537	+ 45%
Canaries	58 804	60 053	62 495	+ 4%
USA — Imports	658 039	677 928	700 288	+ 3%
Re-exports	80 862	82 514	79 546	- 4%
Net supply	577 177	595 414	620 742	+ 4%

EU sources: CIRAD, EUROSTAT (except EU production) / USA source: US customs

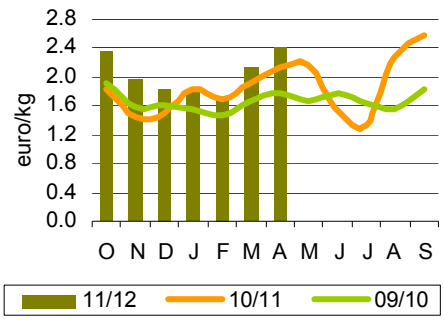
EUROPE — IMPORTED VOLUMES — APRIL 2012			
Origin	Comparison		
	March 2012	April 2011	cumulated total 2012 compared to 2011
French West Indies	↗	+ 22 %	+ 29 %
Cameroon/Ghana	↗	+ 83 %	+ 26 %
Surinam	=	- 12 %	+ 24 %
Canaries	↘	+ 16 %	+ 8 %
Dollar:			
Ecuador	↘	- 17 %	- 1 %
Colombia*	↗	+ 23 %	+ 3 %
Costa Rica	=	nd	nd

Estimated thanks to professional sources / * total all destinations

Avocado

April 2012

The 'Hass' avocado market remained exceptional during the first half of the month. Easter promotion operations continued to boost sales at the beginning of the month while supply remained moderate (good volumes from Israel but a marked tailing off of Spain and an increase in volumes from Peru only at the end of the month). Prices remained very firm in this context at a level rarely observed even during this usually favourable period. The market then gradually worsened. Demand slowed noticeably because prices were dissuasive. Supply increased with the end of the season for the winter sources being more than compensated by the early development of southern hemisphere sources. The market for green varieties did not benefit from this situation at all, even during the first half of the month. Demand was very slow in spite of the shortage of 'Hass' and the large volumes from South Africa brought prices down to a level much lower than average.



PRICE

Varieties	Average monthly price euro/box	Comparison with the last 2 years
Green	5.25-5.75	- 9%
Hass	10.50-11.00	+ 24%

VOLUMES

Varieties	Comparison	
	previous month	average for last 2 years
Green	↗	+ 21%
Hass	↗	+ 9%

VOLUMES

Source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
	previous month	average for last 2 years		
South Africa	↗↗	+ 152%	Very rapid start to the season and large volumes of 'Fuerte' during the second third of the month. Supply of 'Hass' remained limited.	+ 152%
Israel	↘	+ 40%	Volumes of 'Hass' distinctly greater than average in spite of a noticeable decrease during the second fortnight. Moderate volumes of green varieties.	+ 4%
Spain	↘	- 28%	Volumes of 'Hass' distinctly smaller than average following a collapse of supply after Easter.	- 10%
Kenya	↗	- 30%	Arrivals distinctly smaller than average. Early development of 'Hass' but a distinct decrease in arrivals of 'Fuerte'.	- 18%
Peru	↗	+ 29%	Early start of the 'Hass' season and fairly substantial volumes from mid-April onwards. Very limited arrivals of green varieties.	+ 15%

■ **The Brazilian market opens the door to Chilean avocado.** The decree authorising the access of Chilean avocadoes to the entire territory of the federation was published in the official journal on 20 April 2012. The fruits must be shipped with a phytosanitary certificate guaranteeing the absence of *Pseudococcus calceolariae* (mealybug) and *Brevipalpus chilensis* (a spider mite). Chilean avocados are exempted from customs dues, in contrast with those from other countries that are subject to a 10% tax.

Source: InfoHass

■ **Mexican avocado: record 2011-12 season.** This is forecast by the president of APEAM, the association grouping Michoacán avocado professionals. He states that shipments from July 2011 to June 2012 should total 450 000 t, almost 50 000 t more than the record set in the 2008-09 season. Avocado is thus consolidating its position as the fourth most exported produce in Mexico. Once again, the increase in shipments to the US market accounts for most of the growth. The 350 000 t forecast would be 40 000 t more than the previous peak in 2008-09. Exports to other markets around the world should hold at about 100 000 t, a figure similar to that of preceding seasons. The collapse of the European market would seem to be increasingly marked. Shipments might probably not even match the 3 000 t recorded in 2010-11, whereas Mexico was still the key winter supplier in the mid-2000s.

Source: APEAM

■ **Polyolefin bags to extend avocado shelf life.** A plastic bag developed by a researcher at the Pontificia Universidad Católica de Valparaíso should double the post-harvest life of avocado. The innovation is based on the selective permeability to gases of polyolefin (a polymer produced from alkenes such as ethylene). Another advantage is that conservation can be conducted at higher temperatures than those currently used and with more limited weight loss by drying. The procedure is being patented and still in the test phase.

Source: InfoHass

Avocado — Mexico — Exports

tonnes	2006-07	2007-08	2008-09	2009-10	2010-11
Total	**256 236**	**308 368**	**400 987**	**370 927**	**364 457**
US	172 132	231 740	315 620	274 329	283 814
Japan	22 799	23 588	25 330	34 473	35 159
Canada	16 586	18 143	20 474	25 435	22 687
EU	8 940	12 445	13 434	10 807	3 155
Others	35 779	22 452	26 128	25 883	19 642

Sources: Mexican customs, InfoHass

Pineapple

April 2012

In April, the pineapple market was different before and after Easter. Before Easter, the trend set in March continued and supply was strongly disturbed. Thus few operators received the fruits they were waiting for before Easter weekend. But they did not seek to profit from the situation, keeping in mind the management of stocks after Easter. As expected, demand was much weaker after the holiday but the worst was avoided as, unexpectedly, supply decreased. Distinction was then made between two types of market: those with strong domestic demand that could handle the volumes released and those on which sluggish domestic demand contributed to the accumulation of stocks. Demand worsened considerably at the end of the month as a result of school holidays and bad weather, conditions that are not propitious for recovery.

Supply of 'Smooth Cayenne' was still very small and sold well as long as the fruits displayed colour and quality. The decrease in prices observed at the end of the month resulted from a dip in demand and also more uneven quality.

The situation was good on the air pineapple market although distinction could easily be made between two periods. In the first fortnight, with an increase in supply for Easter, the market was overloaded and sales more difficult. Some transactions were even conducted on a price after sale basis to clear the market. In the second half of the month, overall supply decreased strongly, especially from Benin, and demand perked up. Sales of 'Sugarloaf' pineapples that were also available in limited quantities were completed at EUR 1.90 to 2.05 per kg.

Supply of 'Victoria' increased distinctly before Easter and sales were not particularly good. The strong decrease in supply from Réunion after Easter did not benefit Mauritian fruits whose quality was more uneven.

EUROPE

PINEAPPLE — IMPORT PRICE

Weeks 14 to 17	Min	Max
By air (euro/kg)		
Smooth Cayenne	1.70	1.95
Victoria	3.00	3.60
By sea (euro/box)		
Smooth Cayenne	6.00	8.50
Sweet	5.50	9.50

Mango

April 2012

April was a turning-point in supply of mangoes to Europe. Shipments from Peru, which had dominated the market since the beginning of the year, decreased rapidly and were gradually replaced by a larger number of suppliers. The season started slowly in West African countries with shipments consisting mainly of limited quantities of 'Amélie'. Shipments from Brazil increased, as did those from Central American sources such as Costa Rica. The diversity of sources, a broader range of varieties and greater variation in quality made sales more complex. Market conditions were comparatively firm at the beginning of the month in readiness for Easter when consumption is traditionally greater. However, considerable price differences were observed for Peruvian fruits for reasons of uneven quality. Demand weakened after Easter and the market started to slide lower.

Dwindling demand and more varied supply caused a fall in the price of mangoes shipped by sea. This was more distinct for fruits from Africa as 'Amélie' is more difficult to sell. The first 'Kent' from West Africa came on sale at the end of the month at high prices, but these soon fell. Meanwhile, steady supplies arrived from Brazil and were sold mainly in Northern Europe.

Mangoes shipped by air from Peru fetched high prices at the beginning of the month thanks to strong demand at Easter. They then weakened because of decreased demand and the development of supplies from competing sources (West Africa and Costa Rica). Large deliveries from Côte d'Ivoire in the second half of the month also disturbed the market, bringing down prices to varying degrees according to variety and quality. Given the large volumes arriving from Côte d'Ivoire, it became more difficult to find takers for fruits from Mali, Burkina Faso and Costa Rica.

MANGO — ARRIVALS (estimates) Tonnes

Weeks 2012	14	15	16	17
By air				
Peru	140	80	30	10
Mali	20	50	50	80
Burkina Faso	10	20	30	40
Côte d'Ivoire	-	20	80	100
Costa Rica	5	5	5	5
By sea				
Brazil	1 740	1 740	1 400	1 400
Peru	2 240	2 420	1 380	220
Côte d'Ivoire	-	-	-	1 100

EUROPE

MANGO — IMPORT PRICE ON THE FRENCH MARKET — Euro

Weeks 2012		14	15	16	17	Average April 2012	Average April 2011
By air (kg)							
Peru	Kent	4.00-5.00	4.50	4.00-5.00	4.00	4.10-4.60	3.10-3.90
Mali	Amélie	2.80-3.00	2.80	2.60-2.80	2.50-2.80	2.70-2.85	2.40-2.50
Mali	Valencia	3.50-3.80	3.00-3.50	2.50-3.50	2.50-3.00	2.90-3.45	2.45-3.10
Mali	Kent	4.00-4.50	3.50-4.50	3.00-3.80	3.00-3.50	3.40-4.05	3.00-3.50
Burkina Faso	Amélie	2.80	2.50-2.80	2.50	2.50	2.60-2.65	2.00-2.15
Burkina Faso	Kent	4.00-4.50	4.00	3.50-3.60	3.00-3.50	3.60-3.90	2.65-3.10
Costa Rica	Cavallini	4.00-4.50	4.00	4.00-4.50	4.00-4.50	4.00-4.40	3.50-4.05
Côte d'Ivoire	Kent	-	-	4.50-4.80	4.00-4.50	4.25-4.65	3.50-4.25
By sea (box)							
Peru	Kent	4.00-6.00	4.00-5.50	4.00-5.00	4.00-5.00	4.00-5.40	4.90-6.35
Côte d'Ivoire	Amélie	5.00-5.50	5.00-5.50	3.00-4.00	3.00-4.00	4.00-4.75	nd
Côte d'Ivoire	Kent	-	-	-	6.00	6.00	nd

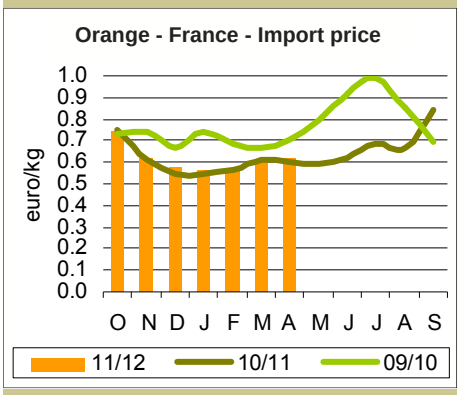
PINEAPPLE — IMPORT PRICE IN FRANCE — MAIN ORIGINS

Weeks 2012		14	15	16	17
By air (euro/kg)					
Smooth Cayenne	Benin	1.80-1.90	1.80-1.85	-	1.80-1.90
	Cameroon	1.70-1.90	1.70-1.85	1.80-1.95	1.70-1.90
	Ghana	1.75-1.90	1.75-1.85	1.80-1.85	1.80-1.85
	Côte d'Ivoire	1.75-1.80	1.75-1.85	-	-
Victoria	Réunion	3.00-3.50	3.00-3.50	3.50	3.50
	Mauritius	3.00-3.30	3.00-3.60	3.00-3.40	3.00
By sea (euro/box)					
Smooth Cayenne	Côte d'Ivoire	8.00-8.50	8.00-8.50	8.00-8.50	6.00-8.00
Sweet	Côte d'Ivoire	7.50-9.50	7.50-9.00	7.00-8.50	6.50-8.50
	Cameroon	7.50-9.50	7.50-9.00	7.00-8.50	6.50-8.50
	Ghana	7.50-9.50	7.50-9.00	7.00-8.50	6.50-8.50
	Costa Rica	7.50-8.50	7.00-8.00	5.50-7.50	6.00-7.50

Orange

April 2012

The market remained difficult, especially for dessert oranges. Supply of 'Lanelate' from Spain decreased, with the season beginning to end early at the end of the month. But prices had not risen from the very low level reached in March at both import and production stages. The Spanish 'Valencia' season started very gradually in this context and prices held at the level of those of the previous season. Moroccan exporters concentrated on the Russian market because of the price levels in the EU.



PRICE

Type	Average monthly price euro/box 15 kg	Comparison with average for last 2 years
Dessert oranges	9.00-9.50	- 8%
Juice oranges	9.00-9.50	0%

VOLUMES

Type	Comparison	
	previous month	average for last 2 years
Dessert oranges	=↘	- 8%
Juice oranges	↗	- 8%

VOLUMES

Varieties by source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
	previous month	average for last 2 years		
Navelate Group from Spain	=↘	- 8%	Supply slightly smaller than average because of a fairly early end to the season.	+ 1%
Valencia Late from Spain	↗↗	+ 2%	First significant volumes at the beginning of the month and then a comparatively slow increase.	- 23%
Maroc Late from Morocco	=	- 22%	Very limited arrivals in the EU because of market conditions. Exports concentrated on Russia.	- 41%

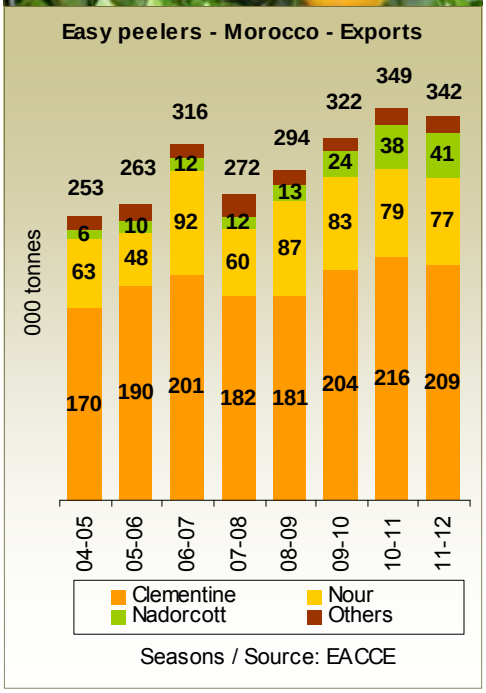
■ A Brazilian inter-branch association taking shape? Consecitrus seems to be coming into existence after years of discussion. Draft statutes were signed on 18 April by juice industry professionals (Citrus BR) and one of the main producers' associations (SRB). Christian Lohbauer, Chairman of Citrus BR, considers that this is simply a restructuring of Brazilian citrus production. The aim of the new structure, that remains to be approved by the Brazilian antitrust commission, is to provide a joint response to problems of sales, distribution of value-added (establishment of a reference price) and the sanitary challenges faced by professionals.

Source: FoodNews

■ The 2011-12 Moroccan easy peeler season: good volumes in spite of a slight dip. Exports will not match the record of nearly 350 000 t set in 2010-11. However, the 342 000 t shipped make the season the second largest by volume in the history of Moroccan citrus growing. 'Fine' clementine continued to form nearly two-thirds of shipments. The increase in the area under 'Nadorcott' was seen once again, with exports exceeding 40 000 t for the first time. The export potential of the variety should exceed 100 000 t in four or five years and the siting of groves in isolated places should guarantee the seedless feature. The season also confirmed the stagnation of the production of 'Nour'. Its quality is good but it is stuck between 'Fine' Clementine and 'Nadorcott'.

Source: CIRAD

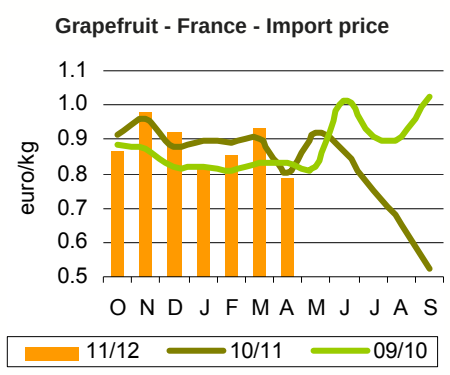
© Eric Imbert

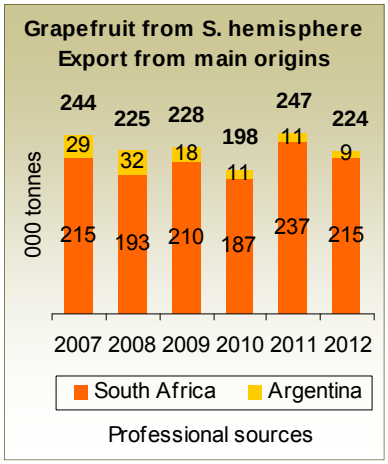


Grapefruit

April 2012

The market was merely satisfactory in spite of marked under-supply. In contrast with other years, the Florida season finished very early—at the beginning of the month—with high prices. Sales of Mediterranean grapefruit accelerated in this favourable context. However, demand was only average, especially as the quality of some batches was sometimes up to standard. Supply was fairly good in spite of the slowing down of the Spanish season. The return of Turkey that had started in March was confirmed. In addition, Israeli exporters still held significant volumes and speeded up the rate of shipment. Prices firmed but did not reach record levels. Corsican grapefruit continued to benefit from good demand on a niche market.





■ A smaller grapefruit season than in 2011. The downward trend in Argentinian grapefruit production should be confirmed once again this season. Inflation weighs on production costs, exchange rates are increasingly unfavourable and international demand is running out of steam. As a result, land under grapefruit is still being switched to soya or sugar cane. The export potential should be less than 10 000 t this season, especially as fruit size seems limited as a result of drought in the Salta region. This means that South African supremacy on the world summer grapefruit market should increase further. As a result of alternate bearing, the harvest should be smaller than last season's when exports approached the 2005 record but should still be larger than average. However, shipments to the EU could be fairly moderate during the first part of the season as fruit size is a bit small and the Japanese market is extremely open after the early end of the Florida season.

Sources: USDA, Freshfel

■ South Africa is broadening its range of citrus exports to South Korea. After oranges in 2009, imports of lemons and grapefruit from South Africa should be authorised in South Korea this season. With a population of nearly 50 million, the country imported some 160 000 t of citrus in 2011, mainly during the winter.

Source: Reefer Trends


© Eric Imbert

PRICE

Type	Average monthly price euro/box 17 kg box eq.	Comparison with average for last 2 years
Tropical	19.00-20.00	+ 21%
Mediterranean	12.00-13.00	+ 15%

VOLUMES

Type	Comparison	
	previous month	average for last 2 years
Tropical	↘↘	- 87%
Mediterranean	↗	+ 40%

Citrus — South Korea — Imports			
tonnes	2009	2010	2011
Orange, incl.	71 221	110 055	141 961
USA	65 581	104 908	135 960
Chile	2 412	3 229	3 760
South Africa	2 760	1 657	1 638
Lemon, incl.	5 147	5 631	7 398
USA	4 422	4 665	6 356
Grapefruit, incl.	5 724	7 861	9 337
USA	4 455	7 084	8 671
Total	**82 092**	**123 547**	**158 696**

Source: COMTRADE

VOLUMES

Source	Comparison		Observations	Cumulated total / cumulated average for last 2 years
	previous month	average for last 2 years		
Florida	↘↘	- 87%	Very early end of arrivals in both the European Union and Japan. Volumes transferred to the domestic market. Hardly any supply in April.	- 15%
Spain	↘↘	na	Very moderate volumes throughout the month.	na
Israel	=↗	+ 28%	Above average supply, especially during the first half of the month.	- 13%
Turkey	↗	+ 90%	Extension of the season and shipments distinctly larger than average, especially at the end of the month to Germany, the Netherlands and France.	+ 4%

Sea freight

April 2012

During the early part of April the supply of reefer capacity increased as vessels exited the Chilean programmes while at the same time there was no material change in demand. As a result the charter market TCE average slipped back to pre-'peak' levels. Towards the end of the month greater chartering activity cleared the backlog of open tonnage paving the way for what is already shaping up to be a relatively strong off-season market.

The TCE average of 34c/cbft for April is not, surprisingly, the lowest recorded for the month - that dubious distinction is held by April 2009 and occurred after a March that averaged 95c/cbft TCE. However, after a March that this year averaged 53c/cbft the charter market has witnessed its worst ever 12-consecutive-month-run average of less than 30c/cbft!

With the container lines now absorbing such a large share of the Ecuadorian banana business and CSAV limiting its Spot chartering activity for seasonal Chilean fruit cargoes the chances of a repeat or return of the historical seasonal peak/trough pattern for reefer capacity are surely slim. No longer, for example, will the arrival of Easter be a determining factor in price expectations. Meanwhile the one factor that could have 'saved' this year's season, the illex argentinus catch in the South Atlantic, appears to have migrated permanently to safer waters.

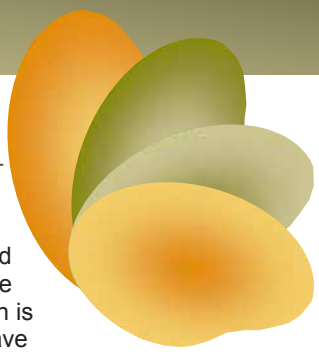
Ecuadorian banana exports have historically been the principal driver behind the Spot market – but the change in structure of demand has forced both reefer operators and charterers to rethink their strategies. There has been a seismic shift in the business made worse for operators of older units this year by the high cost of fuel. The combination has finally forced the industry to re-position itself – and it shouldn't be long before it discovers how successful it has been.

There is certainly a belief circulating among owners and operators that the worst may now be over: theoretically the forecast 50-to-60 units to be demolished this year will be sufficient to rebalance capacity supply with demand on the condition, of course, that the reefers can hold on to what they have.

■ **The European litchi market in March and April 2012.** Litchis were practically totally absent from the European markets in March. The Thai export season did not start until the last week of the month, with fruits shipped by air only. They were sold throughout April, with deliveries being stepped up slightly in the second half of the month. Prices remained fairly stable throughout the period. The Netherlands was the main destination for Thai fruits, as in preceding seasons. Given the quantities arriving, supply of the other European markets seems to have been limited.

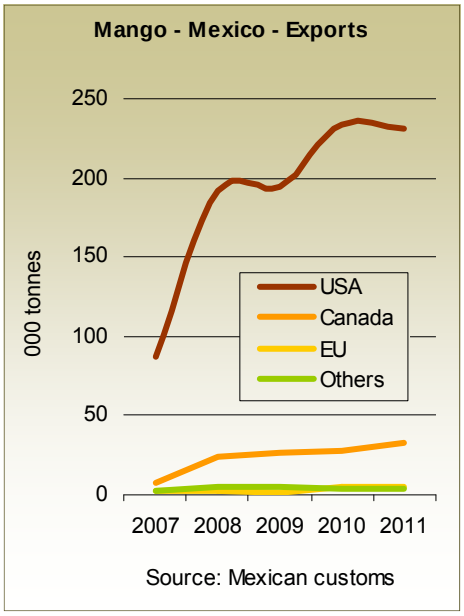
Source: Pierre Gerbaud

Litchi from Thailand by air Netherlands — Import price				
Weeks 2012	14	15	16	17
euro/kg	11.00	10.00	10.00	10.00



■ **Mexican mango plantations hit by wind.** A gale at the end of March in the Oaxaca region is reported to have caused serious damage to 'Tommy Atkins' and 'Ataulfo' mangoes. With a planted area of about 18 000 ha, this Mexican state accounts for about 10% of national production. Mexico exported slightly more than 270 000 t of mangoes in 2011, practically all shipped to Canada and the United States. Shipments to Europe totalled about 5 000 t in the last two seasons.

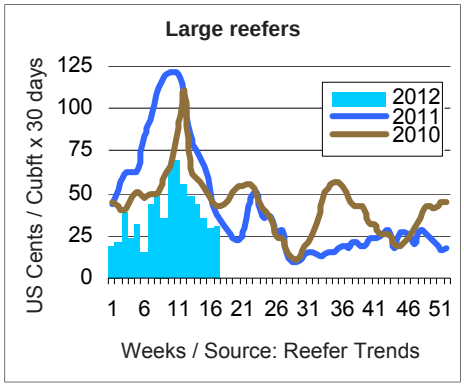
Source: Reefer Trends

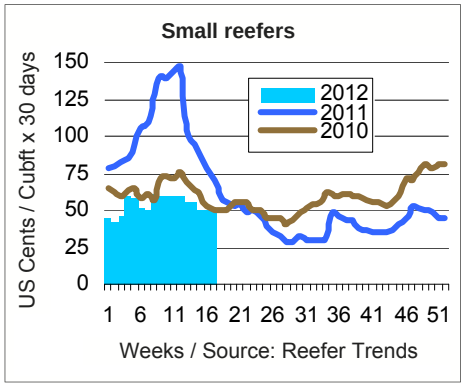


REEFER

MONTHLY SPOT AVERAGE

US$cents/cubic foot x 30 days	Large reefers	Small reefers
April 2012	34	51
April 2011	56	78
April 2010	48	53





European stone fruit season

First information about the 2012 harvest

Stone fruit harvest forecasts were announced at the Medfel in Perpignan from 24 to 26 April 2012. They confirm fairly good production of peaches and nectarines (2.99 million tonnes, the equivalent of the 2011 score and 4% more than the 3-year average) in spite of the frosts in February that affected early varieties. Strong potential is forecast for apricot (593 600 t, + 21% on 2011 and + 15% on the 3-year average) after the marked deficit in 2011 in most Mediterranean countries.

Peaches and nectarine: return to normal in June

The icy weather in all countries around the Mediterranean in February 2012 has affected the peach and nectarines season. Although the classic varieties were still in their dormant period, varieties with little need for cold planted in particular in the Maghreb and southern Spain were in full blossom and strongly affected. Losses were substantial in Morocco and southern Spain. In comparison with 2011, production could be down by 10% in Andalusia, 20% in Valencia and 27% in Murcia. Likewise, cold weather caused significant losses in the Piedmont in Italy (- 17%).

However, European potential should be good and even greater than usual from June onwards. This is the result of the increase in planted areas in recent years and especially the planting of flat fruit varieties in Spain (97 000 t expected), improved yields (modern varieties) and cultural techniques, especially in the zones that were hitherto the least well organised. Production should be at last similar to that of 2011 in Spain (888 000 t) and Italy (1.5 million tonnes) and return to a good level in Greece (305 000 t, + 5% in comparison with 2011). Only France should display a slight decrease as a result of grubbing up because of Sharka (290 710 t, 3% less than in 2011 and 9% less than the 3-year average).

Apricot: positive alternate bearing

Apricot should display good potential from the beginning of the season in contrast with the shortfall observed last year, in particular during the first part of the season. Production could reach nearly 105 000 t in Spain in 2012 in spite of the grubbing up of the 'Bulida' variety in Murcia where flat peaches and grapes are now being planted. However, the recovery of production is mainly the result of the replanting of orchards with more modern varieties with higher yields, but this is now mainly happening in more northern zones such as Aragon and Castile. Potential is also increasing in Italy where the harvest forecast totals 245 270 t (+ 8% on 2011 and + 8% on the 3-year average); orchards are also being switched to modern varieties. In contrast, the orchard area in France now seems to be increasing more slowly, with very varied supply. But production should reach 170 158 t (+ 11% on 2011 and + 7% on the 3-year average). The potential should be excellent in Greece at 73 500 t (+ 52% on 2011) after last year's marked deficit. 'Bebecco' still forms most of supply ■

Peaches and nectarine — Evolution of production in the main European countries

tonnes	2012	Comparison with	
		2011	average of the last 3 years
Italy	1 504 880	0%	+ 1%
Spain	887 662	0%	+ 14%
France	290 710	- 3%	- 9%
Greece	305 000	+ 5%	+ 9%
Total	**2 988 242**	**0%**	**+ 4%**

Source: Medfel / Processed by INFOFRUIT

Cécilia Céleyrette, Consultant
c.celeyrette@infofruit.fr

Apricot — Evolution of production in the main European countries

tonnes	2012	Comparison with	
		2011	average of the last 3 years
Italy	245 270	+ 8%	+ 8%
France	170 158	+ 11%	+ 7%
Spain	104 672	+ 69%	+ 47%
Greece	73 500	+ 52%	+ 26%
Total	**593 600**	**+ 21%**	**+ 15%**

Source : Medfel / Elaboration : INFOFRUIT

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Banana

A report prepared by
Denis Loeillet
Carolina Dawson
Claire Guillermet
Thierry Lescot
Eric Fouré
Luc de Lapeyre

2011 was without a doubt a great success for the dollar banana group. It strengthened its hold on the European market. Fortunately, weather problems somewhat reduced the pressure on the international market. Let the sky be praised! Meanwhile, both shipments from ACP sources and EU production decreased.

Contents

The European banana market

Increase in dollar produce in 2011

© Denis Loeillet

What if the European banana market were an agricultural market like any other? This might seem to be a strange question to observers who are not in the know. However, there is nothing unusual about this when it is remembered that for years the market was subject to regulation, with varying degrees of strictness. But this had the effect of isolating or at least tempering the classic forces of world supply and demand. We have the proof since 2006 that the market is in a way plugged into the world situation. And so far, in contrast with what many people forecast, the catastrophe scenario has not prevailed. However, this analysis is a little too optimistic. As we have already shown in FruiTrop 196, (January 2012), value-added in Europe is amputated by an unfavourable movement of cost prices and by market stagnation at all stages. This is worrying but not yet a reason for despair. It could thus be concluded that in its wisdom the world market is sufficiently reasonable to avoid immoderate price fluctuations and extreme volatility. Seeking this type of banana market is obviously a vain effort. The common market organisation of the banana market is dead and buried and nothing can bring it to life again, even if those who liquidated it are less and less happy with the way things are going today.

Banana always rises from its ashes

Even if the banana market is a true agricultural market and wide open, why is the situation still not atrocious? The answer is that in the farming world everything is a question of sunshine and rain. This has been demonstrated over and over again. For several years we have been

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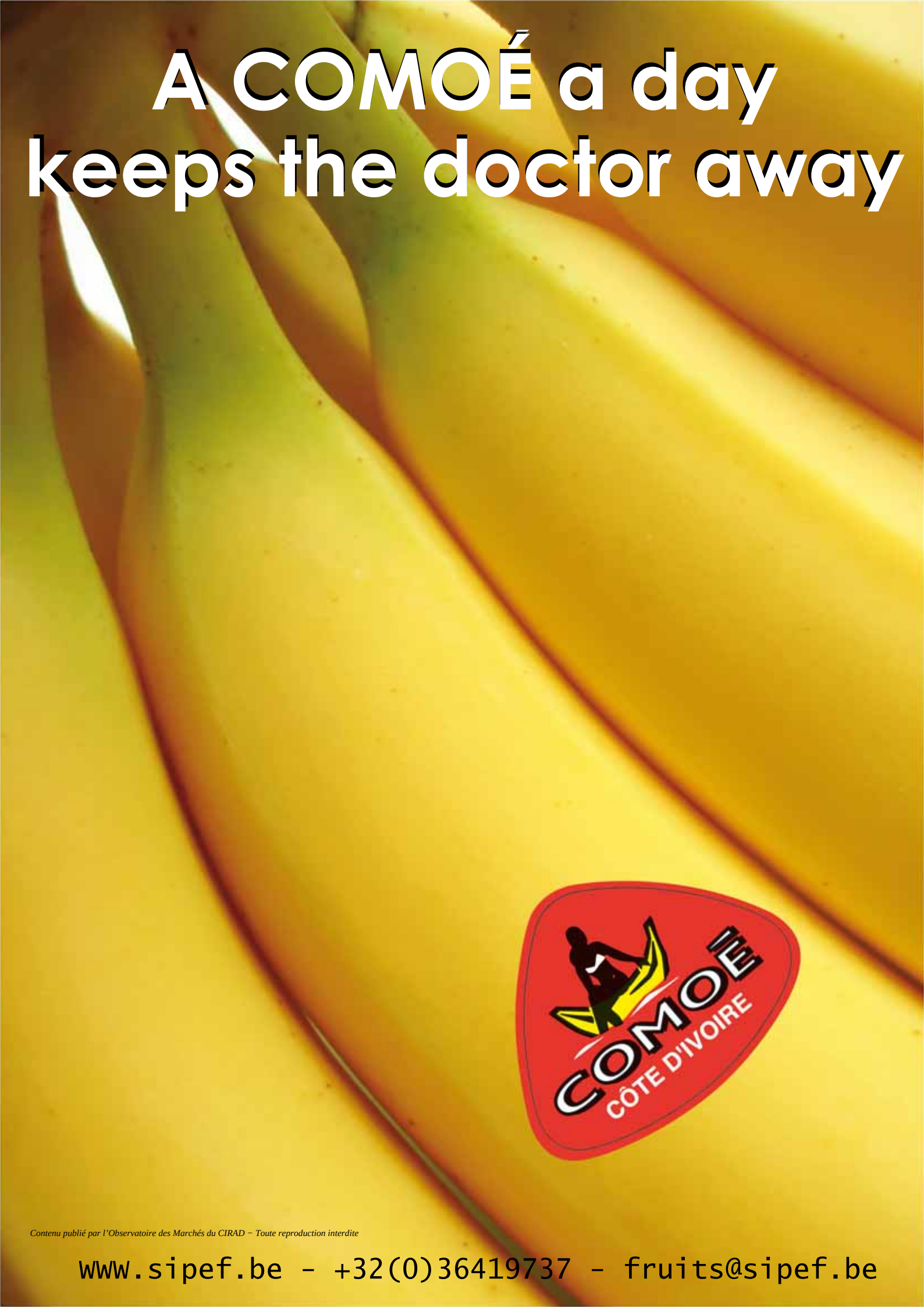

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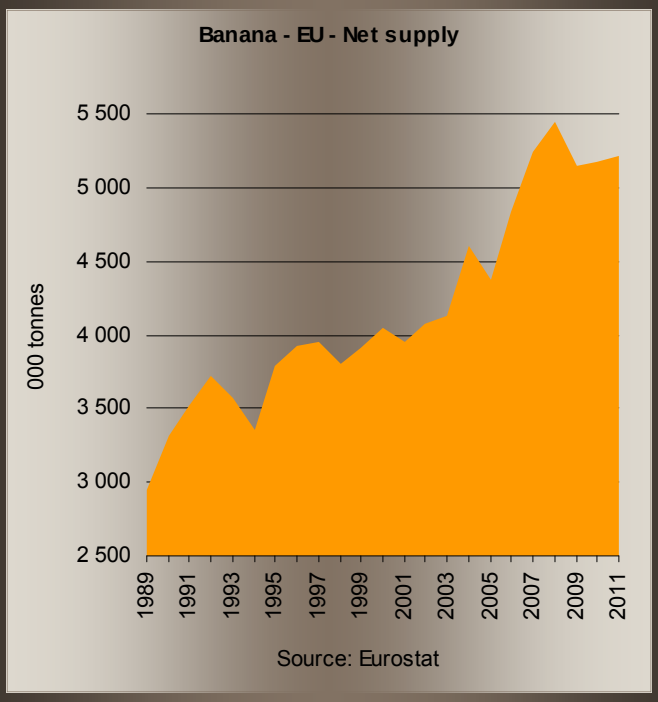

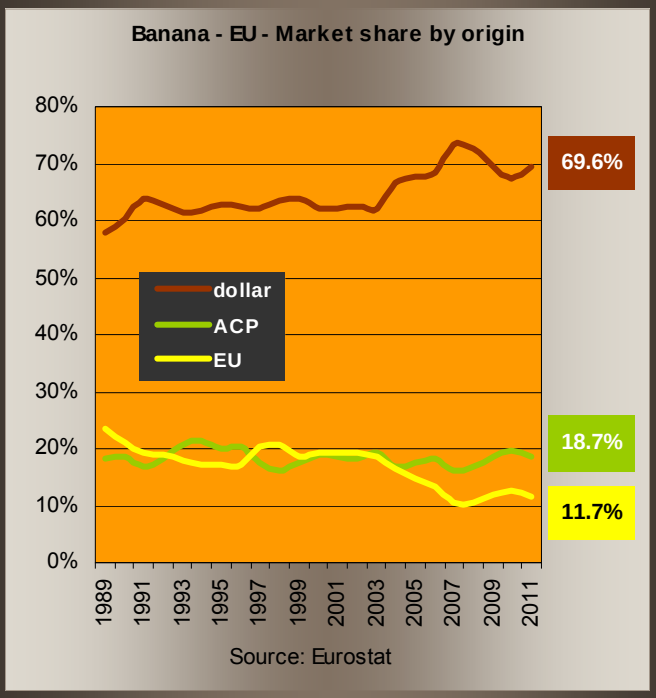

through gales, hurricanes, droughts, floods, etc. that have seriously reduced the quantities of fruits available world-wide. The weather has replaced regulation! Not even the Director-General of the WTO could have invented a more effective magic charm to counter the effects of deregulation. But meteorological events do not only push prices up. They also have a delayed effect and push them down when destroyed production capacity returns to normal all at the same time. Depending on the scale of the damage, banana production resumes a few months after the event. It is not a case of a lost harvest and return to production the following year as for grain crops for example. The banana cycle can be described as continuous. Except in the case of a major disaster that destroys the plantation, production is staggered and this causes production peaks in all cases. These excess quantities of bananas over and above the normal supply rate from other sources are very difficult to sell under good conditions.

In short, this is what happened to the banana market in 2011 and is what has been happening since the beginning of the year. It will be remembered that at the end of 2010 production capacity was very strongly reduced in Latin America and also in the Caribbean. Whereas the import price was fairly low in autumn 2010, causing much lamenting among operators, it shot up in November and December 2010 because of the decrease in world supply. The price per box exceeded EUR 14. As proof of this, EU imports in December 2010 were 13% down on those of December 2009. Decreasing volumes and rising prices were the rule for the next two months. The situation worsened noticeably from May 2011 until the end of the year. The market was greatly depressed in the spring and summer. Volumes sold (from all

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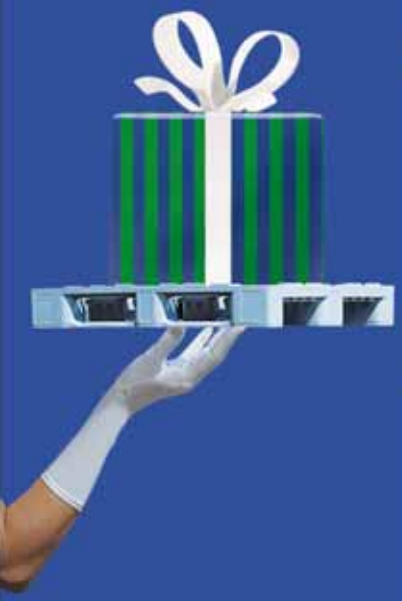

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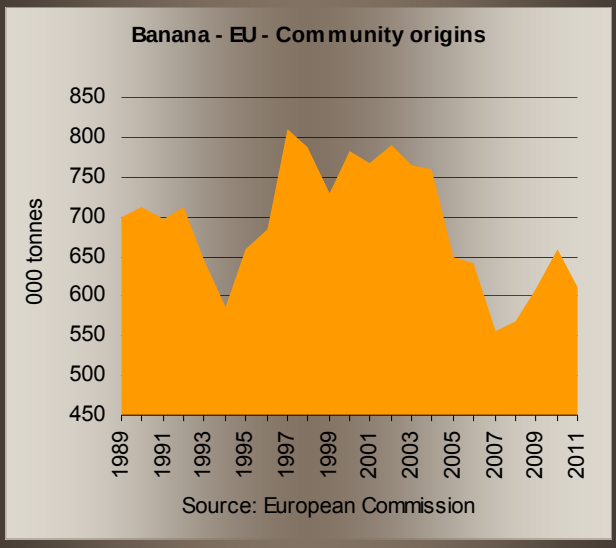

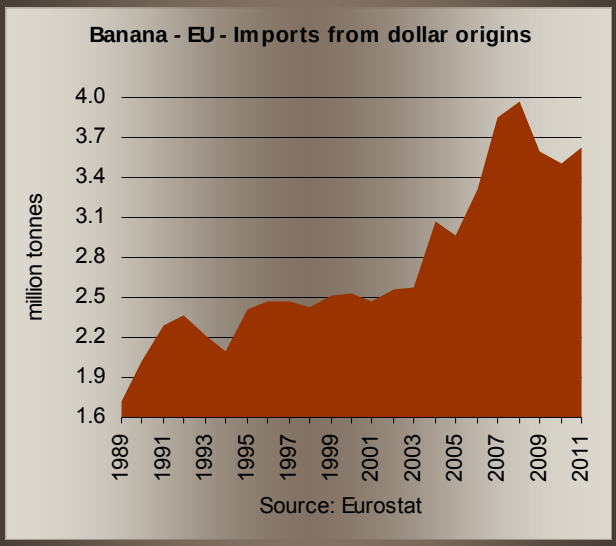

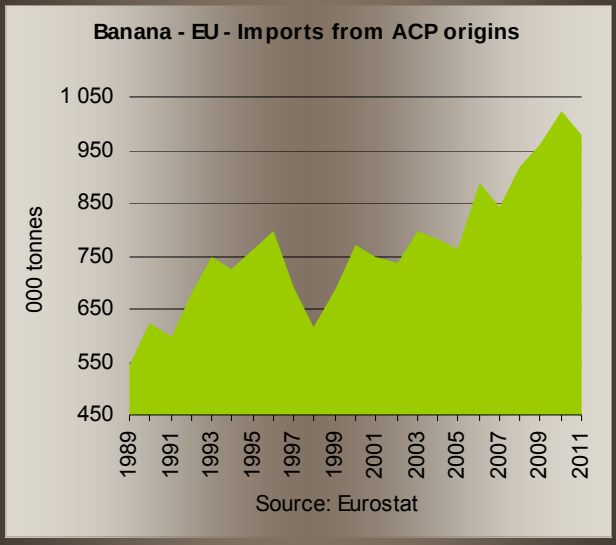

sources) rose, breaking records, while green prices fell, also breaking records. The transfer of production from one period to another (roughly six months) was partly responsible for triggering this very serious crisis. In France for example, the missing volumes from Guadeloupe and Martinique reached the market at the worst possible moment—in spring and summer—contributing the disorder and suffering from poor market conditions. The punishment was double for these suppliers, with no fruit to sell during the period of high prices and a lot or too much when prices were exaggeratedly low.

Dollar: 1
Other suppliers: 0

According to evaluations made by CIRAD, net supply of the European market was some 5 211 000 tonnes, identical to that of 2010 (+ 0.7%). Annual per capita consumption was stable at between 10.3 and 10.4 kg. EU suppliers and ACP sources lost ground in 2011 under pressure from fruits from dollar sources. The latter displayed 4% growth (+ 130 000 t), while ACP sources lost 5% (- 46 700 t) and European production lost 7% (- 47 700 t). Market shares by type of source also moved in the same direction. Dollar sources gained two points at almost 70% while EU and ACP sources each lost a point, ending at 11.7 and 18.7% respectively.

This erosion is the most worrying for community sources. In fact, ACP sources continued to display a decrease after a record 2010 when the one million tonne mark had been exceeded. Community production displayed something of the same trend, after being larger in 2010. But the recovery only occurred after a slow downward movement that started in 2004. European production at 612 000 tonnes is still far from the average of 660 600 for the previous decade. And nobody came out better! All the production zones were down on the ten-year average : Madeira - 11%, Martinique - 10%, Canaries - 8% and Guadeloupe - 5%. The decrease was 7% overall. The results year on year were good in the zones with more limited potential: Madeira, Greece and Cyprus. Guadeloupe also came back strongly after years of shortfall caused by a series of catastrophes. It came back above the 60 000 t level to 61 500 t, a figure not reached since 2003. The annual increase was 45%. The situation was not as brilliant for the two leading zones. Production in the Canaries was 13% down at 346 500 t, far from the figure of close to 400 000 t in 2010 (- 13%). Martinique was 9% down to its 2009 level (181 000 t).

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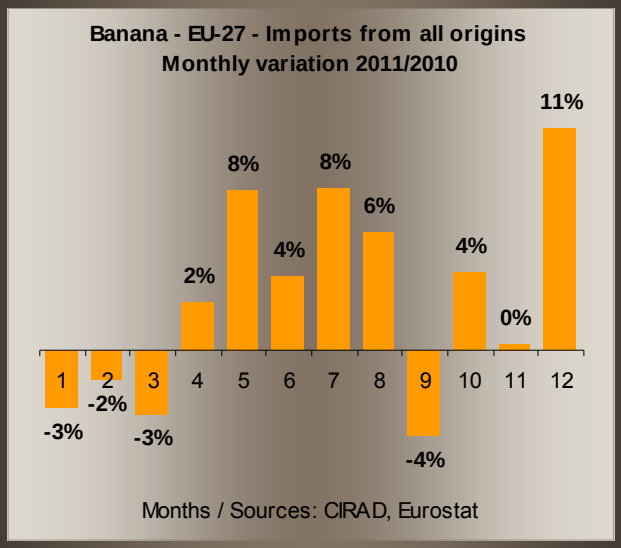
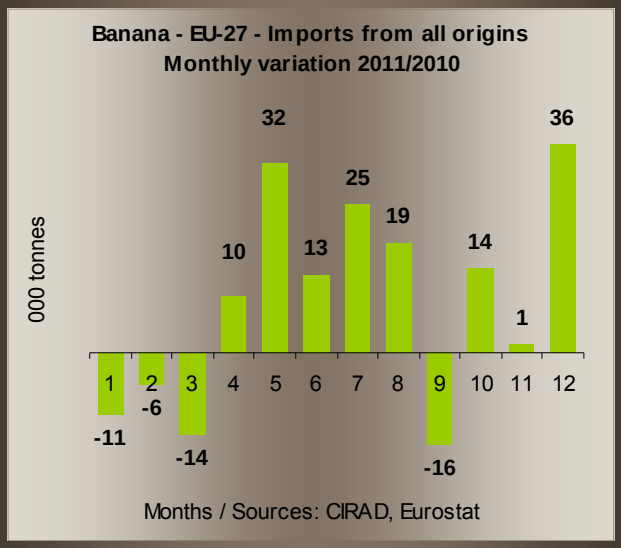




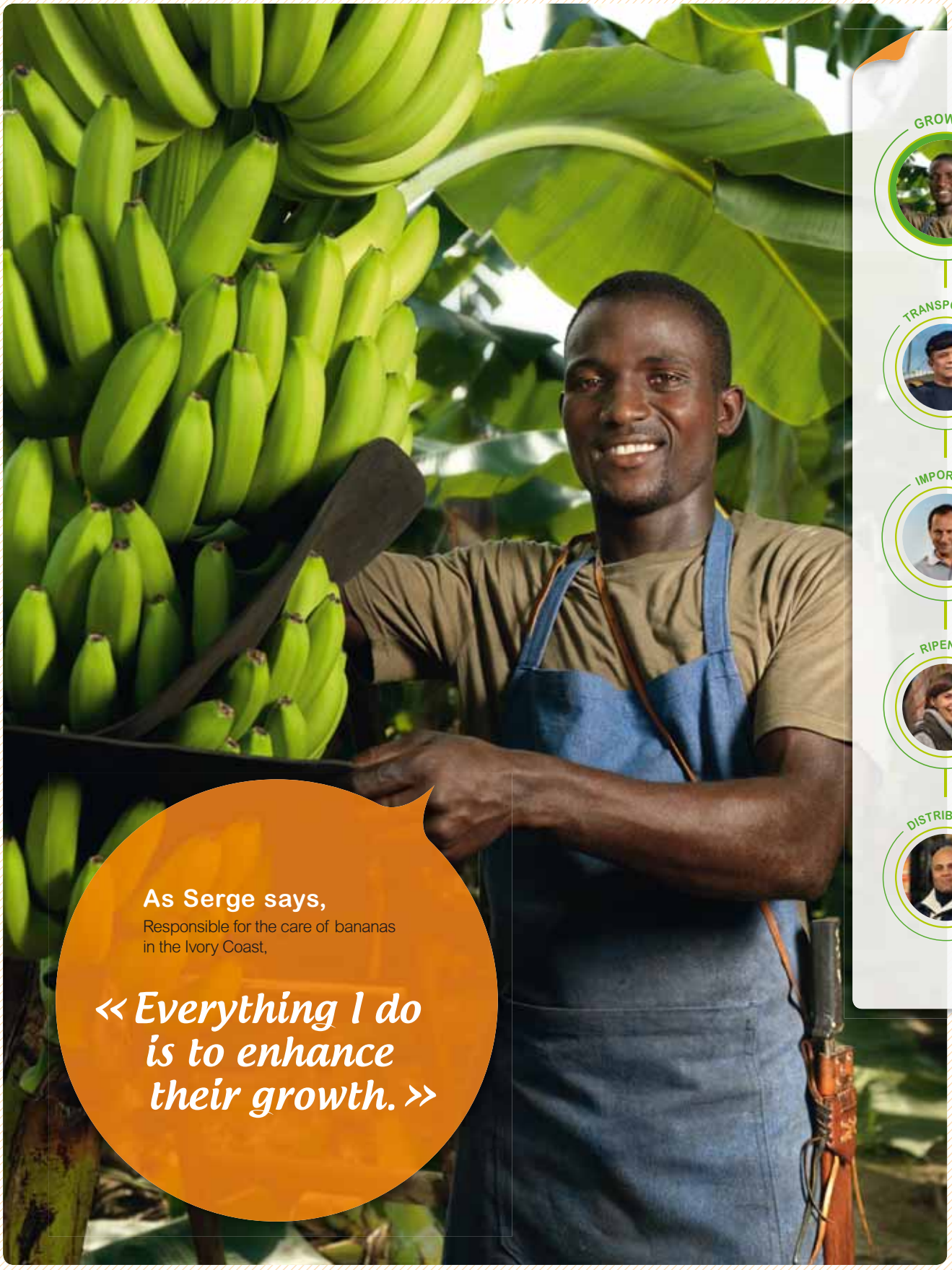
ACP: *trompe-l'oeil*

The overall results for ACP sources were fairly good. It is true that the 2011 figure was 5% down but 2010 had been an exceptional year with a 7% increase and the total clearing a million tonnes. However, analysis by source is very much more contrasted. First and foremost, the Dominican Republic—the star of the group seems to be an inexhaustible source (see country article). Apart from Dominica, the smallest sources with an increase of 336 t exported (+ 9%), the Dominican Republic is the only ACP source to have displayed growth in 2011 (+ 8%). Production in African sources (Cameroon, Côte d'Ivoire and Ghana) fell moderately to average levels. Côte d'Ivoire performed very well, given the civil war conditions during which operators continued to harvest and export. This shows the great resilience that has reigned in the sector for many years. Better things might have been expected from Ghana, where production decreased to 47 100 t after peaking at 52 400 t in 2010. But this is only temporary as the two local operators have been investing for several months in improving productivity and enlarging their plantations. It is difficult to have a definite opinion of Belize and Surinam, which maintain their positions year after year.

The real trouble is found in the Windward Islands, with St Vincent, St Lucia and Dominica close to collapse. Hurricanes, volcanic ash and now diseases (including Black Sigatoka) have come close to finishing off a banana sector already suffering from disastrous competitiveness. The many calls by governments and local producers to the international community are proof of this. A tragic Jamaica-style destiny is now probable and would be extremely dramatic as much of the export earnings of these countries come from bananas (43% in 2000). The resulting social breakdown is also worrying. According to WINFA (Windward Islands Farmers Association), the three islands have already lost 20 000 of their 25 000 banana growers since 1992.

Ecuador prefers the EU, for want of anything better

It has already been said that the dollar banana suppliers formed the most successful group in 2011. While EU and ACP producers lost ground, Latin American producers increased their output by 4%, representing some 130 000 tonnes more fruits on the market. Three major sources stand out: Ecuador, Costa Rica and Peru. First of all, Ecuador consolidated its position as the leading supplier of EU-27 by allocating exports to Europe at the expense of the US market. An



As Serge says,
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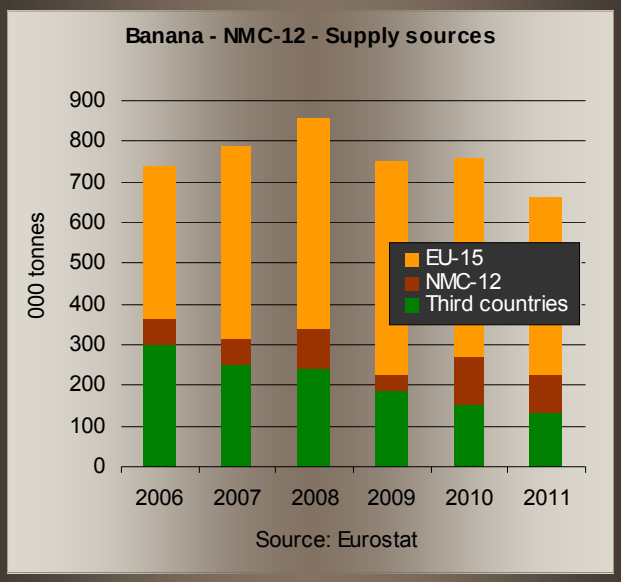

additional 115 000 t was allocated to Europe and in consequence exports to the US were reduced by 101 000 t. And a shortage of fruits was not the reason! AEBE, the Ecuadorean banana exporters association, recently announced a 7.2% increase in exports, that is to say 350 000 tonnes more; this will give a new all-time record of nearly 5.3 million tonnes (285 million boxes). Russia, Eastern Europe and the EU will benefit from the increase. It is not particularly reassuring to see that the Ecuadorean sales territory is spreading further in the EU, proving once again the great permeability of this market to Spot market bananas whereas the US market is closed to such offers. It is a disturbing sign and indicates a future increase in the volatility of the European market. It is also one of the effects of the European deregulation policy.

Costa Rica, the third-largest supplier of the EU, was also more present in 2011 with 9% growth (+ 68 000 t), but for different reasons than Ecuador. This is just a catching up movement after years of disturbance by weather phenomena. The situation is something of a honeymoon for Peru (65 700 t). Its presence has doubled in the EU in only three years! The 2010-11 year on year growth rate was 27%, that is to say 14 000 t more produce. Along with the Dominican Republic and Ghana, it supplies the organic and/or fair trade markets (see the article and country sheet in this section).

The losers include Colombia, which suffered from very bad weather, with exports decreasing to both the EU (- 3%) and the United States (- 17%). Panama also lost ground, but this can now be considered as an overall structural decrease, as for Brazil which is leaving the market little by little. Guatemala has only a symbolic presence in Europe as all its fruits are sold on the North American markets.

The NMCs like bananas

The figures for extra-EU re-exports and intra-EU shipments make one feel dizzy. While net consumption is 5.2 million tonnes, trade between member states totals some 2.2 million tonnes. The 12 new member countries (NMC-12) import 80% of their requirements via an EU-15 country each year. Poland and the Czech Republic are the two centres for these Eastern European markets and receive 83% of their supplies from Belgium, Germany and France. Three-quarters of direct imports from third countries (20% of net supply, that is to say 135 000 t) transits via the ports of Slovenia (Koper) and Poland. The position of Romania is the main change in this very traditional pattern of supply to the NMCs. The last country to join the EU (in 2007), Romania has imported up to 150 000 t bananas practically only from Ecuador. The country has a large seaboard on the Black Sea and a trad-


© André Lassoudière

ing port, Constantza. However, it has steadily reduced direct imports since it joined the EU and only received 16 000 t in 2011. Even if is reported that the customs posts are not particularly vigilant in this part of the EU and rumour has it that produce is imported fraudulently, the decrease is considerable and in line with the post-joining trend in which all the NMCs depend on their West European partners for their supplies.

Now for the new god of bananas: the IPPC

The banana market thus has classic agricultural features. Weather and climate problems prevent the market from running smoothly, causing large price variations from one month to another and even from one week to another. Finally, exporters pray to be able to have produce when their competitors have none. If not, it's a double whammy: holding produce when the market is saturated because of returns to production and beingshort when the market is clear and prices often at record highs. All this is somewhat cynical, but it is not easy to see what would change the situation. For what is to be feared most is production potential that in one year is not amputated by some catastrophe or climate upset. The vulnerability of the European market would thus be confirmed—to everybody's despair. So let's wish long life to climate change! ■

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Banana — European Union — Evaluation of supply — Tonnes

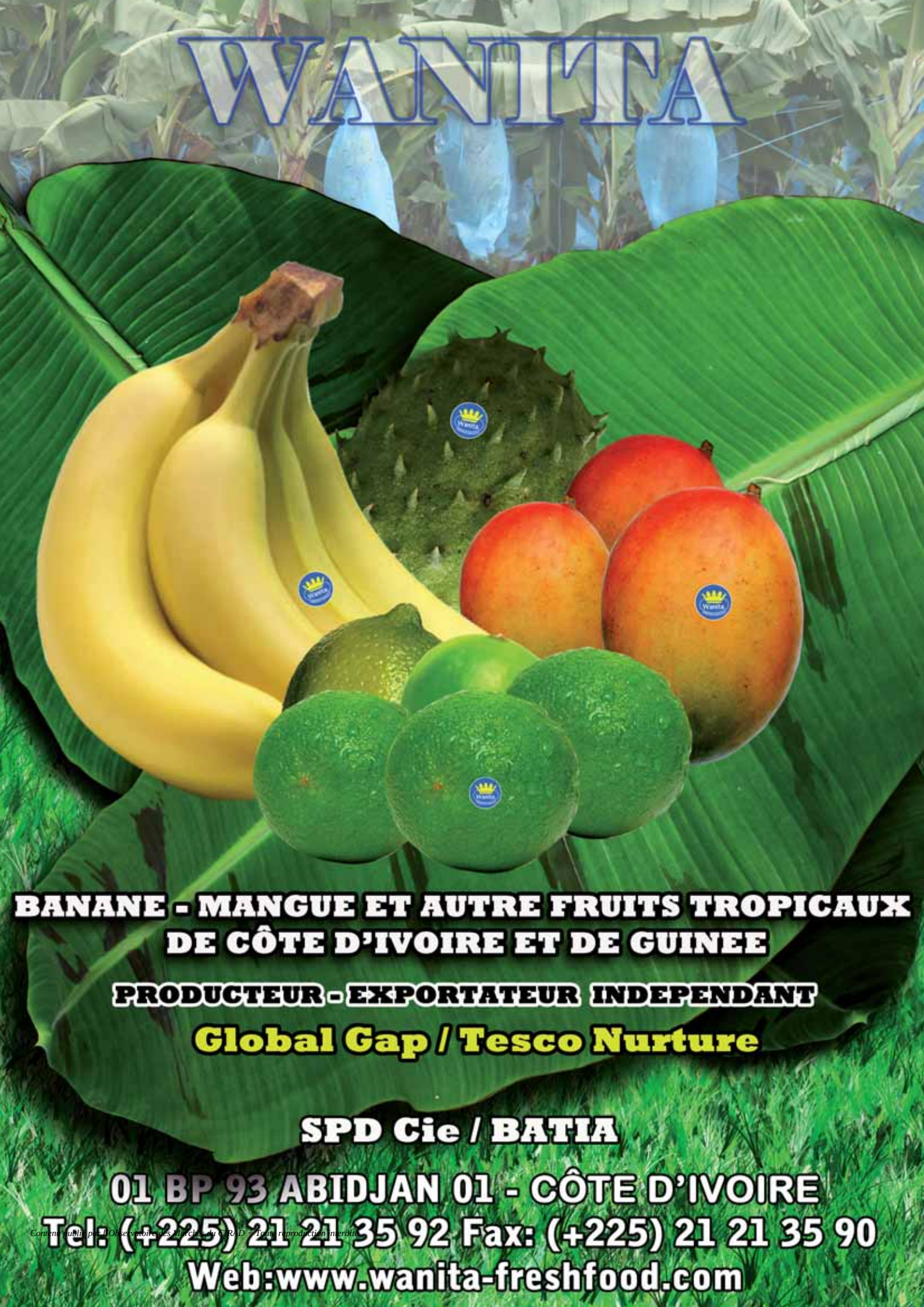
Year	Banana type or origin			Sub-total	Exports	Net supply
	Community	ACP	Others ($)			
1988	719 270	514 061	1 644 100	2 877 431	17 265	**2 860 166**
1989	698 925	544 441	1 716 175	2 959 541	13 415	**2 946 126**
1990	710 635	621 875	2 024 248	3 356 758	36 219	**3 320 539**
1991	695 402	596 416	2 286 019	3 577 837	53 468	**3 524 369**
1992	711 191	680 191	2 365 883	3 757 265	39 689	**3 717 576**
1993	646 242	748 120	2 219 721	3 614 083	36 138	**3 577 945**
1994	584 622	726 927	2 102 303	3 413 852	58 044	**3 355 808**
1995	658 206	763 886	2 405 180	3 827 272	43 082	**3 784 190**
1996	684 605	798 109	2 471 263	3 953 977	30 598	**3 923 379**
1997	810 537	692 731	2 464 412	3 967 680	16 571	**3 951 109**
1998	786 232	614 459	2 426 419	3 827 110	26 448	**3 800 662**
1999	729 303	688 170	2 522 455	3 939 928	27 359	**3 912 569**
2000	782 176	770 095	2 528 170	4 080 441	35 327	**4 045 114**
2001	767 268	747 131	2 474 665	3 989 064	34 284	**3 954 780**
2002	790 622	738 439	2 554 508	4 083 569	8 011	**4 075 558**
2003	765 416	797 269	2 578 827	4 141 512	6 020	**4 135 492**
2004	758 206	782 979	3 077 361	4 618 546	11 029	**4 607 517**
2005	648 375	763 974	2 959 463	4 371 812	4 970	**4 366 842**
2006	641 559	889 176	3 306 538	4 837 273	8 386	**4 828 887**
2007	554 734	842 959	3 848 266	5 245 959	9 270	**5 236 689**
2008	567 560	918 923	3 968 269	5 454 752	10 002	**5 444 750**
2009	608 048	958 326	3 587 737	5 154 111	7 840	**5 146 271**
2010	659 525	1 023 752	3 500 431	5 183 708	7 437	**5 176 271**
2011	611 841	977 050	3 630 399	5 219 290	8 314	5 210 976
	(1)	(2)	(2)		(3)	

(1) 1988 to 1993 inclusive: Eurostat + European Commission data for Madeira and Greece. From 1994 onwards: supplementary aid data or POSEI.
(2) Eurostat data: all imports from non-community and non-ACP countries.
(3) Duty-paid bananas (released for free circulation) in one of the EU-27 member countries and then exported outside EU-27.
General note: before 1994: dessert bananas + plantains / From 1994 onwards: dessert bananas. Before 1995: EU-12 / From 1995 to 2003: EU-15 / From 2004 to 2006: EU-25 / Since 2007: EU-27. The study concerns extra-community import data for ACP and dollar bananas and re-export. The rules of operation of the common market organisation of banana (1993 version) have been applied to the data from 1988 onwards in order to give comparable results. Source: Eurostat, European Commission / Processing: Cirad Market News Service

Banana — EU-27 imports — 2011

tonnes	AT	BE-LU	BG	CY	CZ	DE	DK	EE	ES	FI	FR	UK	EL	HU	IE	IT	LT	LV	MT	NL	PL	PT	RO	SE	SI	SK	UE-27
Total intra EU	125 976	38 908	22 733	4 927	137 984	504 650	68 216	11 354	84 584	67 675	292 911	73 589	23 225	44 735	22 366	133 573	19 432	22 556	5 262	133 036	182 777	49 414	21 609	64 311	2 722	52 551	2 211 075
incl. NMC-12	**3 765**	**1 447**	**12 490**	**0**	**5 750**	**4 219**	**0**	**4 768**	**0**	**183**	**965**	**216**	**1 050**	**6 548**	**0**	**14 150**	**2 486**	**7 853**	**1 027**	**1 458**	**7 297**	**0**	**15 456**	**0**	**191**	**25 099**	**116 417**
Belgium	36 113	3 112	495	0	28 475	331 680	2 406	302	6 090	3 991	100 956	7 802	82	11 855	2 843	38 498	6 124	6 413	302	51 398	98 612	1 743	38	8 354	677	7 574	755 934
Germany	59 313	9 223	0	0	30 992	0	57 499	6 059	241	18 911	18 238	606	120	6 372	836	9 490	6 082	7 636	0	75 060	58 647	0	389	31 960	8	5 177	402 860
Netherlands	20 534	7 664	535	0	17 759	101 624	5 094	0	1 232	17 292	33 254	33 528	19	5 552	253	17 488	995	61	648	0	7 332	886	1 371	10 712	937	2 248	287 016
France	5 758	10 578	75	0	48 986	26 844	6	0	62 648	1	0	7 700	80	7 386	8	39 761	3 745	488	0	2 915	9 323	6 478	875	354	12	10 099	244 120
Spain	1	72	283	0	20	1 034	0	0	0	0	58 159	1 104	0	82	6	1 042	0	0	0	17	764	39 833	2	947	0	0	103 366
UK	0	6 578	0	0	100	861	0	0	266	0	64 621	0	0	0	18 421	1 181	0	0	0	93	609	0	19	640	0	0	93 389
Italy	493	130	282	1 181	2 684	1 432	0	0	6 198	0	13 782	0	21 875	331	0	0	0	105	3 286	43	192	473	450	0	634	2 219	55 788
Ireland	0	0	0	0	0	32 038	0	0	0	0	48	22 633	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54 718
Czech Rep.	0	1 428	8 077	0	0	221	0	0	0	0	133	0	19	1 174	0	0	21	0	50	2	5 261	0	8 748	0	0	23 583	48 717
Sweden	0	0	0	0	1 992	1 567	2 915	0	0	27 297	52	0	0	0	0	0	0	0	0	78	0	0	0	0	0	20	33 920
Portugal	0	102	0	0	0	0	0	0	7 909	0	3	0	0	0	0	11 700	0	0	0	0	0	0	0	0	0	0	19 714
Slovenia	2 875	0	1 955	0	900	98	0	0	0	0	100	0	0	2 907	0	5 991	0	0	0	20	58	0	1 775	0	0	1 133	17 810
Austria	0	0	182	0	1 227	3 136	0	0	0	0	2 802	0	0	6 609	0	253	0	0	0	1 972	0	0	211	0	264	116	16 771
Greece	0	0	8 392	3 746	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2 798	0	0	0	14 935
Denmark	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	10	0	0	0	1	0	0	0	11 344	0	0	11 388
Slovakia	0	17	0	0	4 422	0	0	0	0	0	82	0	0	1 292	0	4 800	0	0	0	0	0	0	19	0	3	0	10 634
Lithuania	0	0	61	0	0	0	0	287	0	0	315	0	0	0	0	0	0	7 371	0	360	1 958	0	0	0	0	0	10 351
Poland	394	0	222	0	424	3 276	0	0	0	0	316	216	0	1 175	0	1 147	834	473	0	40	0	0	809	0	0	46	9 372
Latvia	0	0	0	0	0	625	0	4 481	0	0	0	0	0	0	0	446	1 632	0	0	0	0	0	0	0	0	0	7 184
Hungary	283	2	190	0	0	0	0	0	0	0	20	0	0	0	0	1 690	0	0	0	134	0	0	3 477	0	148	336	6 279
Romania	213	0	1 985	0	4	0	0	0	0	0	0	0	185	0	0	76	0	0	0	610	0	0	0	0	41	0	3 114
Bulgaria	0	0	0	0	0	0	0	0	0	0	0	0	846	0	0	0	0	0	0	288	0	0	628	0	0	0	1 762
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	977	0	21	0	0	0	0	0	998
Finland	0	0	0	0	0	178	296	225	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	705
Estonia	0	0	0	0	0	0	0	0	0	183	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	192
Luxemburg	0	3	0	0	0	2	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
Malta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
Total extra EU	1 107	1 305 288	10 213	0	0	775 689	12 358	0	103 936	2 428	274 293	945 344	116	0	52 431	528 364	10 665	0	165	152 229	32 922	93 348	16 252	110	64 962	0	4 608 455
incl. MFN	1 107	1 091 931	10 213	0	0	764 600	12 281	0	81 366	2 428	2 116	519 013	116	0	37 929	516 863	10 665	0	165	149 986	32 922	93 348	16 252	106	64 962	0	3 631 404
Ecuador	0	293 308	8 921	0	0	253 541	8 094	0	33 385	2 408	1 053	94 171	105	0	1 222	279 160	10 340	0	59	114 188	23 020	28 729	16 215	16 797	50 349	0	1 339 977
Colombia	1 107	516 065	0	0	0	230 987	4 182	0	10 160	0	982	215 215	2 093	0	2 958	116 828	179	0	107	1 513	2 032	24 199	0	4 290	3 640	0	1 136 538
Costa Rica	0	220 938	0	0	0	164 492	4	0	30 722	20	79	180 696	7 303	0	29 676	105 155	26	0	0	1 577	7 870	38 891	37	49 856	7 765	0	845 107
Panama	0	15 059	0	0	0	76 190	0	0	0	0	0	11 867	1 690	0	0	15 346	0	0	0	1 756	0	1 528	0	35 977	183	0	159 596
Peru	0	34 619	0	0	0	8 823	0	0	58	0	0	1 588	0	0	849	0	0	0	0	19 742	0	0	0	0	0	0	65 678
Brazil	0	101	0	0	0	29 526	0	0	417	0	0	13 246	0	0	0	20	0	0	0	8 964	0	0	0	0	0	0	52 274
Honduras	0	11 843	0	0	0	851	0	0	263	0	0	593	0	0	3 224	186	120	0	0	380	0	0	0	0	0	0	17 459
Mexico	0	0	0	0	0	180	0	0	6 360	0	0	1 360	0	0	0	35	0	0	0	1 825	0	0	0	0	0	0	9 760
Guatemala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	0	0	0	0	0	0	0	0	2 921	0	2 995
Turkey	0	0	1 007	0	0	0	0	0	0	0	0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 105
Albania	0	0	255	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	255
incl. ACP	0	213 357	0	0	0	11 089	78	0	22 570	0	272 177	426 331	0	0	14 502	11 501	0	0	0	2 243	0	0	0	3 203	0	0	977 050
Dom. Rep.	0	64 259	0	0	0	11 027	78	0	16 364	0	15 801	206 467	0	0	0	7 387	0	0	0	2 183	0	0	0	3 202	0	0	326 766
Cameroon	0	60 839	0	0	0	1	0	0	186	0	111 580	58 176	0	0	0	3 499	0	0	0	60	0	0	0	0	0	0	234 342
Côte d'Ivoire	0	65 177	0	0	0	0	0	0	5 981	0	65 456	86 932	0	0	141	14	0	0	0	0	0	0	0	0	0	0	223 700
Belize	0	0	0	0	0	0	0	0	0	0	0	56 703	0	0	14 361	0	0	0	0	0	0	0	0	0	0	0	71 064
Surinam	0	0	0	0	0	0	0	0	0	0	62 911	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62 911
Ghana	0	23 001	0	0	0	0	0	0	40	0	16 429	7 030	0	0	0	565	0	0	0	0	0	0	0	0	0	0	47 064
Dominica	0	0	0	0	0	0	0	0	0	0	0	4 064	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4 064
St Lucia	0	0	0	0	0	0	0	0	0	0	0	6 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6 159
St Vincent	0	0	0	0	0	0	0	0	0	0	0	764	0	0	0	0	0	0	0	0	0	0	0	0	0	0	764
Mozambique	0	34	0	0	0	0	0	0	0	0	0	36	0	0	0	36	0	0	0	0	0	0	0	0	0	0	106
Uganda	0	4	0	0	0	62	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	67
Burundi	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
Rwanda	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20

Country codes according to the official EU norm / Source: Eurostat



The banana market in the United States

Good from all points of view

© Denis Loeillet

There are zeros that, paradoxically, make trade operators jealous. Indeed, the US market is very stable as regards volumes shifted. Net supply was 3.6 million tonnes, within 5 000 t of the 2010 figure. US consumption decreased slightly-—allowing for the increase in the population—from 11.7 to 11.5 kg per person per year. In comparison, this is a kilo more than the European average. Prices were the nice surprise as with zero volume increase the import price increased by 5% to a hitherto unknown USD 16.40 per box! Some kind of heaven for the operators supplying the world market.

The fundamentals of the US market change little from one year to the next. Guatemala is still the leading supplier with a third of the market, even strengthening its position by gaining 16% in volume in 2011—an all-time record. Shipments from Ecuador were obliged to decrease to favour the little or not contractualised markets such as the EU, Eastern Europe, Russia, etc. Costa Rica and Honduras recovered after a series of weather problems. Colombia slipped significantly to fifth position, losing 16% of its exports to the United States—a high cost to pay for the damage caused by heavy rains at the end of 2010 and in early 2011. Mexican exports increased quietly, as every year, and reached 150 000 tonnes. Peruvian shipments to the US display remarkable medium-term stability (20 000 to 23 000 t) while they are breaking record after record in the EU.

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Re-exports were also stable at some 516 000 t, consisting mainly of produce shipped to Canada.

Finally, the monthly supply figures can be used to show the steadiness of the US market. It displays significant differences to the European market. Net supply was a little smoother in time in the US, except for the sharp fall in December 2011. The shock of the strongly increasing volumes in the EU in the spring that caused a break in the trend was not seen in the US. And the very strong summer decrease in market releases in Europe was also much less marked. The strength of the market and its resilience in case of drift was obviously increased. This was doubtless Adam Smith's 'invisible hand' that tends to make the market improve for the mutual benefit of all stakeholders. Invisible or not? That is the question! ■

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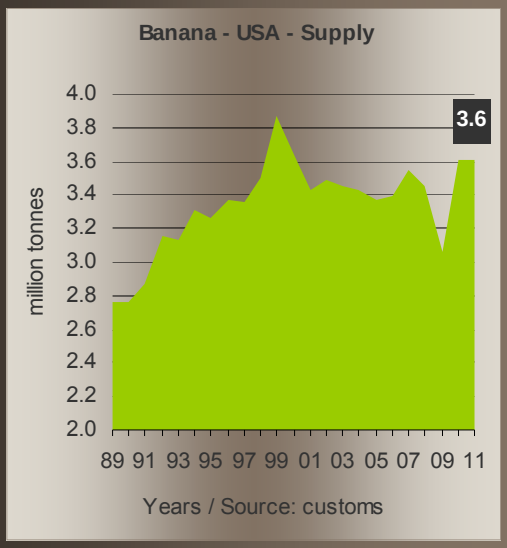

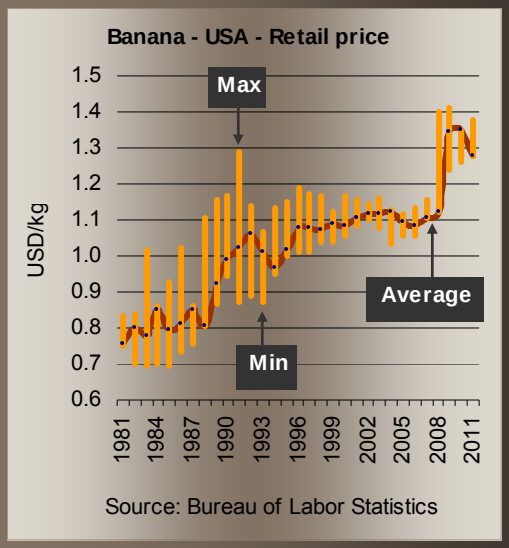

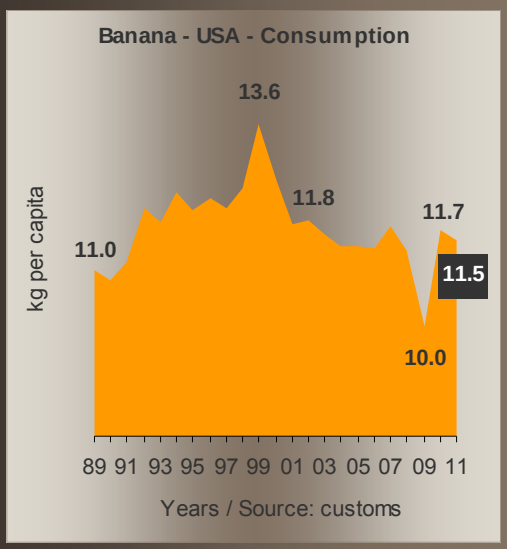

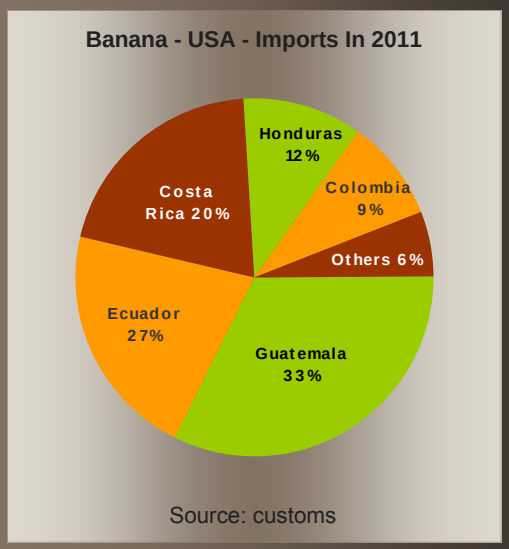

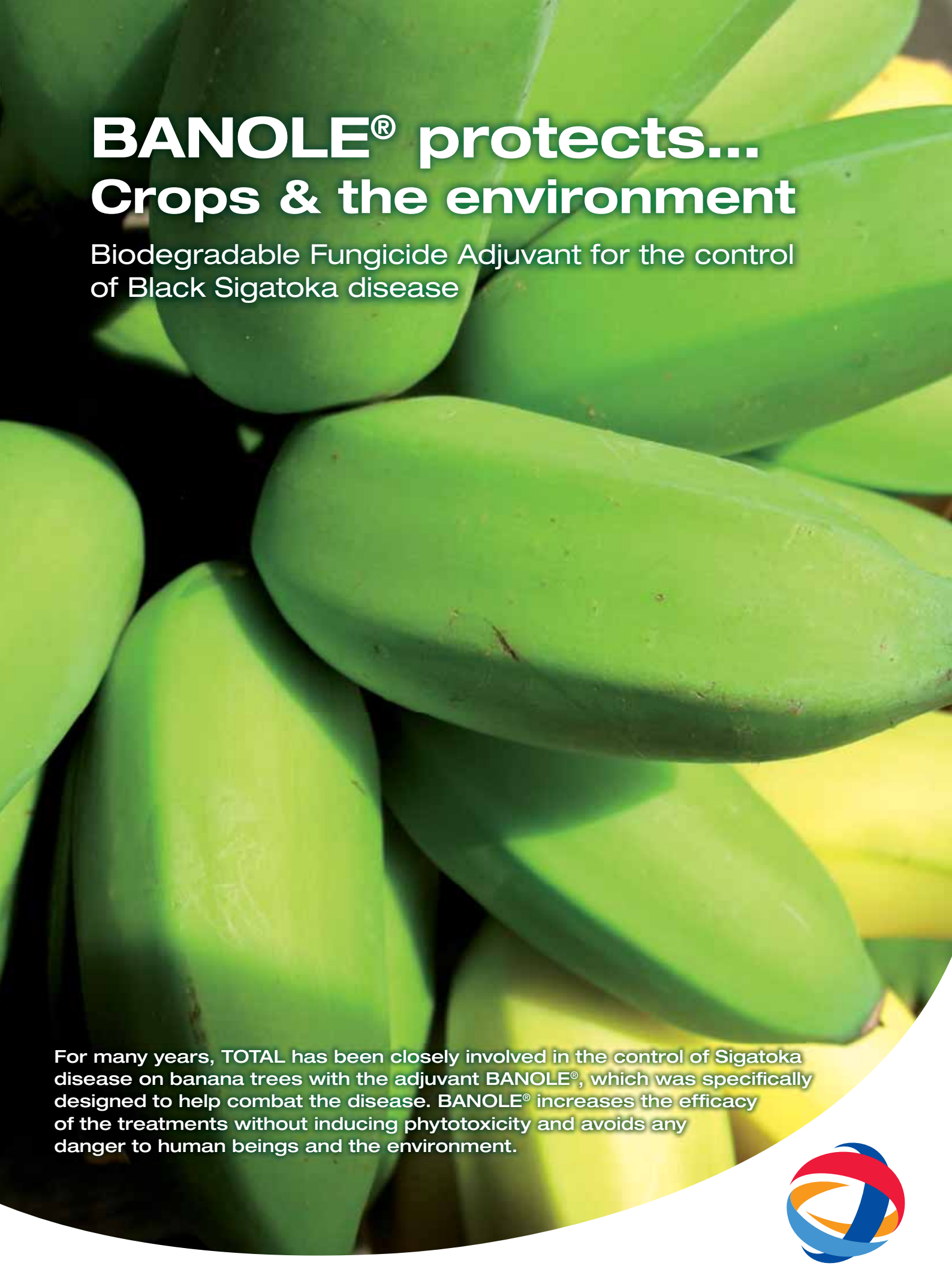

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The banana market in Russia

Let's hope that it lasts!

© Régis Domergue

Were the trend to continue it would make the banana world a more stable place! In 2011, Russia imported 70 million boxes of bananas, slightly less than 1.3 million tonnes. The increase was a staggering 27% in one year. It is all the more curious as after the large increase from 2005 to 2006 (+ 12%), the Russian market took a steady 53 to 55 million boxes each year. The extremely reassuring side of this movement is that it is being confirmed in 2012. It is true that growth is no longer in two figures but confirming the level in the first quarter of 2012 after such a tremendous increase in 2011 is an exploit that many markets would like to bring off. But gushing optimism should be avoided. The situation was favourable as a result of a decrease in Russian and European apple production in late 2010. In addition, trade in bananas has been developed by Russian operators whose scale is modest compared to the large traditional companies. Finally, Russia is now close to Ecuadorean export zones as the strong increase in shipments from the world's leading exporter has fed the trend. Russia is indeed the second-largest export destination for Ecuadorean bananas, taking 64.3 million boxes in 2011 (market share: 23%), an annual increase of 21%!

The other side of the coin is not very pretty. The monthly Russian import price trend is even alarming. In the January

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André Lassoudière

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***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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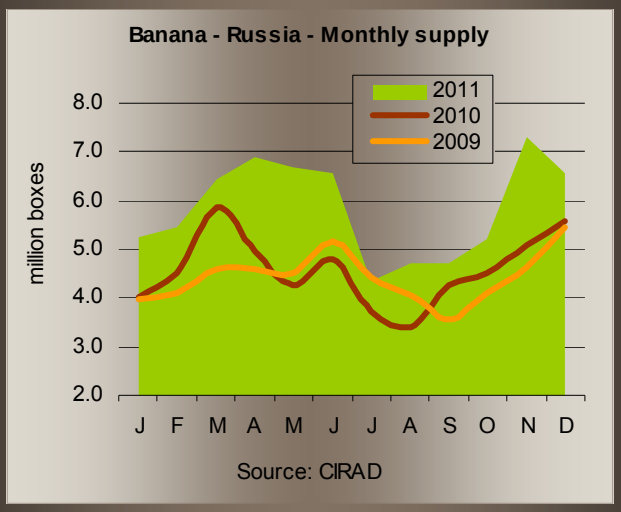

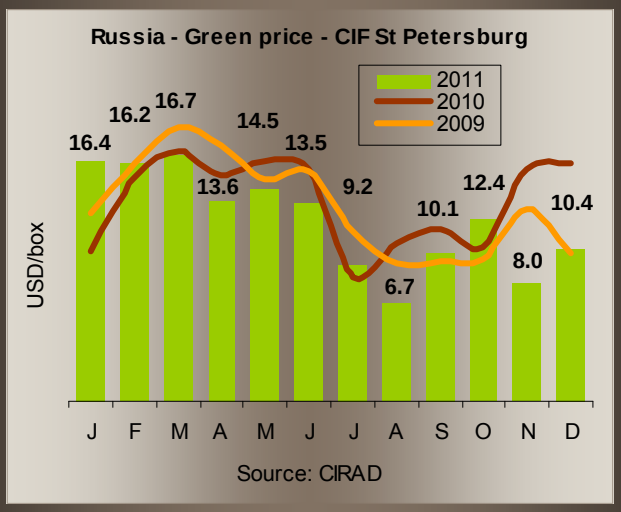

2012 issue of **FruiTrop** (196, page 34), we observed that 'The frontiers of the possible were pushed further back once again…'. The CIF St Petersburg price fell to below USD 10 per box three times in 2011 and a record fall to USD 8 was observed in November. It is true that at the time Russian demand resulted in the doubling of supply volumes in certain weeks, swinging smoothly from 1 to 2 million boxes. The annual average was a detestable USD12.3 per box in 2011, the lowest since 2006.

This is one of the reasons—but doubtless not the only one—for the difficulties encountered by the historic operators who had invested heavily in production in Ecuador and in transport capacity. But the Europeans hope that Russia will hold as it takes more than 1.2 million tonnes of extremely mobile bananas whose only other alternative would be the EU, which is now open to bananas from anywhere. Let's try to avoid clichés, but how would Europe handle a retreat from Moscow ? ■

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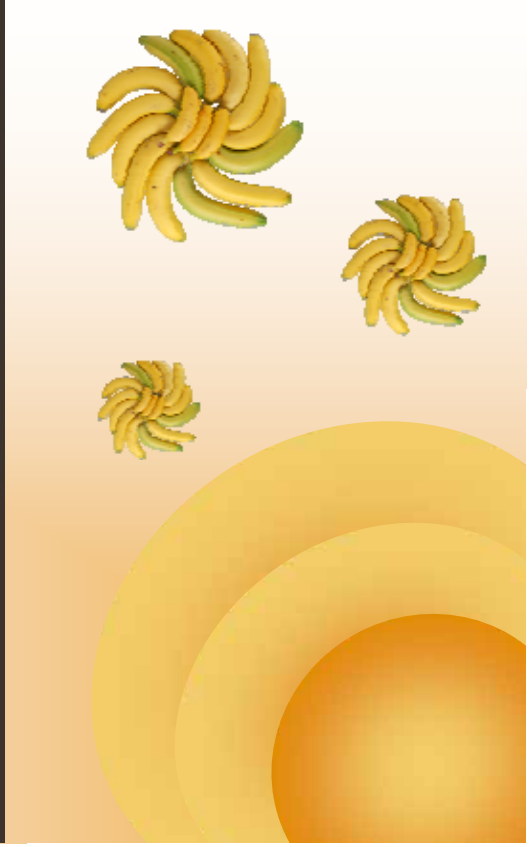

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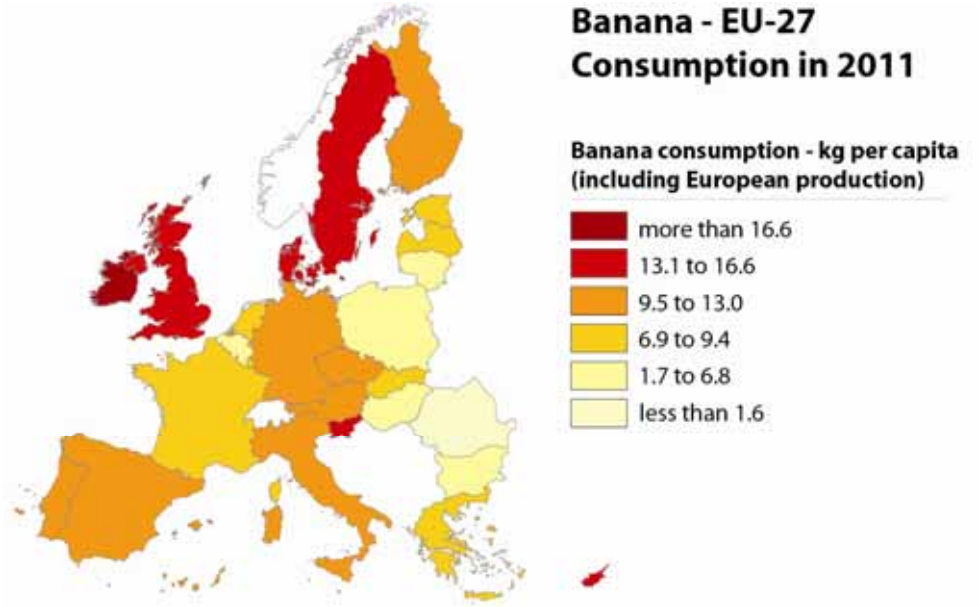
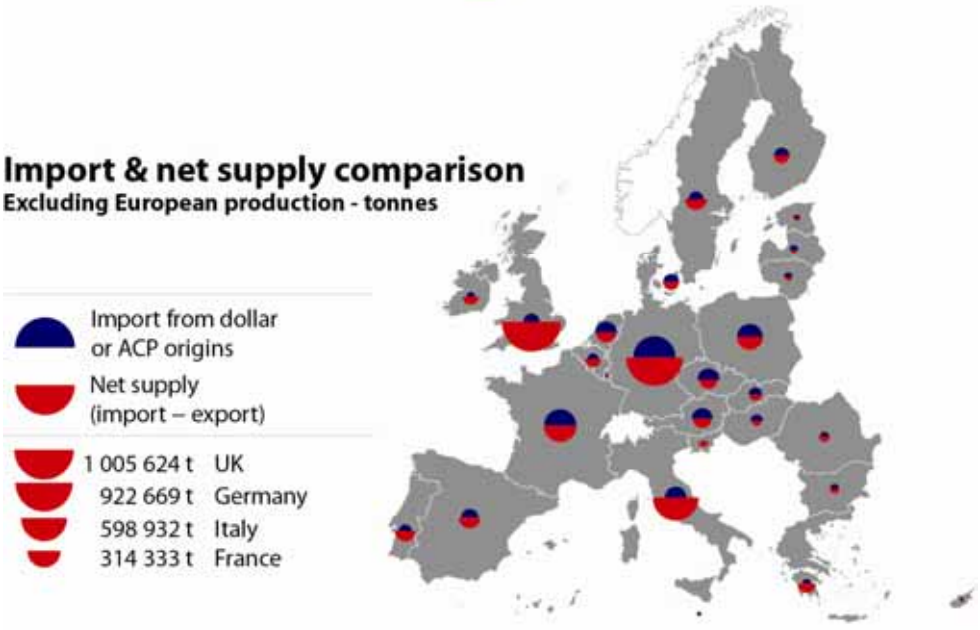
European banana consumption

Both good and much less good





Source: Cirad - FruiTrop / Processing and presentation : philcarto.free.fr, Cirad - FruiTrop

The calculation of European banana consumption by member state is a delicate and difficult operation. It involves juggling with European production and it is not known how much of this—especially in the case of France—is sold outside national metropolitan frontiers, counting sometimes vague re-exports between members, allowing for over-consumption of bananas at the entry points of the fruits (in Slovenia for example) and evaluating ghost imports, especially at the eastern frontier of the EU. It is vain to search for accuracy. This is why I talk in terms of 'apparent' rather than real consumption. In spite of these difficulties, with certain absurd data corrected and others cross-checked, the exercise is extremely instructive.

The first feature is the gap between the countries of EU-15 and the new member states (NMS-12). In 2011 annual apparent consumption in the NMS was less than half that of the average for EU-27 (10.4 kg). The NMS zone displays structural under-consumption of bananas and does not seem to display favourable development. It has even experienced a disturbing downward slide for the last three years. But attention should be paid to data quality. Indeed, levels are exaggeratedly low for at least three of the NMS zone countries (Romania, Hungary and Bulgaria) at 1.7 to 3.9 kg; this has an impact on the figures for the group but does not call into question the weak consumption observed in the eastern part of the European Union.

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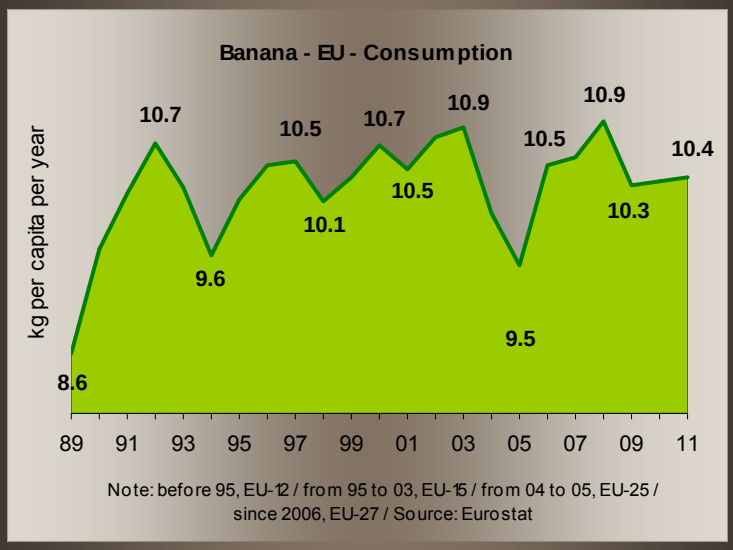
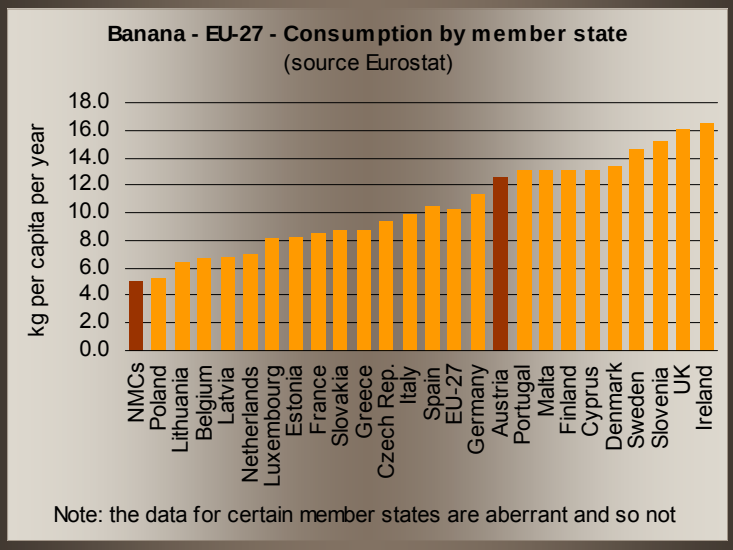
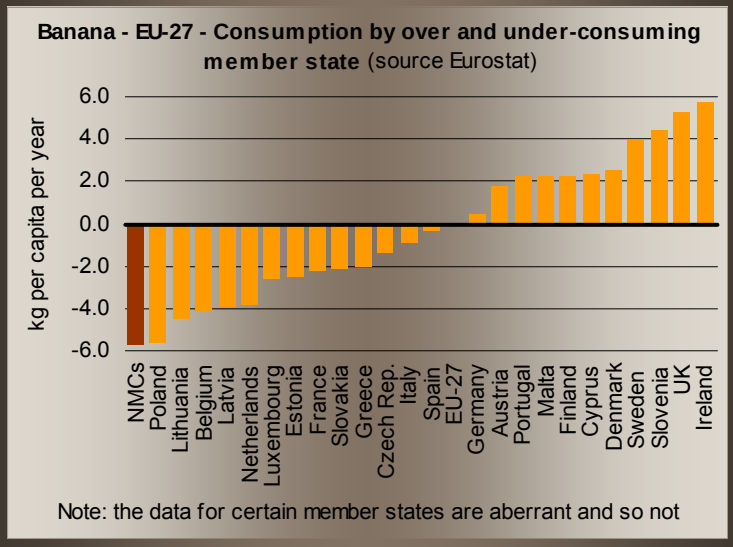


Note: before 95, EU-12 / from 95 to 03, EU-15 / from 04 to 05, EU-25 / since 2006, EU-27 / Source: Eurostat



Note: the data for certain member states are aberrant and so not



Note: the data for certain member states are aberrant and so not

Two neighbours—Ireland and the United Kingdom—are at the other end of the scale with banana consumption at more than 16 kg per year. This is 160% of the European average. In general, the countries in the north of the EU-15 zone consume more than the average. This is the case of Sweden, Denmark and Finland. The explanation lies in the fairly small availability of competing fruits. It is less difficult to compete with a narrow range of mainly imported fruits than with the range of fruits available in countries like Spain, Italy and France. But France is an exception here again. It displays under-consumption (8.6 kg) while Spain scores better with 10.5 kg (decreasing) and Italy at 9.9 kg (stable). The leading group also includes Austria where consumption is vigorous, having increased from less than 10 kg in 2001 to more than 12.5 in 2011.

The level is greatly over-evaluated in Slovenia which supplies a fair proportion of the Eastern Mediterranean and Eastern European countries via the port of Koper. The leading group also includes two banana producing countries, Portugal and Cyprus. The proportion of national production in consumption

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ranges from nearly 50% in Cyprus to less than 11% in Portugal. Finally, Germany, with the largest population of European countries and consumption at 11.3 kg, draws average consumption upwards. But this is far from the peak of 12.7 kg observed in 2000!

Annual European consumption has been fairly stable at around 10.5 kg for the last ten years. Average consumption fell to 9.5 kg in 2004 and 2005, two difficult years. In 2005, the tariff-only system was about to begin (it came into force on 1 January 2006) and operators had just experienced two years of very low import prices and this encouraged caution in their sales programmes. As mentioned above, the trend is better in EU-15 than in the NMS.

Vox clamantis in deserto

Finally, to have another bash at the idée fixe concerning supermarket chains, there is no link between per capita consumption and average retail prices or even import prices. An in-depth econometric study would confirm these observations. Bananas must be sold at a price that makes sense, that is to say be sold as bananas and not be used as a lure to shift game consoles or moisturising creams. It would be a lie to say that there is no such psychological price threshold for bananas. But we have never been able to define it as we are so far down in the scale of values for produce grown thousands of miles from the production zones. This mental construction must be dismantled as soon as possible in order to increase value-added (or at least no longer lose any) and also to increase sales by stimulating the market. Unfortunately, in practice this is like preaching in the desert. The seminar held in Paris in April by banana growers from Guadeloupe and Martinique ruled out any hope for a change in mentalities. We even reached unsuspected frontiers of commercial obscurantism. Although it was considered that bananas have an objective price that should never be departed from, we also heard that this policy, which is more of a farce, is applied whatever the type of banana: clean, less clean or frankly soiled. The production mode (from both the social and environmental angles) is not allowed for. Only organic and fair trade fruits remain the only exceptions to this rule, but for how long? The gap is closing in a terrible downward spiral that generates despair among hundreds of thousands of workers and small and large plantation owners around the world. Japanese kamikaze pilots had at least a purpose and considered that they were serving their country. I am not sure that the same spirit drives the banana industry because although the retail sector is still earning a good living it could earn a better one while informing consumers about the principles of sustainable development, by ensuring the survival of chains and finally giving a little hope and purchasing power to banana plantation workers around the world. But we are losing our way because consumers only spend a few seconds in front of each item and want to get home to watch the 8 o'clock news! Don't give them a headache by discussing questions of the distribution of value and of danger for the environment—especially if this is a long way from their neighbourhood. Sweet dreams, people. We'll look after all the rest... ■

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The banana market in France

Target: + 150 000 tonnes!

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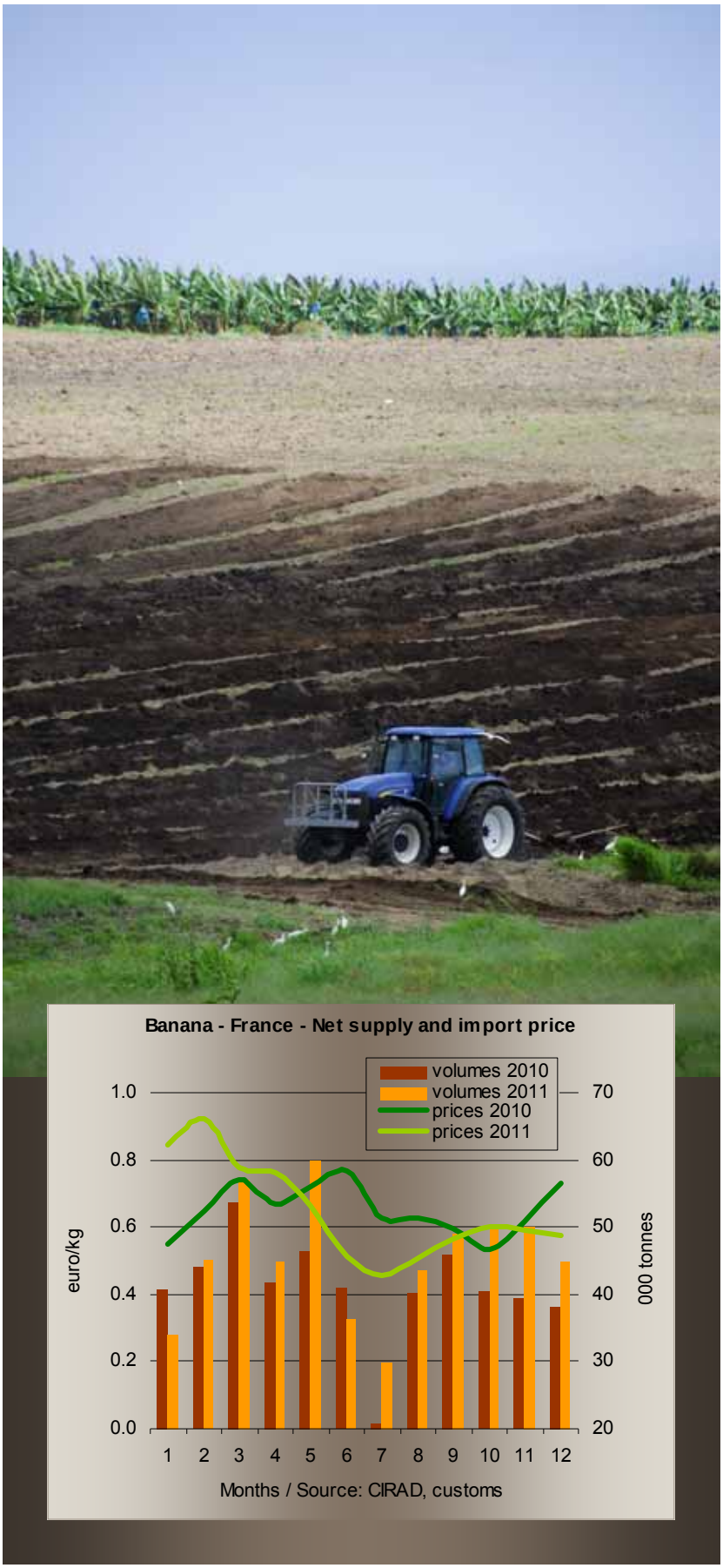
The 2011 season in France has been examined in detail in **FruiTrop** 196 (January 2012) and then in the first article in this 'Close-up' section. Here we go back to various macroeconomic data such as per capita consumption, sources present on the market, flows, etc..

French market behaviour is best described as a return to the trend. The annual figures show net supply of 544 000 t, nearly 10% up on 2010 and slightly greater (+ 3%) than the average for 2008-09-10. Consumption recovered to 8.6 kg after a slump in 2010 that put an end to the favourable trend observed since 2007. Performance in 2011 confirmed the pitiful return to normal. Pitiful because it confirms once again the gulf between the French market and the other large European markets. Average per capita consumption in France is 1.8 kg less than the European average. In terms of volume, the shortfall exceeds 100 000 t on the French market. The excuse most frequently put forward is the market bottleneck caused by the very varied supply of fruits. But this does not hold up to scrutiny. Let's compare the level in France with that of the other markets in southern Europe where the diet is similar and where the supply of both local and imported fruits is large. Here again, France trails well behind and the figures are even worse. The average of Spain, Italy and Portugal is 2.5 kg greater; this means that France has a growth potential of 150 000 tonnes. With such disparities, the newly created French *Association interprofessionnelle de la banane* (AIB), that assembles all stakeholders in the banana sector from production to retail distribution will soon find objectives.



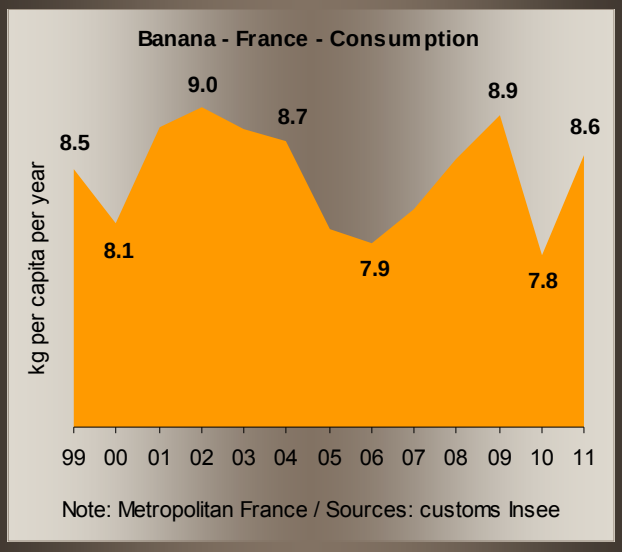
The French platform

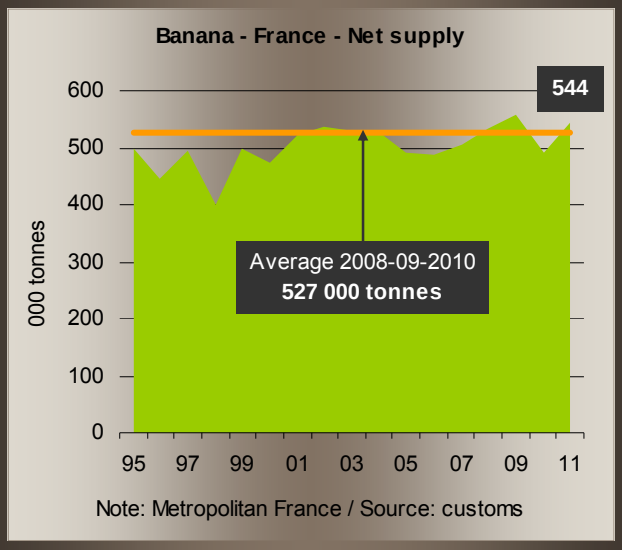
Although the beginning of the year was comparatively quiet in terms of the quantities released on the market the second part was very busy. Records were approached or beaten in August, September, October and finally in November when the figure reached 50 000 t for the month. Import turnover (net supply multiplied by the import price in France) also rose by 10% to 356 million euros, which was still far from the excellent performance of 2005 when the total reached 390 million euros.

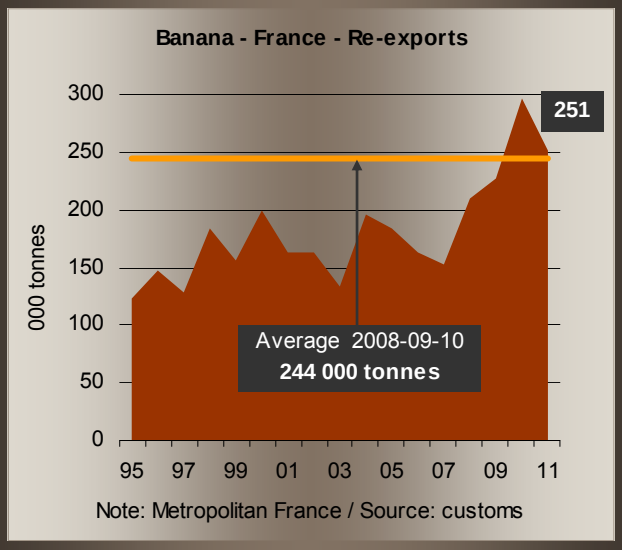
We know that France is one of the European redistribution platforms. Re-exports totalled 300 000 tonnes in 2010 after three years of steady growth. The increase in the volumes re-shipped to other member states ended in 2011. But the figure was still over 250 000 tonnes, which is nonetheless the equivalent of practically 50% of annual consumption on the French market. The fact that France is a producer country and ships practically all the fruits grown to metropolitan France and also the close links between France and the African source countries, and now Surinam and the Dominican Republic—that also ship their produce to France—account for this large quantity of goods. France acts as a platform for a total of some 800 000 t of bananas, that is to say 146% of domestic consumption.

Beware of dollar bananas

Calculating market shares is a challenge when so much produce is re-exported and when a fair proportion of domestic production is shipped abroad. Indeed, the customs do not specify the origin of fruits re-exported or re-shipped from within the country. It is therefore theoretically impossible to know whether they are from ACP country or the French departments in the Caribbean (Guadeloupe and Martinique). However, some information can be gained from the data. As France is not known as a supplier of dollar bananas (imported directly or via an EU member state), it can be considered that all the produce arriving from dollar production zones is retailed in France. If this hypothesis is true, it makes it possible to estimate the share of dollar bananas on the French market. And the amount will still be under-estimated as the record of the sources of more than 100 000 t arriving via a member state and sold in France is not available. However this may be, 2011 was a good year for dollar suppliers and therefore







a bad one for the traditional suppliers of the French market. The share of dollar produce increased from 10 to 13%, much less than the 25% observed in 2008 and 2009 when production in the French West Indies was gradually recovering from the serious damage caused by hurricane Dean in 2007. The present level of supply—doubtless underestimated—shows that these sources are firmly present, waiting for a supply weakness from a traditional source to increase their market shares.

It can be seen that the situation is delicate for the French market. It must first of all handle lasting under-consumption and weakness. It then has to manage the flow of bananas that are not to be sold in France but destabilise the situation when the other markets are overloaded. Finally, it must manage the dollar banana potential that is always ready to rush into the slightest breach ■

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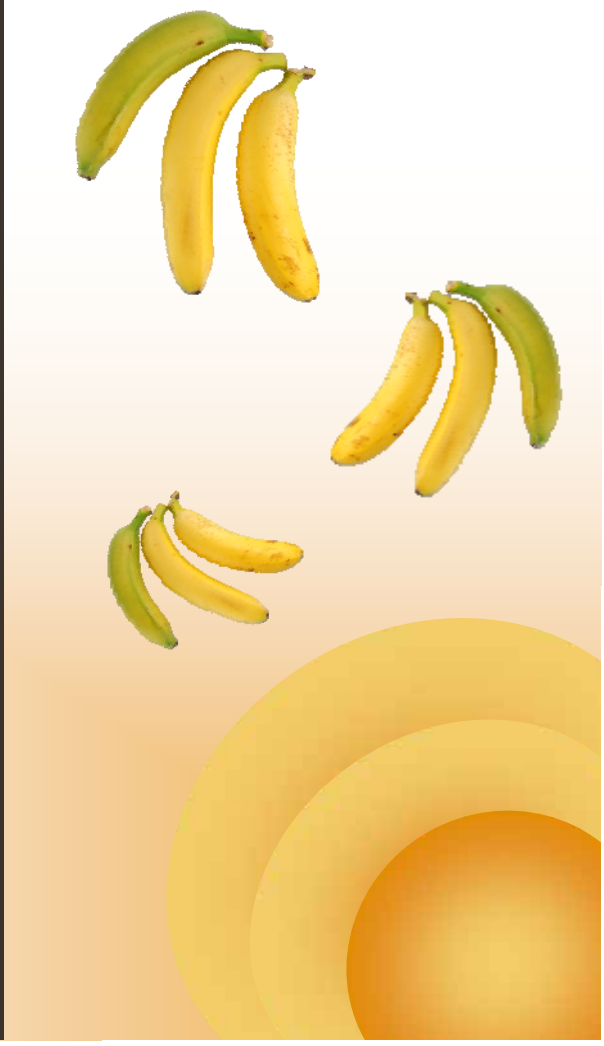

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The banana market in Spain

A little closer to the stars

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Everything is going magnificently for Spain, if we keep to the subject of bananas. It was doubtless one of the most successful sectors in the country in 2011. The figures are very clear: the average green price of the reference Super Extra (source: CIRAD) was EUR 1.02 per kg in comparison with EUR 0.72 in 2010 and EUR 0.92 in 2009. The situation was also good as regards volumes. Consumption of some 450 000 t was confirmed in 2011, in line with the results for 2010. And the bonus was that whereas 36 000 t of Canary Island bananas were destroyed in the plantations in 2010, this was applied to only 2 700 t in 2011. The only poor point was the erosion of the market share of Canary bananas on their domestic market. At 68% in mainland Spain, it was within 2% of the low point reached in 2009.

Close management of the quantities produced has enabled the Canary growers to manage their market and hence their selling price but without the preventive destruction of quantities such as in 2010. Finally, negotiating power was clearly in the hands of producers in 2011. The proof is that the Spanish market was totally disconnected from the rest of the European market, moving with a different phase pattern. For example, the green price of Canary Island bananas has rocketed during the last two 2-month periods while apathy was the rule elsewhere in Europe.

Spanish operators thus had a fine season. But the danger for them remains

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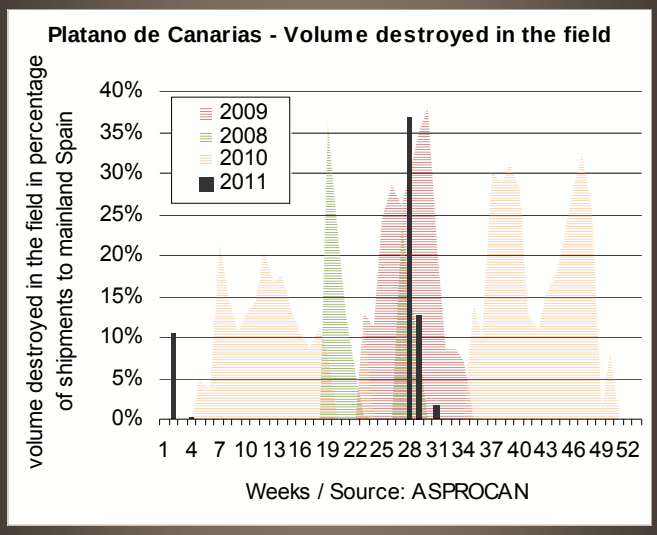

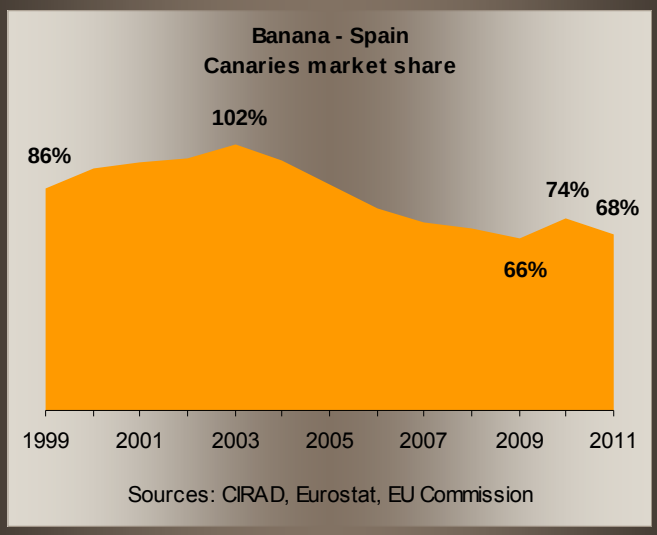

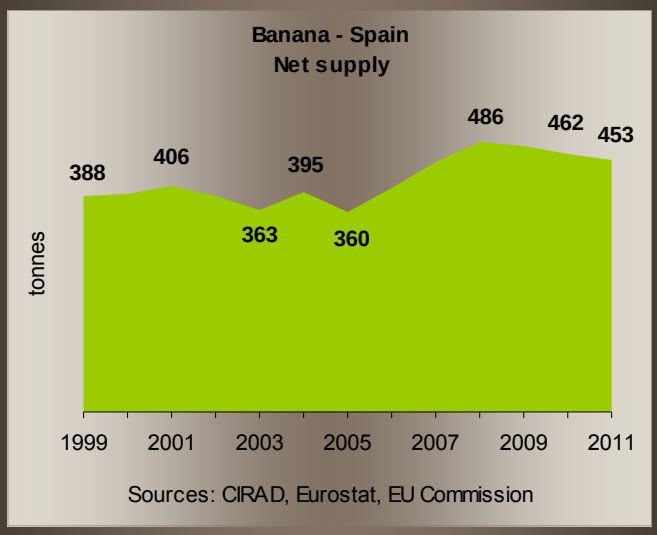

the greater risk than ever of an increase in the market share of bananas from third countries (ACP or dollar) or France. Here again, pressure was not too strong in terms of supply on export markets. The weather did its job. But in a liberalised market where the Spanish cultural exception 'platano de Canarias' is suffering face to face with imported bananas that are EUR 0.60 cheaper in the shops, marketing barriers are not as effective. However, we can finish on an optimistic note as if a French producer were to see his market increase by 50 000 tonnes in just a few years, cover two-thirds of production and be paid on a scale matching his production costs he would think more in terms of a conjuring trick than an accessible dream ■

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Producer country sheet

Banana
in Dominican Republic

by Claire Guillermet and Denis Loeillet

Banana growing is very important in the economy of the Dominican Republic. In 2009, it accounted for 8% of the value of total exports from the country (USD 200 million) and 5.2% of agricultural GDP. The opening of the European market after the Marrakesh Agreements in 1995 resulted in a staggering increase in exports of bananas to Europe. The total increased from 1 500 t in 1990 to 63 000 t in 2000 and is now nearly 300 000 t (source: CEI-RD, Adobanano). Even if the situation is changing, especially as regards sanitary conditions, the country benefits from a climate that favours low pest pressure (Black Sigatoka, nematodes, etc.), giving it a distinct comparative advantage for the production of organic bananas and fair trade.

Organisation of production

Bananas were introduced from the Canary Islands in 1516 by Fray Tomás de Berlanga. The history of the export sector consists of a long list of companies, often transnationals, that invested, exported and then withdrew from the sector. In 1906, United Fruit Company became interested in the country and then left a few years later. It was followed by the Grenada Company, the Dominican and Steamship Company, Fyffes, United Brand Company, etc. Today, there are nearly 2000 growers, two thirds of whom are considered as small producers, 27% as medium-sized and only 8% as large. They are members of the national federation Adobanano (Asociación Dominicana de productores de Banano).

Two large production zones

According to FAO figures, dessert banana production is some 600 000 tonnes, to which should be added 450 000 tonnes of cooking bananas (mainly AAB plantains). Dessert bananas were planted on about 20 000 ha in 2011 and nearly 52% was organic. There are two main production zones. In the north, Mao, Montecristi and Santiago provinces account for nearly 80% of dessert banana production for export. The rest is grown mainly in the south-west near Azua where the particularly dry climate means that production can be almost entirely organic. Some 50% of total production is exported.

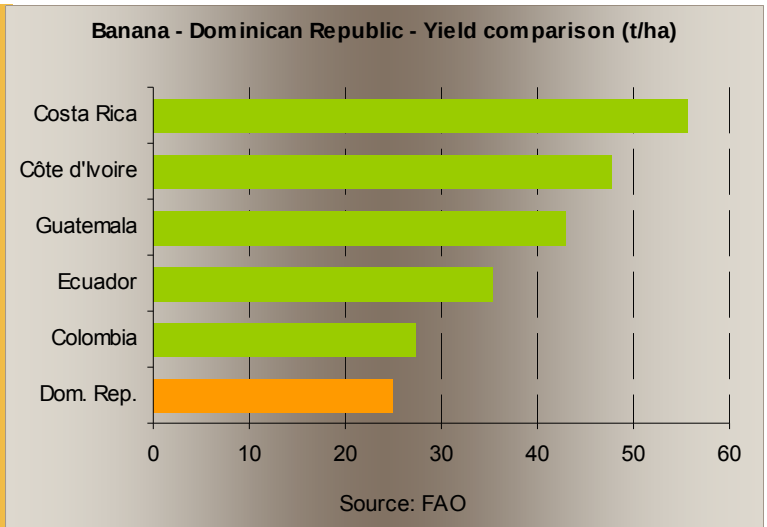
Small production structures

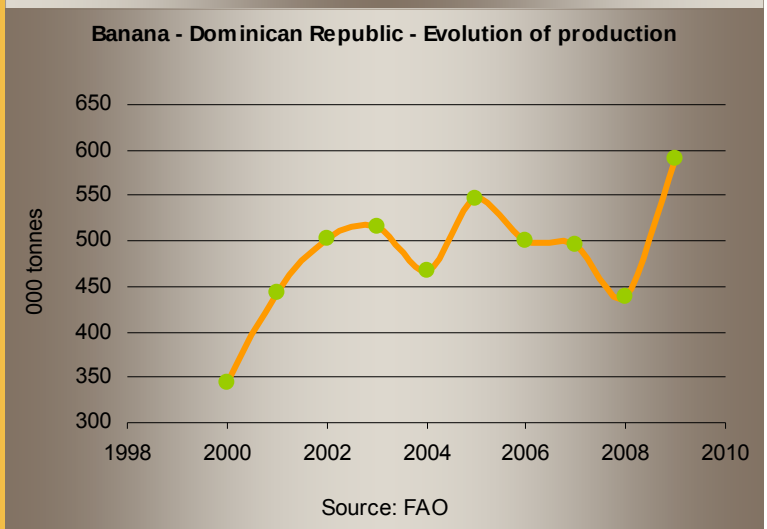
The 2000 growers belong to about thirty facilities (associations, cooperatives, etc.). In the north, production is centred on a few large-scale growers and several groups of small and medium-sized producers. About half of the plantations in this zone cover from 12 to 20 hectares. Farming systems thus vary strongly from one plantation to another. In the south there are only organised small growers. The average cultivated area in the country is thus small at an estimated 7 hectares. The general trend is towards an increase in average plantation area and a decrease in the number of small growers.

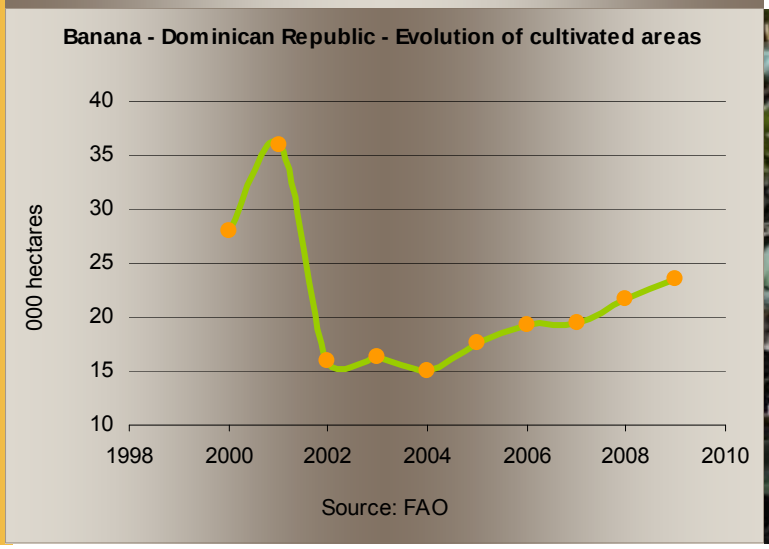
Dominican production features farming systems with low investment and extremely dependent on a large, cheap labour force, often Haitian. This totals 20 000 to 30 000 full-time and seasonal workers.

Flood irrigation is used on about 80% of the watered plantations. Subfoliar sprinkler systems that use considerably less water are much less used.

Yields are fairly small at less than 30 tonnes per hectares, much smaller than the 45 to 55 t/ha observed in Latin America (FAO Stat, 2009). Professional sources confirm this scale of yields of 1 600 to 1 700 export boxes per ha in conventional farming and 1 400 to 1 600 boxes per ha in organic farming.







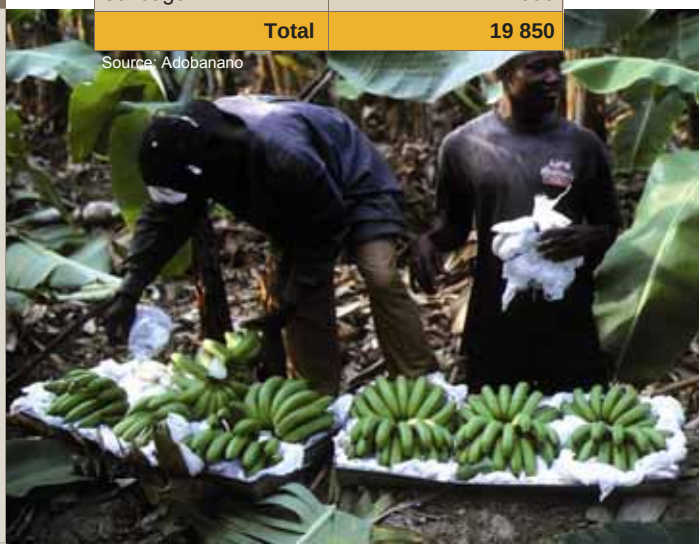
Cost structure

The cost structure (not counting depreciation and land) varies considerably from one plantation to another. However, cost price levels seem fairly competitive. Mention is made of some USD 5.40 per box ex packing station, to which must be added about USD 1.60 for the box and the polybag, giving a total of USD 7.00 per box. Labour accounts for less than a third of total cost price. The labour:land ratio is about 2 workers per hectare. The rest of the cost covers fertilisation, bunch care and crop protection.

It is difficult to calculate the additional cost per box of organic and fair trade certification as the rate vary according to the certification bodies and there are many practices. The producers' group sometimes handles this service and sometimes the development grant is used to finance the label. Costs may also be shared at production area level, etc. The scales of certifications are as follows: USD 70 to USD 135 per hectare for organic produce and around USD 200 USD/ha for fair trade.

Banana — Dominican Republic Planted areas by province (ha)	
Mao	11 910
Montecristi	6 550
Azua	794
Santiago	596
Total	**19 850**

Source: Adobanano



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Exports

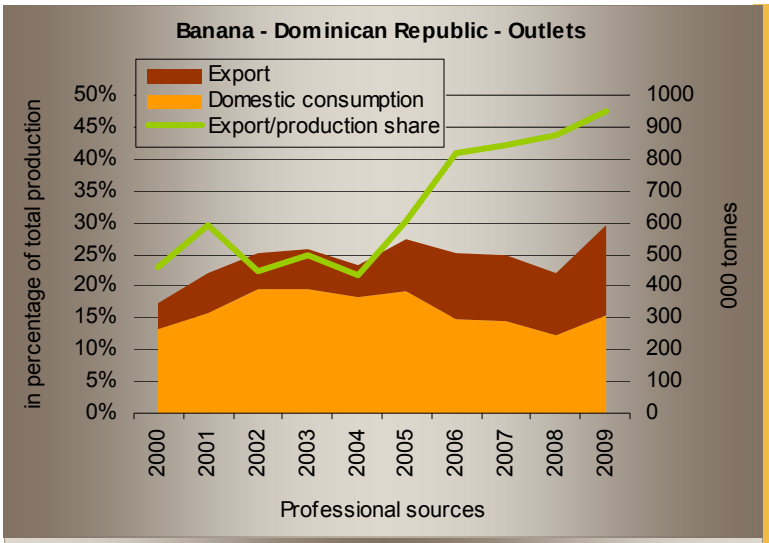
Strong positioning in labels

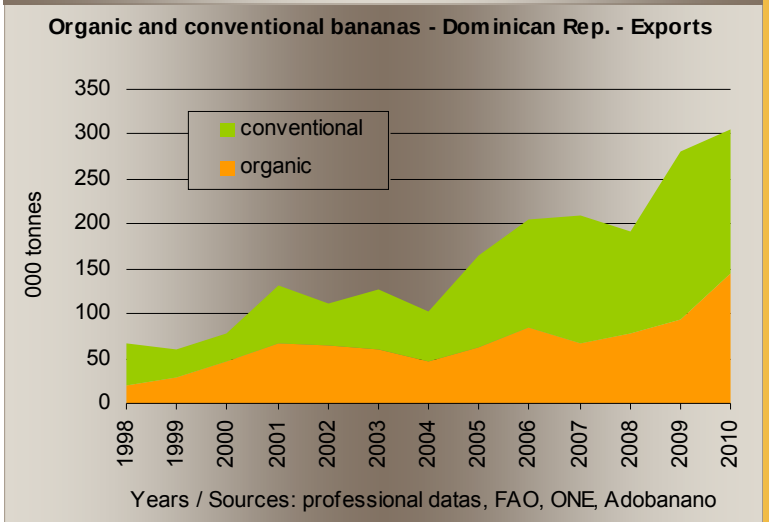
There are some ten dessert banana exporters. Produce with organic and fair trade labels forms the greater proportion of Dominican banana exports (sources: FAO Stat and Adobanano, 2010). Organic bananas thus have considerable importance for the economy as they form more than 80% of organic exports. Market leader until 2006, the Dominican Republic is now the second-largest exporter of organic bananas after Ecuador. It is practically on a level with Peru (source: FAO, 2008).

Several certification bodies operate in the Dominican Republic: BCS Öko Garantie (Germany) with nearly 70% of certifications, and also Imo Control (Germany, Switzerland), Suolo Italia (Italy), Skal (the Netherlands) and Demeter (Germany). In addition to organic certification (EU, US and Japanese standards), Control Union also handles inspection and GlobalGap Tesco Nature's Choice certification.

A market strongly dependent on European imports

The Dominican Republic benefits from ACP status as regards European customs policy. Banana imports enter EU-27 tax-free. Exports to the United States are also tax-free. More than 90% of dessert banana exports are shipped to the European Union (source: Oficina Nacional de Estadísticas de Rep. Dominicana, 2010). The United Kingdom is the main destination, mainly because the organic market is very large (more than 75% of organic bananas, source: CEI-RD). At the regional level, Haiti is the main trading partner, accounting for 4.5% of exports, that is to say nearly 12 000 tonnes per year. But the Dominican Republic also has a very large domestic market that takes more than 40% of production.





Banana — Dominican Republic
Exports and planted areas in 2010

	Volume exported		Planted areas	
	tonnes	%	hectares	%
Organic, of which	**144 856**	**48%**	**9 501**	**52%**
Organic	92 069	30%		
Fairtrade organic	52 787	17%		
Conventional, of which	**159 656**	**52%**	**8 633**	**48%**
Conventional	85 254	28%		
Fairtrade conventional	74 402	24%		
Total	**304 512**	**100%**	**18 134**	**100%**

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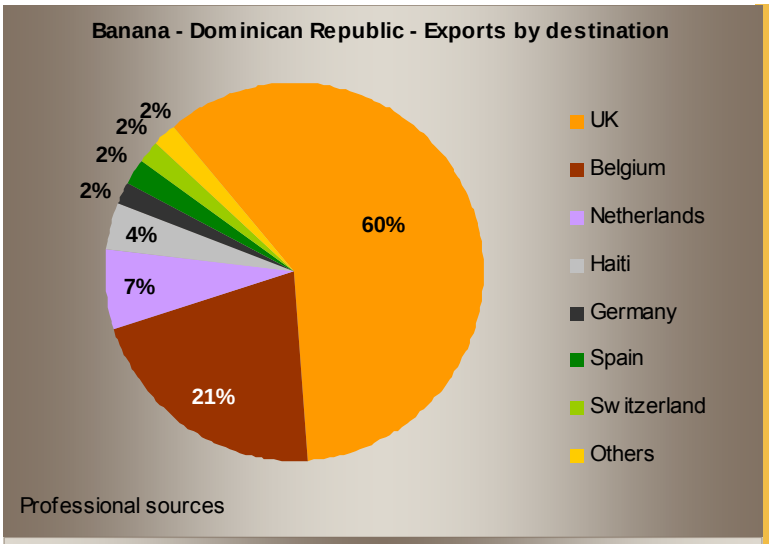
Main operators

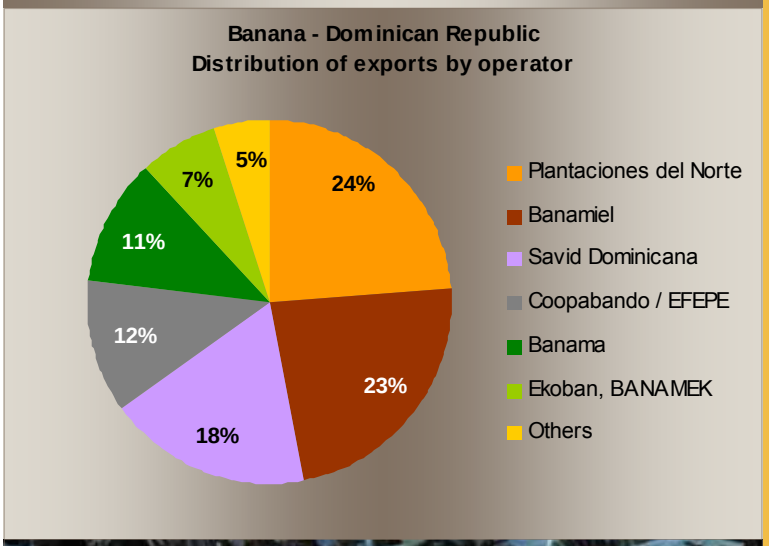
The banana sector features a host of stakeholders. The banana producers' association Adobanano groups 18 associations: producers and/or exporters, cooperatives and groups of associations. Most export both conventional and certified fruits. The two largest exporters are in the north of the country. These are Plantaciones del Norte and Banamiel and account for nearly 50% of the Dominican Republic's export potential.

Logistics

The produce is transported to the various ports in refrigerated containers. More than 80% is shipped from Manzanillo in the north-west of the island. The rest leaves from the south, mainly from Haina Oriental (20%), east of Santo Domingo.

European ports are reached in 11 days and the closest US ports in 3 to 4 days.





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The organic banana market

A niche market that grows and grows

© Denis Loeillet

World production increasing, with some producer countries becoming specialists

World organic banana exports have grown continuously since the beginning of the 2000s, increasing from 30 000 tonnes to nearly 400 000 tonnes in a decade. The leading world exporter was initially the Dominican Republic which in around 1995 converted a large proportion of its conventional production to organic farming in response to growing demand from European markets. World exports accelerated rapidly from 2005 onwards when Ecuador, the world's leading exporter of conventional bananas, went into the organic production. The initiative was followed in other countries such Colombia, Peru and Ghana.

In recent years, the countries in which conventional bananas are grown have been less present on the organic market as a result of weather and phytosanitary problems such as Black Sigatoka (Colombia, the Dominican Republic or Ecuador) and also because the profitability of organic production is smaller for reasons of low yields and high certification costs. The growth observed in recent years results mainly from growth in the countries specialising in organic production, such as Peru, where climatic conditions are very favourable for the crop: dry zones with investment in irrigation strongly limit diseases and especially Black Sigatoka.

The decrease in organic banana production in Ecuador in recent years is explained by high costs (production, conformity with standards, certification) and increased pressure from pests and diseases. Many small planters have returned to more profitable conventional growing. However, new projects launched by large national producers are being developed in the zones that are most suited to organic

farming. For example, 1 000 ha is being planted at Loja at the Peruvian frontier and should come into production at the end of 2012. Many other new plantations are reported to be getting under way, benefiting from the fact that pest pressure is still small.

Likewise, Ghana should play a larger role on the market in the years to come as the operators already installed gain weight. The situation in Peru is also flourishing and will continue to be so as pest and disease pressure is very small and the sector is very resilient as it is based on a very large number of small planters and production costs are low. In contrast, transport costs are very high as it is the country farthest from Europe and goods have to transit via the Panama Canal, where a further increase in prices is planned.

Times are more difficult for the Dominican Republic. First of all, cultivable land cannot be extended infinitely. The rate of growth has been very high, with volumes doubling in ten years. Furthermore, climatic variations and poor management of Black Sigatoka strongly limit the extension of organic banana production. When will operators and the authorities to react and organise control that can only be coordinated and applied everywhere?

The profitable American market

Demand for organic products in general has increased steadily in the United States for the last ten years. In 2010, 4% of all foods sold was organic, in comparison with 1.2% in 2000 (source: Organic Trade Association). While bananas are considered to be a mature market in the USA, with imports stagnating at around 4 million tonnes since 2000 (source: 2010 banana statistics, ODEADOM-CIRAD), sales of organic bananas have continued to display one of the strongest growth rates for fruit and vegetables on the US market. It is estimated that organic banana imports increased from 27 000 tonnes in 2000 to more than 100 000 tonnes in 2010. However, market penetration by organic bananas is still comparatively small as these fruits form only some 2.5 to 3% of total banana imports in 2010.

The main distribution channels are those of conventional bananas, that is to say the large multinational corporations that supply the US market: Chiquita, Dole, Fresh Del Monte and Daabon Organics USA (source: University of Florida).

The retail price of both organic and conventional bananas increased from 2007 to 2012 (source: AMS-USDA). However, the difference in the retail prices for organic and conventional fruits de-

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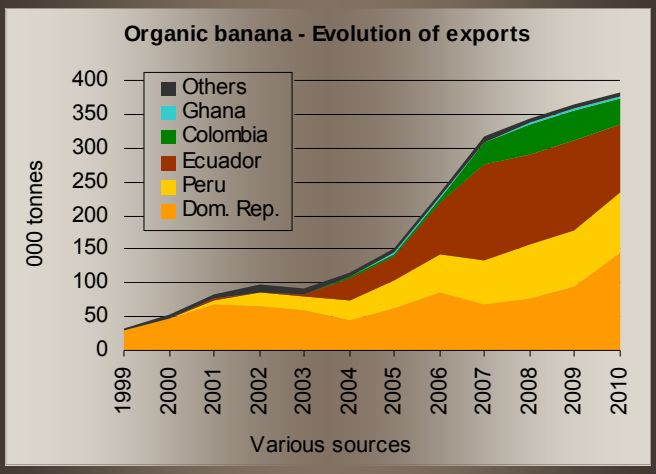
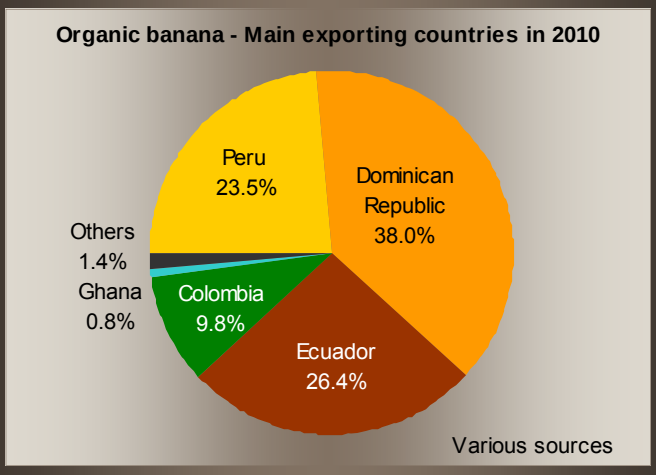
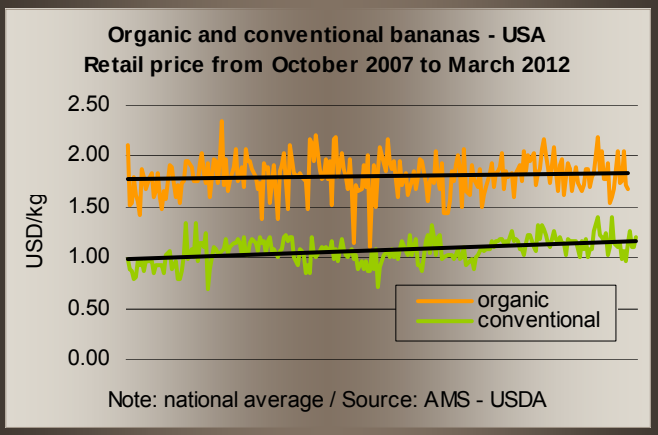
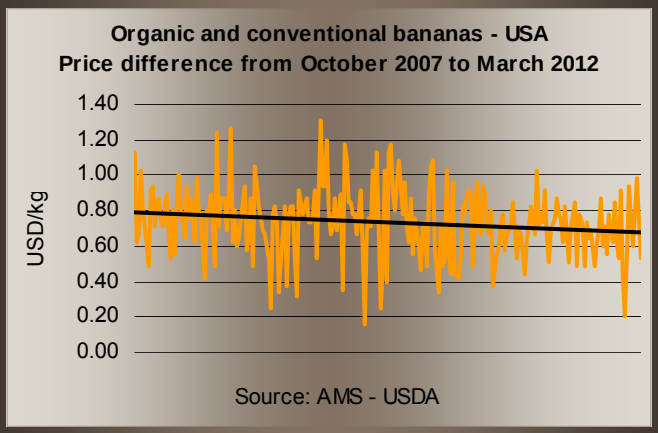


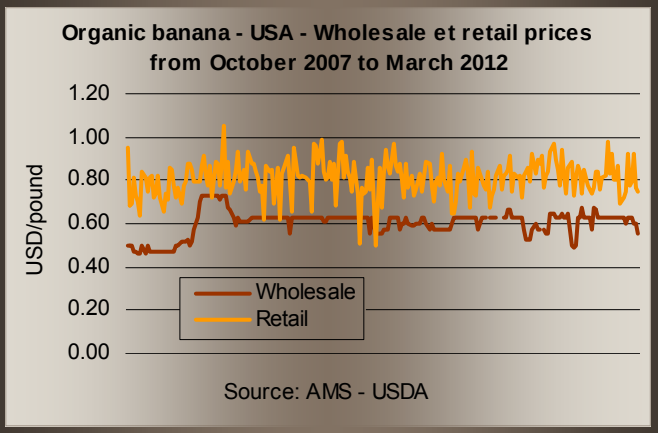


Organic banana — USA — Main suppliers

Countries	Market shares
Ecuador	52%
Colombia	24%
Peru	18%
Others	6%







creased from USD 0.79 in 2007 to USD 0.69 in 2012.

A new key reference in retail distribution in Europe

The European market is the main destination for organic bananas, taking more than 280 000 tonnes in 2010. This is practically three-quarters of world production. Indeed, it is estimated that the EU receives 67% of production from Peru, 65% of that of Ecuador, 100% of that of Ghana, 50% of that of Colombia and 95% of that of the Dominican Republic. But these volumes form only 6% of the total quantity of banana—both organic and conventional—imported to the EU.

The European market has seen the beginning of the convergence of prices of conventional and organic bananas in recent years. Whereas the retail price of conventional bananas increased during the period 2007-2010 (French data), that of organic fruits decreased strongly and the gap closed to its narrowest point at the end of 2010-beginning of 2011. It was EUR 1.11 per kg in 2007 and only EUR 0.69 per kg in 2011, showing the considerable progress made by this segment of the retail sector. The return to a degree of stability has been observed since 2011, with the price of organic bananas oscillating between EUR 2.09 and EUR 2.30 per kg.Seasonal price variations seem much less marked than for conventional bananas. Finally, organic bananas have become key retail distribution reference, even in discount stores.

Has the organic market reached maturity? Is it seeking more opportunities?

Organic certification

In the United States, the OFPA (Organic Food Production Act) required USDA to create National Organic Standards for organic produce/products. USDA-accredited officials — who may be private persons or government entities — certify that production is in conformity with the standards in force.

The situation is more complex in Europe. Council Regulation (EC) No 834/2007 applies to all organic production and all types of activity (production, processing, distribution, importing, etc.) and guarantees the inspection of organic goods from third countries. Some countries—Argentina, Australia, Costa Rica, India, Israel,

New Zealand and Switzerland—have been recognised as applying equivalent regulations and their organic produce can be imported freely into the European Union.

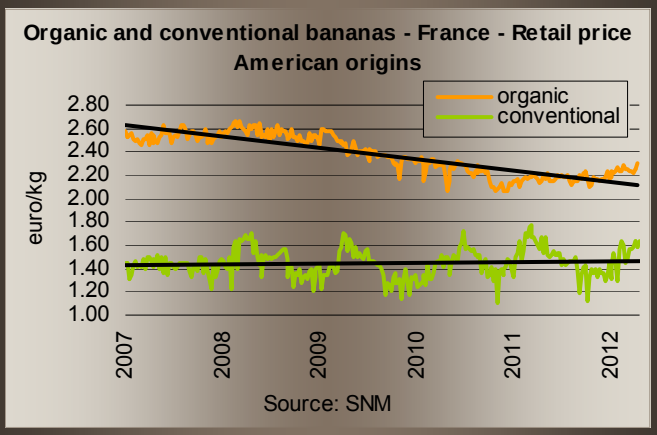
In contrast, importers must obtain import permits from the member states. They must prove that the products comply with requirements that are identical or equivalent to those of EU organic products and that inspections have been duly carried out. The goods must be accompanied by an import certificate checked at entry to the EU.

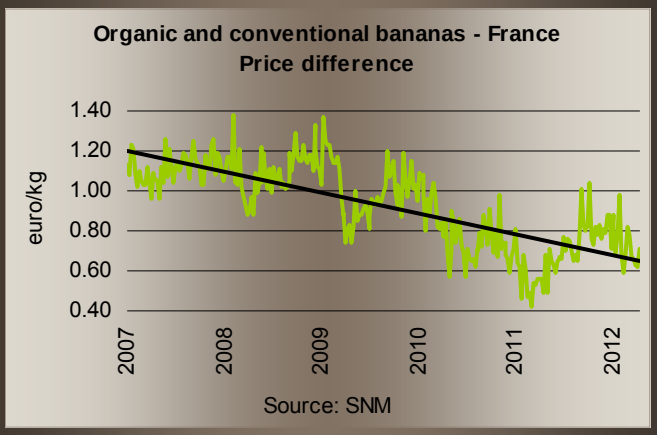
For example, an importer in France must lodge his request with the Ministry of Agriculture that will check the production and inspection rules in the third country are equivalent to those of the European Union. Furthermore, the exporter in the third country must provide a certificate from his EU-accredited inspection body that states that his organic exports comply with the rules of organic farming throughout the chain. The European Commission is informed of all the decisions taken by member states concerning the import files handled. This procedure prevents products whose import is forbidden in one state to be authorised in another. A new measure aimed at extending the principles of the list of countries and certification bodies recognised directly by the Commission is currently being set up.

In order to obtain certification and label goods as 'organic', the products sold in Europe must be inspected by an inspection body approved by the public authorities in order to check that they comply with the official regulations governing organic farming. These independent bodies that are accredited in accordance with European Standard EN 45011 perform field checks of the compliance of farms and agrifood industries before issuing them with certification documents. The inspection bodies are subjected to on-site evaluation, supervision and regular pluri-annual re-evaluation by the accreditation body (COFRAC in France).

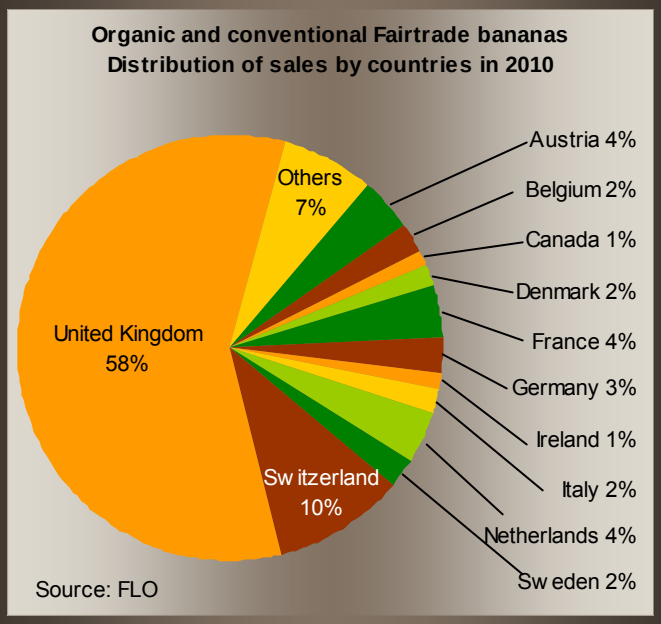
Convergence between US and EU organic

The organic certification programmes in the United States and Europe have been declared to be identical since February 2012, implying the equivalence of certification procedures in the two main zones for the production and import of organic products. Thus products certified in the USA can now be sold in the EU and vice versa without additional certification or documents. Companies previously had to obtain certification in both the USA and the EU, each with their costs, inspections and documents. The equiva-





Organic banana— European certification bodies
ECOCERT SA (FR), ECOCERT International (DE)
Control Union Certifications B.V (NL)
BCS Öko – Garantie Gmbh (DE)
IMO Institure fur Marktocologie (CH)
CERES Gmbh (DE)
Bioagricert Srle (IT)
Soil Association Certification LTD (GB)



lent organic standards eliminate many barriers, especially for small and medium-sized producers. The prospects of outlets for organic goods should continue to increase and be limited by nothing other than supply falling short of demand.

Varied and multiple certifications

Today, organic bananas are not sold exclusively as such. In Europe most have additional certification labelling that guarantees the respect of certain environmental and/or social standards defined in private specifications. There is thus a diversity of types of certification and also private retail distribution labels (see box). The commonest certifications used in the banana world are organic certification, Fairtrade, Rainforest Alliance, GlobalG.A.P., Tesco Nurture, ISO 14001 and SA 8000.

What is the position of fair trade on the organic banana market?

Not all organic bananas are in the fairtrade category and not all fairtrade bananas are organic! But these features are often confused in certain importing countries.

Of the 287 000 tonnes of fairtrade bananas sold in 2010 in Europe in the broad sense (certified by Fairtrade), about 70% were conventional and 30% organic (some 86 000 tonnes). Thus 31% of the organic bananas imported to Europe would seem to have Fairtrade certification.

Organic and conventional Fairtrade bananas
Evolution of minimum price payed to producer **(FOB in USD 18.14 kg box)**

Origin	Type of production	2008		2009		2010		2011		2012	
		Minimum price	Bonus	Minimum price	Bonus	Minimum price	Bonus	Minimum price	Bonus	Minimum price	Bonus
Colombia	Organic	8.50	1.00	8.50	1.00	10.70	1.00	11.10	1.00	11.75	1.00
	Conventional	6.75	1.00	6.75	1.00	8.50	1.00	8.90	1.00	9.10	1.00
Dom. Rep.	Organic	10.00	1.00	10.00	1.00	12.30	1.00	12.36	1.00	13.05	1.00
	Conventional	8.50	1.00	8.50	1.00	10.10	1.00	10.15	1.00	10.55	1.00
Ecuador	Organic	8.50	1.00	8.50	1.00	10.40	1.00	10.50	1.00	11.00	1.00
	Conventional	6.75	1.00	6.75	1.00	8.20	1.00	8.40	1.00	8.50	1.00
Ghana	Organic	10.00	1.00	10.00	1.00	11.25	1.00	11.41	1.00	8.75	0.72
	Conventional	8.00	1.00	8.00	1.00	9.25	1.00	9.38	1.00	7.03	0.72
Peru	Organic	8.50	1.00	10.10	1.00	10.10	1.00	10.28	1.00	11.25	1.00

Source: FLO

Access to Fairtrade certification, like all the other types of certification, has a cost, both for the producer who wishes to comply with standards and pay for the visit of a specialist, and for the ripener, who must pay a fee for promotion and communication costs.

Sales of fairtrade bananas increased simultaneously with geographic segmentation. The British market is the main outlet with 58% of sales, especially via supermarket chains that exhibit the determination to sell only fairtrade bananas—the case of Sainsbury's and Waitrose in 2007. Likewise, Co-Op announced in early 2012 that it would switch to 100% fairtrade bananas. This is a growing trend that gives the retailers a good image but also forms an undertaking with the sector.

In contrast, sales of conventional fairtrade bananas are not as successful in France (or Germany and Austria) as they are in the UK and practically all the fairtrade bananas sold in France in 2010 were organic. This lack of commercial success can be explained by the presence of bananas from the French West Indies that cannot claim fairtrade certification but are fully respectful of the environment and European minimum social standards.

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What is the future of organic bananas?

The organic banana market is growing. It is now unthinkable not to have organic bananas in the range of supermarket references, even in discount chains, without mentioning the growth of chains specialising in organic products and fairtrade. Mention can be made of Auchan in France that has just opened its first superstore devoted exclusively to organic products and label-bearing sustainable products. European demand has become more responsible in terms of both the environmental and social standards and so what are the limits to the growth of this market?

In addition to the physical constraints such as the availability of land and the climatic conditions that are essential for organic farming, supply of organic bananas is much more fragile and dependent on the weather and the prevalence of pests and diseases than conventional production. The appearance or intensification of certain poorly mastered diseases imperils the development and future of the crop. World supply may increase but it seems unlikely that volumes will rocket, especially in zones where conventional spraying may become necessary to fight certain diseases.

What is certification?

Certification is a written document provided by independent, accredited certification bodies that guarantees that a produce, a production or distribution process meets certain criteria defined by a specific standard (FAO, 2009).

Certification can concern a product or a process and sometimes, as in fairtrade standards, the sales process. These standards can be classified as 'environmental questions' (soil conservation, protection of water, use of pesticides or waste management), 'social questions' (labour law, hygiene and safety at the workplace) or concern other questions such as the harmlessness of foods.

A new European organic logo has been in use since July 2010. It is obligatory when the product is packaged in the EU but optional if the product is packaged in a third country, which is the case of bananas.

Used on a voluntary basis, 'AB' is a French label. It allows professionals who so wish and who comply with the rules for its use to affix specific identification to their products. The label is the exclusive property of the French Ministry of Agriculture, which lays down the rules for its use. It guarantees the following features:

- the foodstuff contains at least 95% organically produced ingredients using agricultural and livestock practices that respect natural balances, the environment and animal well-being;
- respect of the regulations in force in France;
- certification under the control of a body approved by the public authorities and that complies with the criteria of independence, impartiality, competence and effectiveness as defined in European Standard EN 45011.

According to the CSA/Agence Bio 2008 'barometer', 85% of French people know the AB label and 84% of consumers use it as a guide when purchasing organic products (source: Agence Bio, 2012).

In addition, as regards the profitability of the sector, the cost of compliance with standards in order to obtain certification is often a dissuasive feature for producers, not to mention the cost of extra certification for retail distributors. Thus if the pressure of productions costs and compliance with standards becomes too strong, it is preferable for producers to switch back to a conventional production system.

Demand in both Europe and the United States still appears to be very dynamic and growing in the organic banana segment. In contrast, in the context of general economic downturn in which purchasing power has already taken a knock, it seems unlikely that all consumers would be willing to pay more than EUR 2 per kg for bananas. Especially when it is possible to find conventional bananas, for which the strategy is precisely that of being 'anti-downturn' produce, at particularly low prices and that also claim sustainability—even if this is more of an incantation than reality. Organic bananas will be unable to participate in the retail price war as it is a segment whose value is more fragile, with production costs, compliance with standards and certification contributing to raising the retail price. The question is all the more pertinent for fairtrade bananas that are even more expensive for the consumer. The case of the United Kingdom is reassuring so far, with retail chains basing their activity on fair trade and seeming to be able to hold on, which is not the case in other countries, such as France.

Furthermore, care should be taken to avoid excess certification. Consumers are becoming more and more lost in the over-certified universe of retail chains and are therefore losing confidence in the actual value of the labels. It is essential that the basic guarantees (whether organic or fairtrade) provided by the various types of certification should not be called into question or that standards be changed to allow access to a greater number of producers. Possible scandals concerning the undue use of one substance or another could call into question the credibility of certification and of the entire sector! Finally, everything is based on a relation of confidence set up with consumers and is therefore fragile ■

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A few examples of certification

GLOBALG.A.P.: a guide to good agricultural practices and workers' safety

GLOBALG.A.P. has become a basic certification for entry to the European market. A private sector body defines the references on a voluntary basis for the certification of agricultural produce/products (including aquaculture) on a worldwide scale. The references are designed mainly to reassure consumers with regard to the way in which foodstuffs are produced on farms by reducing the harmful effects of farming activities on the environment to a minimum, reducing the use of chemical inputs and guaranteeing a responsible approach to workers' health and safety and animal well-being.

Rainforest Alliance: environmental certification

Undertakings that scrupulously respect sustainable development standards can use one of the seals registered by the Rainforest Alliance so that products and services will stand out on the market. This is the case of the farms that respect all the criteria of the Réseau pour une Agriculture Durable (Sustainable Agriculture Network), forestry operators who respect the strict standards of the Forestry Stewardship Council (FSC) and tourism companies that demonstrate the progress they have made in reducing their environmental footprint and in supporting works, local culture and neighbouring communities.

Tesco Nurture (formerly Tesco Nature's Choice): a guide to good agricultural practices

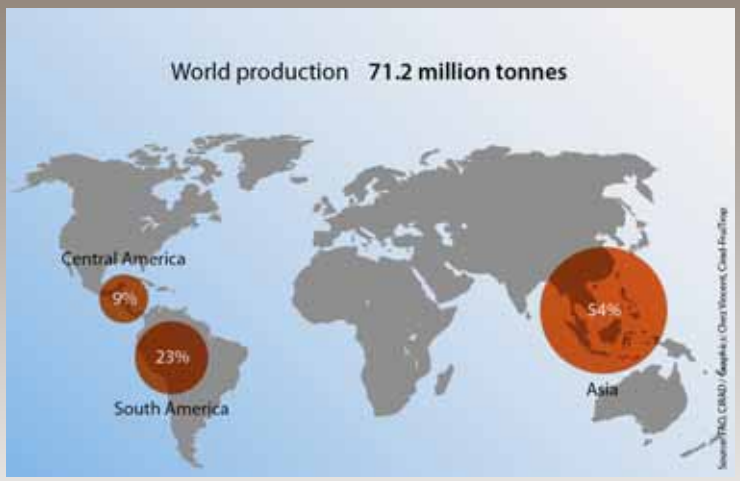
The Nurture scheme is a code of good agricultural practice focused on the conservation of biodiversity and, in a general manner, on conservation and the environmental management of farms. Similar to the GLOBALG.A.P. code, the reference was developed by the British retail chain Tesco and ADAS (Agricultural Development Advisory Service). Tesco Nurture requirements are sometimes stricter than legal requirements. The standard concerns all Tesco's suppliers of fresh fruits, vegetables, salads and other horticultural products. Nurture certification can be combined with GLOBALG.A.P., BRC or IFS.

Fairtrade

Fairtrade consists of a variety of standards drafted by certain NGOs. The most widespread one in the banana sector is that of FLO International, an NGO based in Germany. The member organisations (including Max Havelaar) work with small growers and agricultural workers with the aim of improving their living and working conditions while respecting precise environmental standards. Certification is thus awarded by FLO-Cert, an independent body, after a visit by its auditors.

Fairtrade seeks to achieve 'fair' remuneration of producers by means of a precise payment system. In the case of banana, the price is in two parts: the minimum fairtrade price—the lowest possible price that can be paid to producers for their produce—and a development bonus, an extra sum paid to producers for investment in their trade activities and their communities or for the socioeconomic development of workers and their communities. An organic differential also exists for certain organic products. However, for banana the minimum price already allows for the difference between organic and conventional production.

BANANA — Production



Banana — The 10 leading producer countries	
tonnes	**2009**
India	18 582 400
China	7 540 427
Brazil	6 709 839
Ecuador	5 320 000
Philippines	5 100 000
Indonesia	3 753 056
Colombia	2 689 000
Costa Rica	2 020 000
Mexico	1 769 545
Guatemala	1 510 000

Professional sources, FAO

BANANA — Imports

Banana — The 10 leading importing countries	
tonnes	**2011**
United States	4 122 683
Russia	1 307 600
Belgium	1 306 734
Japan	1 064 125
United Kingdom	945 559
China (2010 figure)	906 971
Germany	786 393
Italy	542 514
France*	275 258
Spain*	103 936

* of which island production sold locally or shipped to the continent.
Sources: national customs

USA — Imports — Main supplier countries							
000 tonnes	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Guatemala	1 029	913	1 093	1 189	1 112	1 152	1 333
Ecuador	904	994	929	830	958	980	879
Costa Rica	823	927	1 037	874	563	835	845
Honduras	453	423	483	506	389	436	445
Colombia	514	474	377	451	422	461	385
Mexico	34	39	32	66	105	146	149
Nicaragua	38	30	33	31	25	36	36
Panama	2	8	1	8	5	29	28
Peru	22	25	18	23	20	20	23
Dominican Rep.	4	6	2	-	1	-	1
Total	**3 824**	**3 839**	**4 004**	**3 978**	**3 599**	**4 094**	**4 123**

Source: USDA

Canada — Imports — Main supplier countries							
000 tonnes	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Guatemala	57	79	75	81	93	90	147
Costa Rica	62	88	125	115	71	106	118
Ecuador	54	94	100	121	164	147	110
Colombia	106	174	138	122	129	115	93
Honduras	12	10	23	29	17	30	27
Peru	3	2	1	1	1	2	2
Mexico	1	2	2	3	2	1	2
United States	2	2	2	1	1	1	1
Total	**299**	**459**	**472**	**478**	**482**	**496**	**507**

Source: COMTRADE

BANANA — Exports

Banana — The 10 leading exporting countries	
tonnes	**2010**
Ecuador	5 450 000
Costa Rica	2 004 000
Philippines (estimate)	2 080 000
Colombia (estimate)	1 730 000
Guatemala	1 670 000
Honduras	491 000
Canaries	307 410
Dominican Rep. (2010 figure)	304 500
Panama (2010 figure)	295 270
Cameroon*	234 000

* EU volumes / Professional sources and national customs

Latin America + Caribbean — Imports							
000 tonnes	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Argentina	303	302	296	319	347	344	351
Chile	160	168	169	169	175	179	176
Salvador	105	109	105	119	113	96	112
Honduras	-	1	20	16	0	63	63
Uruguay	44	48	45	42	43	42	42
Colombia	71	67	31	89	72	67	25
Costa Rica	11	26	18	24	28	26	22
Trinidad	3	2	3	4	4	5	15
Nicaragua	-	-	-	3	3	6	8
Aruba	0	0	0	0	0	3	3
Guatemala	14	4	5	12	7	5	2
Total	**711**	**727**	**691**	**798**	**792**	**835**	**819**

Source: COMTRADE

EU-27 — Imports — Main supplier countries

000 tonnes	2005	2006	2007	2008	2009	2010	2011
Total EU prod., incl.	**648**	**642**	**555**	**568**	**608**	**660**	**612**
Canaries	345	348	361	371	352	397	346
Martinique	226	221	129	125	180	199	181
Guadeloupe	54	48	38	47	56	43	62
Madeira	14	15	17	18	14	14	15
Cyprus	6	7	6	4	3	5	6
Greece	3	3	3	3	3	2	2
Total dollar, incl.	**2 959**	**3 290**	**3 847**	**3 964**	**3 555**	**3 498**	**3 631**
Ecuador	1 059	1 026	1 186	1 349	1 278	1 223	1 340
Colombia	878	948	1 156	1 281	1 206	1 168	1 137
Costa Rica	623	825	971	902	753	777	845
Panama	281	311	354	295	183	184	160
Peru	12	23	34	39	44	51	66
Brazil	63	96	86	58	56	64	52
Honduras	19	18	32	24	9	15	17
Mexico	3	1	0	2	22	13	10
Guatemala	3	27	19	14	4	3	3
Venezuela	17	15	10	0	0	0	0
Total ACP, incl.	**764**	**889**	**843**	**919**	**958**	**1 024**	**977**
Dominican Rep.	145	177	206	171	228	304	327
Cameroon	253	251	222	280	250	243	234
Côte d'Ivoire	184	222	189	217	229	244	224
Belize	74	73	62	82	80	79	71
Surinam	35	45	59	66	58	70	63
Ghana	4	22	34	46	36	52	47
Saint Lucia	28	37	30	39	33	23	6
Dominica	13	13	7	10	36	4	4
Saint Vincent	16	17	14	9	8	4	1
Jamaica	12	32	18	40	0	0	0
Other ACP	2	2	2	0	0	0	-
Total							

Source: EUROSTAT

Other Western Europe countries — Imports

000 tonnes	2005	2006	2007	2008	2009	2010	2011
Norway	74	74	78	82	81	80	79
Switzerland	73	75	78	84	81	78	78
Iceland	5	5	6	6	6	6	6
Total	**152**	**154**	**162**	**171**	**168**	**164**	**163**

Source: COMTRADE

Russia — Imports — Main supplier countries

000 tonnes	2005	2006	2007	2008	2009	2010	2011
Ecuador	791	798	920	903	911	977	1 200
Costa Rica	15	27	2	66	33	48	39
Philippines	21	30	25	32	25	30	35
Colombia	28	21	22	-	5	10	18
Panama	4	10	-	-	-	-	12
China	2	2	6	5	4	3	2
Vietnam	1	1	-	-	-	-	1
Mexico	-	-	0	0	3	1	-
Others	2	6	3	-	-	-	-
Total	**865**	**895**	**979**	**1 007**	**981**	**1 069**	**1 308**

Source: COMTRADE

Ukraine — Imports — Main supplier countries

000 tonnes	2005	2006	2007	2008	2009	2010	2011
Ecuador	221	220	289	270	202	200	222
Costa Rica	9	22	2	5	8	12	13
Colombia	15	5	1	2	9	3	8
Panama	2	2	0	0	3	0	5
Guatemala	0	13	6	0	5	0	0
Mexico	0	7	46	0	57	0	0
Honduras	2	2	0	0	0	0	0
Total	**249**	**272**	**298**	**278**	**227**	**215**	**248**

Source: COMTRADE

Other Central and Eastern Europe countries — Imports

000 tonnes	2005	2006	2007	2008	2009	2010	2011
Serbia	58	56	66	69	43	42	52
Croatia	54	51	55	57	52	49	43
Belarus	29	29	33	42	37	44	40
Bosnia	45	38	38	41	37	37	38
Macedonia	18	15	16	15	17	17	19
Albania	17	17	20	17	17	18	17
Moldavia	7	7	11	13	12	11	12
Montenegro	0	8	9	8	8	7	7
Total	**227**	**222**	**248**	**263**	**223**	**224**	**230**

Source: COMTRADE

Japan — Imports — Main supplier countries

000 tonnes	2005	2006	2007	2008	2009	2010	2011
Philippines	944	911	879	1 019	1 159	1 035	1 004
Ecuador	91	101	52	46	62	46	34
Peru	4	4	8	7	11	8	9
Taiwan	15	16	19	9	9	10	8
Mexico	4	4	5	5	5	4	3
Colombia	2	2	3	2	4	3	2
Thailand	2	2	2	2	2	2	2
China	3	2	2	1	1	1	1
Dominica	1	2	1	-	1	1	-
Others	0	-	-	-	-	0	1
Total	**1 067**	**1 044**	**971**	**1 093**	**1 253**	**1 109**	**1 064**

Source: national customs

Far East — Imports

000 tonnes	2005	2006	2007	2008	2009	2010	2011
China	430	463	402	437	575	741	907
South Korea	254	280	308	258	257	338	353
Singapore	36	36	37	38	40	39	42
Thailand	5	13	7	20	9	12	11
Nepal	0	0	0	0	2	7	*8*
Malaysia	-	-	-	1	1	2	2
Indonesia	-	-	-	-	-	3	2
Total	**725**	**793**	**754**	**753**	**881**	**1 130**	**1 312**

Source: COMTRADE

Asia minor — Imports

000 tonnes	2005	2006	2007	2008	2009	2010
Kazakhstan	22	25	34	38	47	*50*
Afghanistan	0	0	0	0	38	21
Azerbaijan	8	10	14	15	18	19
Georgia	7	10	11	10	11	15
Kirghizia	2	2	3	5	7	9
Armenia	8	9	17	8	8	8
Total	**47**	**55**	**80**	**77**	**129**	**123**

Source: COMTRADE

Middle East — Imports

000 tonnes	2005	2006	2007	2008	2009	2010
Saudi Arabia	233	235	248	257	252	307
Iran	*451*	*294*	*429*	*403*	*273*	*239*
United Arab Emirates	50	0	123	127	*130*	*130*
Kuwait	0	68	89	96	*100*	*100*
Qatar	13	15	18	22	*25*	28
Bahrain	11	10	10	*12*	14	14
Oman	4	6	9	11	10	10
Total	**762**	**627**	**926**	**927**	**805**	**828**

Source: COMTRADE

Africa — Imports

000 tonnes	2005	2006	2007	2008	2009	2010
South Africa	5	13	22	24	23	37
Mali	-	31	11	21	21	19
Senegal	15	16	17	17	17	17
Botswana	6	6	6	7	8	9
Nigeria	0	0	0	0	-	7
Rwanda	0	-	6	3	4	4
Niger	2	2	1	1	1	4
Zimbabwe	0	0	0	0	-	4
Burkina Faso	2	0	0	0	3	3
Namibia	3	2	2	3	3	3
Mauritania	-	3	3	3	3	2
Total	**33**	**72**	**67**	**79**	**82**	**107**

Source: COMTRADE

Mediterranean — Imports

000 tonnes	2005	2006	2007	2008	2009	2010
Syria	112	323	193	219	219	232
Algeria	157	147	163	164	180	208
Turkey	151	184	224	219	182	201
Jordan	6	9	20	33	26	40
Morocco	5	5	17	19	27	28
Tunisia	21	20	41	34	37	19
Palestine	0	0	6	-	1	14
Egypt	3	6	5	3	2	10
Total	**455**	**695**	**669**	**691**	**674**	**752**

Source: COMTRADE

Oceania — Imports

000 tonnes	2005	2006	2007	2008	2009	2010
New Zealand	85	88	87	88	84	81

Source: COMTRADE

A new management tool for **Black Sigatoka** control

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SYLLIT®

Banana

diseases and pests

by Luc de Lapeyre and Eric Fouré

Panama disease

Gros Michel

Panama disease

Panama disease or Fusarium Wilt was first identified in 1874 in Australia. It is now observed in almost all tropical and subtropical banana production zones. It is caused by a soil fungus of a very common genus, *Fusarium oxysporum* sp. *cubense* (FOC).

Different races have been identified. Under certain conditions (soil type, climate, crop intensification, drainage, etc.) each can cause serious vascular damage to the different banana varietal groups, making them practically non-productive.

Race 1 originated in Asia and spread widely via movement of plant material in the form of suckers when the major export banana cultivation areas were established in the early twentieth century. It caused by the progressive disappearance of production of the Gros Michel variety in the Caribbean and Latin America in the 1940s and 1950s, when the variety formed the basis of international trade. Gros Michel was replaced in the industrial plantations by the resistant Cavendish varieties discovered in South-East Asia and that are now the fruits traded internationally. It should be noted that Gros Michel is still the reference for dessert banana consumption in most African and Latin American countries; production is still substantial at approximately 6 million tonnes per year. It appears that race 1 is not active in the areas in which it is cultivated extensively and combined with other varieties and other crops (hence at low density). Experiments conducted in Colombia have shown that Panama disease gains importance when the growing of Gros Michel is intensified (density greater than 1 000 plants per ha).

Race 2 affects the Bluggoe subgroup (ABB, cooking bananas).

Race 3 affects *Heliconia* spp. and sometimes Gros Michel.

Race 4, identified in the Canary Islands in 1931, affects the Cavendish group sporadically and under certain environmental conditions but only in subtropi-

Panama disease on Petite Naine

Yellow Sigatoka

Black Sigatoka

cal zones (Canary Islands, South Africa, Taiwan, Australia) where it is relatively well controlled by the appropriate cultural techniques (buffer zones, fallow, etc.).

Race T4 was described recently (1995) and also affects Cavendish group varieties but only in a few tropical areas—Indonesia (Sumatra and Java) and Malaysia.

All the specialists agree that the main cause of the spread of the disease is the movement of plant material (suckers and corms) from susceptible, infected plantations. Contamination via the soil from an infected area is very slow.

Prevention and control

As for numerous soil pathogens, control methods are limited and consist essentially of keeping areas containing the outbreaks in quarantine. Not much international work is performed on this disease whose study is complicated. Control methods are not specific to bananas and are and will remain very limited. Conventional genetic improvement remains an important and as yet little-explored pathway.

International awareness of the importance of respecting rules for the movement of germplasm and the wide adoption of tissue culture plants by the banana industry should limit the present risks. The dispersion of race T4 is under surveillance. However, with strict control of germplasm movement and the surveillance and eradication of infected plants, the prospect of rapid spread of the disease is very improbable.

Sigatoka leaf streak diseases

Banana production is confronted with two main types of leaf streak disease: Yellow Sigatoka and Black Sigatoka. They are caused by parasitic leaf fungi. The pathogen of Yellow Sigatoka is *Mycosphaerella musicola* and that of Black Sigatoka is *Mycosphaerella fijiensis*.

A new fungal species, *Mycosphaerella eumusa*, that may be responsible for a new, even more aggressive form of Black Sigatoka, seems to be spreading in Asia and the Indian Ocean, but this remains to be confirmed (it has also been detected in Nigeria in West Africa).

Propagation is from banana plant to banana plant in continental zones. Maritime zones form a natural obstacle. Although the risk of natural spread of spores by wind does exist, the spread of the disease from one zone to another is usually the result of uncontrolled transfers of germplasm. Black Sigatoka is present in all the producer countries in Latin America, Africa and Asia. The countries of the Caribbean arc were long protected by their island status. Presence of the diseases in St Vincent and Guiana was confirmed in 2009. It was reported officially in St Lucia in early 2010, in Martinique in September 2010 and in Guadeloupe in early 2012.

Black Sigatoka has not yet been detected in Dominica it is certain to reach the island, probably fairly soon.

The fungus that causes the disease destroys the foliage. The disease takes the form of small elongated black streaks that soon become necrotic. Necrosis spreads and may destroy all the leaves of the plant before the bunch is cut. This results in smaller yields and very ripe fruits that are unsalable.

Distribution of Black Sigatoka in the Caribbean arc

The sequence is precisely the same as that caused by Yellow Sigatoka, a fungal disease present on all the continents for about 60 years. With support from CIRAD, rational chemical control of the disease was established by professionals in Martinique and Guadeloupe. Warning methods (biological and meteorological) based on the weekly observation of biological and meteorological descriptors in plantations make it possible to monitor the dynamics of the disease and to apply appropriate treatments. Yellow Sigatoka has been controlled in recent years with a small number of sprayings: an average of five to seven a year in West Indian plantations. These rational control methods can now be applied in the management of Black Sigatoka.

There are fundamental differences between the two leaf streak diseases. Unlike Yellow Sigatoka, Black Sigatoka can develop on export bananas and also on plantains and other cultivated varieties that are also very susceptible to the disease. It spreads rapidly and is very difficult to control. Depending on the country, the strategies used and production conditions (climate, crop management sequences, etc.), management requires from just a few interventions to more than 50 sprayings per year.

Different control strategies

In the main Latin American producer countries, export banana plantations form vast agroindustrial units in alluvial plains. Given the areas of the estates (several hundred or even several thousand hectares), contamination from outside is weak. There are no outbreaks of the disease in the immediate neighbourhood of

Black Sigatoka

Black Sigatoka

agroindustrial plantations. Agroclimatic homogeneity makes it possible to organise and rationalise the spraying of large units. Low labour costs facilitate the cleansing work required in the form of regular deleafing. In this context, the impact of spraying in terms of nuisance is not always taken into account by the large companies, who do not hesitate to use systematic control strategies leading to more than 50 sprayings per year. In this case, sprayings are often performed at less than weekly intervals, and generally involve contact fungicides (chlorothalonil, dithiocarbamates, etc.) that by definition or not very effective and so have a small curative effect. Systemic fungicides are sometimes used but usually in 'cocktails' that are mixes of systemic, penetrating and contact substances prepared as emulsions in oil.

CIRAD has developed rational control strategies that, for the control of Yellow and Black Sigatoka, are based on warning systems involving either scouting in the plantation or the observation of meteorological descriptors (precipitation, evaporation, temperature, etc.). This strategy has been applied in different countries to control Yellow Sigatoka and also Black Sigatoka. This is the case in particular in Guadeloupe, Martinique, Cameroon and Côte d'Ivoire. The main objectives are as follows:

- improving the effectiveness of control while reducing the number of sprayings per year;
- limiting the risks of the selection of fungal strains that are resistant to the systemic fungicides used;
- reducing pollution and thus achieving greater respect of human health and the environment (urban centres, rivers, water bodies, reservoirs, etc.).

The strategy is also based on the rational, alternate use of systemic fungicides (benzimidazoles, triazoles, strobilurins) and penetrating fungicides (morpholines, etc.) which are mixed with refinery oils that are also fungistatic and applied at a low volume (13 to 15 litres per hectare), prolonging the effectiveness of each spraying and hence reducing the number of sprayings required each year.

The systemic fungicides on the market have a single-site mode of action on the pathogen and the risk of the appearance of resistant strains is high if they are used irrationally or abusively. In Central America, benzimidazoles were used massively when they came on to the market and resistance was observed only two years after they began to be used to control Black Sigatoka. This made it necessary to use more contact fungicides (15 to 40 kg active substance per hectare per year). The same phenomenon was then observed in these production zones with Black Sigatoka when triazoles and them strobilurins were used.

Thanks to the warning methods and hence the reduced number of sprayings, the phenomenon did not appear in Cameroon and Côte d'Ivoire for 10 or even 15 years of use of the fungicides to control Black Sigatoka.

In Guadeloupe and Martinique, the problems started to appear with control of Yellow Sigatoka after 20 or even 30 years of rational use of these fungicides using warning methods.

New essential control methods

Present control strategies cannot be used indefinitely. The European legislation in force in the French West Indies makes it technically impossible to use rational control strategies based on the alternating of several active sub-

stances with different modes of action. Only two fungicides in the triazole family can currently be used for aerial spraying.

A strobilurin fungicide and another in the morpholin group received marketing authorisations at the end of 2008, but they are not used to control Sigatoka diseases as the authorisation is accompanied by a 100-metre unsprayed buffer zone and this is incompatible with aerial spraying.

Actions can be envisaged to address this problem of regulations, such as reducing the buffer zone to 50 metres, using land-based sprayers and technical developments to reduce the drift of fungicide sprays, the registration of new systemic fungicides, requests for derogations, etc. — but the legislation may well become increasingly restrictive in the future.

The feasibility of the implementation of rational control is based on the status of the fungal strains with regard to curative fungicides. If the strains are (see status of invasive strains) or become resistant to these fungicides (see risks of the rapid mutation of *M. fijiensis*), this will irremediably compromise the implementation of such strategies.

Other methods must therefore be sought to control or regulate Black Sigatoka. Breeding new hybrid varieties with lasting resistance and good agricultural and organoleptic potential is a component of integrated management to be favoured for the control of Black Sigatoka.

These varieties must be incorporated in innovative, sustainable cropping systems that also include cultural control methods (optimum plant management, rational management of inoculum using mechanical cleansing techniques, etc.) that will thus make it possible to reduce the negative environmental impacts of commercial plantations and in particular reduce the application of pesticides.

Thinking of adopting an overall approach combining new hybrids resistant to Black Sigatoka and cropping systems that enable durable conservation of resistance.

Moko disease

Bacterial diseases

Bacterial diseases are an increasing concern for growers because of the way in which they spread and the lack of resistant varieties.

Moko disease

caused by *Ralstonia solanacearum* (biovar 1 race 2)
formerly *Pseudomonas solanecearum*

Two types of symptoms are observed depending on whether the bacterium is spread via the soil or by the planting tools used (machetes, etc.) or by insects that visit male flowers or their scars after abscission. Upward bacterial colonisation results first in chlorosis and the wilting of the three youngest leaves and then the death of the plant. A cross section of the pseudostem (or corm) reveals reddish-brown colouring of the vascular vessels. The presence of abundant bacterial exudate is a further sign of bacterial infection. If the contaminated plant bears a fruit bunch, the bacterium colonises all the vascular bundles of the fruits via the rachis. Accumulation of ethylene may cause the premature yellowing of the fruits and cross sections display serious browning. When the bacterium is spread by a machete for example after the cutting of the pseudostem, the contaminated suckers blacken and become stunted in 2 to 4 weeks. The disease was described for the first time in Trinidad in 1910

and is still absent from the Lesser Antilles, except in Trinidad and Grenada. In contrast, it spread rapidly in the Amazon basin in Brazil and in eastern Peru, going as far as northern Guatemala and southern Mexico. It covers a large geographic area. Moko disease spread to the Philippines in 1968 via plant material. There are no resistant varieties or chemical control methods. Only eradication and quarantine give results.

Bacterial wilt

Banana Xanthomonas Wilt (BXW), Banana Bacterial Wilt Disease (BBW), caused by *Xanthomonas campestris* pv. *musacearum*

The symptoms are observed above all on the emergence of spear leaves, especially at flowering. Flower bracts become discoloured and the male bud blackens and shrivels. The leaves yellow, wilt, blacken, dry and crumble (including the pseudostem). Yellow or brown vascular streaks are observed throughout the plant together with pale bacterial secretion on a section at the base of the pseudostem or at the corm. This causes bunches to wilt, with premature maturation and a reddish brown colour inside the fruit. The plant dies within a month of the appearance of any of these symptoms (one month after infection). The disease is spread by foraging insects, infected plant material (suckers, bunches and leaves), tools and man, and also by animals, run-off, rainwater splashes and wind. There are no resistant varieties. Control is by a quarantine period lasting for several months and the destruction of infected plants and those nearby. Free movement of animals is forbidden. This wilt was observed and described in Enset in Ethiopia in about 1968 (this affected the staple foodstuff of 12 million people), and then in Uganda where it has spread since 2001 (75 km per year). Uganda is the second largest banana producer with 10.5 million tonnes (250 to 450 kg per person) and this had decreased by nearly 40% in 2006. Spread has been rapid, with the disease reaching the Democratic Republic of the Congo in 2004, Rwanda in 2005 and Burundi, Tanzania and Kenya in 2006.

Banana streak disease

Virus diseases

Virus diseases of banana (dessert and cooking fruits) have spread increasingly in recent years as a result mainly of the ease of plant movement and demand for diversification. They consist of banana bunchy top disease and mosaic diseases including banana mosaic, banana streak disease and bract mosaic. The economic damage varies, affecting all cultivated bananas and both large estates and village plantations. Banana bunchy top disease (caused by the banana bunchy top babuvirus, BBTV) can cause losses of 90 or even 100 percent of production. Banana streak disease (caused by the banana streak badnavirus, BSV) causes losses of 40 to 60 percent, and banana bract mosaic (caused by the banana bract mosaic potyvirus, BBrMV) results in losses of more than 40%. Spread is either by vector from outbreaks or by the use of infected germplasm—suckers or tissue culture plants—or, in the special case of BSV, from so-called 'silent' bananas with a virus sequence incorporated in the genome of the species *Musa balbisiana* and capable of producing viral particles in particular as a result of stress (abiotic phenomena, weather conditions, intensive *in vitro* or *in vivo* propagation of plant material, etc.).

Banana bunchy top disease (BBTV)

The plants are markedly stunted and rosetted at the top. The narrow, erect, brittle leaves display strongly chlorotic borders. The characteristic symptom is the appearance of discontinuous dark green streaks along the pseudostem, the main leaf vein and the secondary veins. When the mother plant is infected, so are all the suckers. The most effective vector is the banana aphid *Pentalonia nigronervosa*.

Mosaic diseases

Banana mosaic caused by the Cucumber mosaic cucumovirus (CMV)

Infected plants display leaf chlorosis and mottling of the main vein and the pseudostem. Secondary infections may appear in the form of bacterial rots in the sheaths forming the pseudostem. The virus can be spread by a broad range of aphids. The disease can also be spread by pruning tools.

Banana streak disease (BSV)

The leaf lamina displays discontinuous yellow streaks that rapidly become necrotic. The main vein is unaffected. In severe forms of the disease, the cigar tip becomes necrotic and the plant dies. If the mother-plant is infected so are all the suckers.

The disease is transmitted by various mealybug species—*Planococcus citri*, *Saccharicoccus sacchari* and *Dysmicoccus brevipes*. In recent years, BSV infections unrelated to external contamination have been described in various parts of the world. There are two different causes: 1) tissue culture plants derived from micropropagated healthy interspecific hybrid varieties of banana and 2) the hybrid progeny of crosses between healthy *Musa acuminata* (genome A) and *Musa balbisiana* (genome B) parents. Various abiotic stresses cause the appearance of the disease in these hybrids, correlated with the presence in the genome of the *M. balbisiana* parent of endogenous viral sequences of BSV (e-BSV) containing all the information required to synthesise the infectious virus.

Banana bract mosaic (BBrMV)

The first stages of infection consist of greenish yellow streaks turning into brownish red necrosis on the leaf lamina and veins. Yellow mottling or whitish streaks are seen on the pseudostem according to the variety infected. Bract mosaic is the final symptom. The disease is transmitted to all the suckers by aphids (*Ropalosiphum madiis*, *Myzus persicae*).

Prevention and control

The only control method available today to fight these banana virus diseases is control of the vector and the use of healthy plant material. Indeed, there are no bananas with natural resistance to these diseases and no cure other than eradication after a virus attack.

The procedure to be followed is based mainly on the use of disease-free germplasm—suckers or tissue culture material screened for viruses—and the cutting back of weed growth where aphids multiply.

Banana borer on a corm

Banana borers

Originating in South-East Asia, the banana borer has spread to all subtropical and tropical banana and plantain production regions. The insect (*Cosmopolites sordidus*) is 9 to 16 mm long and 4 mm wide. It moves freely in the soil at the feet of banana plants or in plant debris. It is nocturnal and very sensitive to drying. The pest is spread mainly via infested plant material. The adults do no damage. The females lay eggs in the banana rhizome and the larvae feed on this, driving tunnels. These tunnels disturb water and mineral supply of plants, lengthen the production cycle, cause serious decreases in yield and weaken the anchorage of the plants, making them more sensitive to wind. Strong attacks can lead to the death of the plant. In addition to classic chemical treatment, the use of healthy planting material (tissue culture plants) used in clean soil (after fallows) is a method of borer control. New borer trapping methods using pheromones (sordidin) are available. A control system combining entomophagous nematodes and sordidin traps is being developed.

Nematode

However, the banana borer remains a major pest constraint for banana crops—whether on industrial plantations or smallholdings (plantains are very susceptible to the banana borer). It seems fairly unlikely that improved varieties can be bred rapidly. Control at the farm scale based on the use of traps and the maintaining of low levels of infestation are being studied and may in time form an alternative to chemical control.

Nematodes

Numerous nematode species parasitise banana roots and corms. Root knot nematodes (*Meloidogyne* spp.) and spiral nematodes (*Helicotylenchus* spp.) are found all over the world in all kinds of crop. However, the most damage is caused by the migrating nematodes *Pratylenchus* spp. and *Radopholus similis*. The latter species is found everywhere in the hottest banana growing zones and especially in intensive plantations where it arrived via germplasm movements during the spread of the crop during the past two centuries. *Pratylenchus coffeae* is also present in the hottest zones but is generally indigenous and found mainly on plantain crops. *Pratylenchus goodeyi* prefers cooler areas and originated on the Africa plateaux. It is observed in certain subtropical zones such as the Canary Islands, for example.

Underground enemies

Pratylenchus spp. and *Radopholus similis* are migratory endoparasites whose full biological cycle lasts for 20□25 days in root and corm tissues. Juvenile forms and females are always mobile and can leave the roots when conditions are no longer favourable. These migratory forms can then colonise other roots. As they move within and between cells, these nematodes feed on parenchyma cell cortical cytoplasm, destroying cell walls and creating tunnels that become necrotic and can extend to the whole of the cortex. Root and corm necrosis may be aggravated by other pathogens (fungi and bacteria). In particular, fungi of the genus *Cylindrocladium* are pathogenic and can cause lesions similar to those made by nematodes. The combination of the two pests may cause very serious damage under certain conditions. The destruction of underground tissue leads to a decrease in water and mineral nutrition resulting in slowed plant growth and development. This can lead to severe decrease in bunch weight and lengthen the period between harvests. Furthermore, destruction of the roots weakens the anchorage of the plants in the ground and increases the risk of toppling, especially during hurricane periods, with a strong economic impact.

Prevention and control

Control methods involving the application of chemicals (mainly organophosphorus compounds and carbamates) that carry substantial sanitary and environmental risks are still used in intensive plantations. For this reason, in spite of their efficacy and very easy application, their use will be increasingly limited in favour of alternative control measures. These include cultural practices improving soil fertility (tillage, irrigation, organic ameliorators, etc.) that indirectly improve plant tolerance to pest pressure. More direct methods such as the use of fallow and the planting of micropropagated bananas are now in common use and lead to a strong decrease in nematode populations (cf. Phytoma No. 584, July-August 2005).

These methods are widely used by growers in Martinique and Guadeloupe, where they have contributed to a 50-percent reduction in pesticide spraying in the past ten years.

Operations involving biological antagonists, root symbiots (mycorrhizal fungi) and especially genetic resistance may allow the setting up of increasingly effective integrated control strategies in the fairly near future. However, it is necessary to be aware that the great complexity of nematode populations makes delicate the development of these more closely targeted techniques. To be effective, they must be able to handle the diversity of cultural and ecological situations.

Post harvest diseases

Storage diseases (wound anthracnose, ripe-fruit (quiescent) anthracnose and crown rots) strongly limit the sale of exported bananas. *Colletotrichum musae* causes both forms of anthracnose, while crown rots result from a larger parasite complex consisting of *C. musae* but also other organisms: *Fusarium*, *Verticillium*, *Botryodiplodia*, etc.

Ripe-fruit anthracnose

Distinction is made between two forms of anthracnose:

Ripe-fruit (quiescent) anthracnose: brown lesions develop on fruits after ripening and subsequently in the sales channel. This disease rarely has serious commercial consequences.

Wound (non-quiescent) anthracnose: broad brown lesions occur on fingers wounded during harvesting or packing. The symptoms are observed when fruits are unpacked after sea transport and have serious commercial consequences.

Wound anthracnose

Crown rots are fungi that spread from cut surfaces when fruits are prepared at the packing stage. This damage is also visible after sea transport and has serious commercial consequences.

The fungi that cause post-harvest diseases are widespread in banana plantations and hence on bunches if these are not protected. In other words, control of infection begins when the inflorescence shoots at the top of the leaf cluster. Anthracnose results mainly from contamination by *Colletotrichum musae* in the field. It is not possible to detect infected fruit with the naked eye at harvesting but a test can be performed more than three weeks before cutting. Fruits are infected mainly during the first month of flowering. Spores are spread by water and develop on the organs when they start to decompose (old leaves, bracts and above all flowers). Control of the disease must begin in the field and then continue in the packing shed.

Crown rot

Hands can be contaminated by crown rot at various stages in the chain. This greatly complicates the implementation of control measures, but hand contamination by washing water is probably the main cause.

Chemical control of these diseases does not always give satisfactory results. Indeed, it is sometimes ineffective according to the production zone and the time of the year and resistance to fungicide has developed in the various fungal species involved. Finally, interest in developing methods other than chemical control is increasing. Indeed, these post-harvest treatments raise two crucial problems—the risks of residues in fruits and the processing of the fungicide preparations discharge near packing stations.

Banana quality defects in the field

Pests

Flower thrips

Red rust thrips

Snail damage

Damage by *Diaprepes* root weevil

Silver rust thrips

Banana quality defects in the field

Physiological defects and other imperfections

Double fruit and deformed fruit

Scarring by a fruit tip

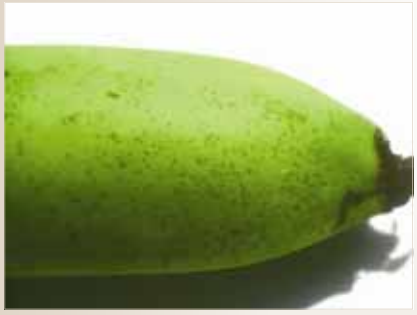
Scarring by a leaf

Scarring by guying cord

Sunscald

Chemical burns

Diseases

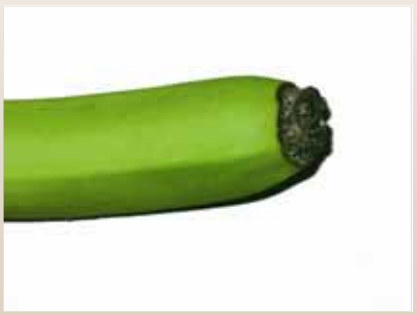


Speckle

Red speckling at ripening

Deightoniella

Sooty mould on fruit stalk



Cigar-end rot

Banana quality defects at packing

Selection problems and miscellaneous defects

Fruit too thin

Fruit too short

Incomplete flower removal

Latex stains

Dehanding problems

Crown cut too short

Pointed crown

Detached crown

Knife wound

Bruising

Flexed fruit stalks

Bruising caused by impact during packing

Banana quality defects after transport

Ripening problems

'Ship ripe' fruits

Unevenness after ripening

Storage problems

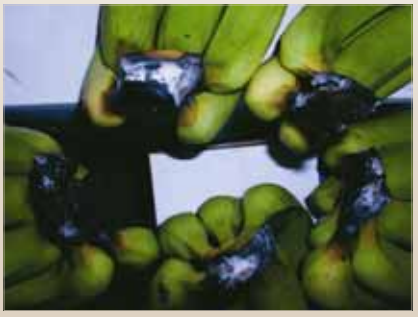
Chilling injury

'Green ripe' fruits

Storage diseases

Latent anthracnose infection

Wound anthracnose



Crown rot

Crown rot

The genetic diversity of banana

Over a period of thousands of years, population migrations and movement of plant material have placed banana in very different ecological contexts in the various continents. Farmers have succeeded in profiting from the natural mutations resulting from vegetative multiplication. This combination of natural reproduction and selection by man since ancient times results in the present genetic diversity.

Bananas originated in South-East Asia as wild seminiferous plants. Natural crosses built up a large base of genetic diversity that still exists today. These crosses were the origin of the seedless varieties. These bananas have food qualities that soon interested man, who incorporated them in agriculture using their vegetative multiplication potential.

From the botanical point of view, the genus Musa is divided into seminiferous species with inedible fruits and parthenocarpic varieties with fleshy seedless fruits. The Eumusa section includes *Musa acuminata* (genome symbol: A) and *Musa balbisiana* (genome symbol: B). These are wild species at the origin of the cultivated varieties.

The latter are classified according to their ploidy level and their genetic make-up. Some 1 200 varieties have been counted and classified around the world.

The inedible wild species with seed-containing fruits can be used for purposes other than human foodstuff (fibre, livestock feedingstuff, etc.). They are all diploid (AA and BB). About 180 have been counted to date, all from South-East Asia, but the census is not definitive (especially for the BBs). These fertile varieties are nonetheless important since they possess different levels of resistance to pests and diseases. They therefore form base material for the various present and future conventional genetic improvement and varietal creation programmes. Numerous cultivars have been bred by man. They are classified in groups according to their genetic make-up and then in subgroups assembling the various cultivars derived from each other by natural mutation starting from a common genetic ancestor. Distinction is made between the following groups:

- diploid groups: AA (such as Figue sucrée or Frayssinette) and AB. These total about 290 cultivars grown mainly in South-East Asia where they originated;
- three triploid groups (650 cultivars): AAA, AAB and ABB. The subgroups of each of these distinguish between the dessert varieties richer in sugar at maturity, cooking varieties with fruits that are firm and not sweet even when ripe, and sometimes bananas for beer-making by fermentation of the pulp (East Africa).

Even if the plants within the same subgroup display only weak genetic diversity, they do have a great range of phenotypes, resulting essentially from mutations and many centuries of selection by man. This is the case of the Cavendish (more than 20 cultivars), East African highland bananas (more than 50) and central and West African plantain (more than 150) subgroups.

Although the intensive cultivation system used for approximately 25 percent of world production favours monovarietal production, it is important to remember that most production is based on less intensive family farming with stress on varietal mixing. This contributes to the continuing of selection and hence ensures the diversity of banana ■

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Banana — Estimated world production in 2010

Tonnes	Cooking bananas		Dessert bananas		Total
	Plantain AAB group	Highland bananas + ABB group + others	Cavendish	Gros Michel + others	
North America	0	1 000	8 070	100	9 170
South America	5 120 550	356 913	11 854 406	3 902 350	21 234 219
Central America	757 426	101 900	6 378 860	85 500	7 323 686
Caribbean	952 344	414 701	1 159 183	212 371	2 738 599
West and Central Africa	8 835 518	850 396	2 456 812	438 442	12 581 168
East Africa	1 339 616	15 336 700	1 998 023	717 434	19 391 773
North Africa and Middle East	31	9 667	1 943 238	46 772	1 999 708
Asia	2 901 234	17 224 285	25 803 385	17 082 817	63 011 721
Oceania	1 391	539 824	398 478	67 390	1 007 083
Europe	101	1 010	417 356	1 020	419 487
World total	19 908 211	34 836 396	52 417 811	22 554 196	129 716 614

Source: Thierry Lescot - CIRAD after references, surveys, professional sources, FAO, etc.

Estimates in tonnes Production and commerce 2010 data + EU import export and USA 2011 (or 2009 data in italics)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas						
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB	Total	Cavendish	Plantain	Dessert banana	Plantain
North America									
Canada					**0**	162	*17*	496 133	3 000
United States		1 000	8 070	100	**9 170**	516 119		4 122 683	*270 757*
Greenland					**0**			250	
Saint Pierre & Miquelon								*65*	
Total	**0**	**1 000**	**8 070**	**100**	**9 170**	**516 281**	**17**	**4 619 131**	**273 757**
	0.0%	10.9%	88.0%	1.1%	**100.0%**	11.2%	0.0%		
Central America									
Belize	3 600	200	78 500	1 000	**83 300**	71 064	*100*	*20*	
Costa Rica	90 000	2 000	2 100 000	10 000	**2 202 000**	2 005 897	*6 332*	22 368	*6 095*
Guatemala	202 600	25 000	1 500 000	10 000	**1 737 600**	1 333 800	*98 297*	5 110	*96*
Honduras	82 226	20 000	520 000	20 000	**642 226**	518 487	800	63 086	*17 477*
Mexico	195 000	10 000	1 868 360	30 000	**2 103 360**	180 000	299	*161*	19
Nicaragua	90 000	30 000	82 000	5 000	**207 000**	35 585	*26 993*	6 068	199
Panama	85 000	13 800	210 000	9 000	**317 800**	186 010	214	20 892	24
Salvador	9 000	900	20 000	500	**30 400**	*2*		*43 453*	*51 854*
Total	**757 426**	**101 900**	**6 378 860**	**85 500**	**7 323 686**	**4 330 845**	**133 035**	**161 158**	**75 764**
	10.3%	1.4%	87.1%	1.2%	**100.0%**	67.9%	17.6%		
South America									
Argentina			170 950	50	**171 000**	300		344 106	159
Bolivia	120 000	11 000	134 000	60 000	**325 000**	*89 389*	*50*		
Brazil	453 350	30 000	3 594 960	2 900 000	**6 978 310**	143 872	25	37	
Chile					**0**	*200*		179 318	3 578
Colombia	2 650 000	165 050	2 034 340	489 000	**5 338 390**	1 802 581	*129 606*	25 147	*60 519*
Ecuador	500 000	47 291	5 200 000	120 000	**5 867 291**	4 944 968	162 051	156	
Guiana	4 100	1 000	6 300	1 000	**12 400**	*50*	134		*22*
French Guiana	2 300	1 000	3 000	1 500	**7 800**				
Falkland Isl.								*20*	
Paraguay		300	69 856	9 700	**79 856**	*18 490*		*915*	
Peru	900 000	80 000	270 000	200 000	**1 450 000**	108 785	*83 293*	41	
Surinam	13 000	1 272	71 000	9 000	**94 272**	62 911	10		*200*
Uruguay					**0**	*1*		41 611	
Venezuela	477 800	20 000	300 000	112 100	**909 900**	8	135		*21 000*
Total	**5 120 550**	**356 913**	**11 854 406**	**3 902 350**	**21 234 219**	**7 171 555**	**375 304**	**591 351**	**85 478**
	24.1%	1.7%	55.8%	18.4%	**100.0%**	60.5%	7.3%		
Caribbean									
Anguilla			1					70	12
Antigua & Barbuda	1	3	212	4	**220**			905	355
Netherlands Antilles			10		**10**	*10*		2 419	*558*
Aruba					**0**			2 697	*580*
Bahamas	5	20	4 240	35	**4 300**	*17*		*1 360*	*861*
Barbados	5	25	815	15	**860**	1		*2 402*	1 436
Bermuda	400	30	370	50	**850**	*160*	179	794	
Cuba	180 000	245 000	88 000	182 400	**695 400**	*30*		*164*	
Dominica	3 600	600	5 800	300	**10 300**	4 700	*577*		
Grenada	840	200	1 000	36	**2 076**	191	4	*22*	
Guadeloupe	6 400	550	50 000	1 000	**57 950**	43 000			200
Haiti	238 500	72 000	100 000	18 000	**428 500**	*2*	300	7 515	3 803
Cayman Isl.	20	1	186	9	**216**			551	
Turks & Caicos Isl.								487	*136*
Virgin Isl. (USA)	250	50	1 300	100	**1 700**				1
Virgin Isl. (UK)	80	10	320	20	**430**	*73*		*40*	27
Jamaica	29 826	1 000	30 000	4 000	**64 826**	7	*6*	19	*3*
Martinique	13 700	400	208 000	800	**222 900**	199 000			3
Montserrat	75	3	90	2	**170**			*60*	50
Puerto Rico	69 942	2 000	56 539	500	**128 981**			1 738	800
Dominican Republic	400 000	91 509	590 000	4 200	**1 085 709**	327 476	*5 200*		
Saint Kitts & Nevis					**0**			*617*	*500*
St Vincent & Grenadines	2 500	500	4 000	300	**7 300**	2 000	1 150	*20*	*1*
St Lucia	1 600	300	10 500	500	**12 900**	6 500	*200*		*1*
Trinidad & Tobago	4 600	500	7 800	100	**13 000**	*10*		4 933	*454*
Total	**952 344**	**414 701**	**1 159 183**	**212 371**	**2 738 599**	**583 177**	**7 616**	**26 743**	**9 780**
	34.8%	15.1%	42.3%	7.8%	**100.0%**	50.3%	0.8%		

Estimates in tonnes Production and commerce 2010 data + EU import export and USA 2011 (or 2009 data in italics)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas						
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB	Total	Cavendish	Plantain	Dessert banana	Plantain
East Africa									
South Africa	20	117	291 000	2 134	**293 271**	376		36 685	
Botswana					**0**	*5*		9 341	
Burundi	170 000	1 268 679	136 564	280 000	**1 855 243**	*36*			*10*
Comoros	3 000	11 000	28 400	2 000	**44 400**			*8*	
Djibouti			1		**1**			*2 817*	
Eritrea			10	1	**11**	*20*		*15 000*	
Ethiopia	100	1 000	169 641	959	**171 700**	*2 817*			
Réunion Isl.	10	500	8 300	4 790	**13 600**				
Kenya	305 000	160 000	246 570	80 000	**791 570**	*31*		*45*	*10*
Lesotho					**0**			*2 900*	
Madagascar	15 000	12 000	189 800	15 000	**231 800**	*182*			
Malawi	134 900	40 000	140 000	10 000	**324 900**				
Mauritius	10	700	9 497	800	**11 007**			1	
Mayotte	640	6 400	6 000	1 000	**14 040**				
Mozambique	85 000	5 300	101 700	3 000	**195 000**	*18 570*			
Uganda	200 000	8 945 000	241 000	164 000	**9 550 000**	12 400	1 505	*1 944*	*20*
Rwanda	270 000	2 259 150	120 000	100 000	**2 749 150**	20	1	13 100	*10*
Seychelles	80	300	920	100	**1 400**			*1*	
Somalia	5 000	1 000	29 600	1 000	**36 600**	18	1		
Sudan		1 000	82 300	2 000	**85 300**	*1 455*			
Swaziland	5	4	5 750	1	**5 760**	*6 000*		3 000	
Tanzania	150 700	2 624 000	100 000	50 000	**2 924 700**	*97*	1	*1*	
Zambia	1	50	720	49	**820**	*54*		310	
Zimbabwe	150	500	90 250	600	**91 500**	*4 195*		*311*	
Total	**1 339 616**	**15 336 700**	**1 998 023**	**717 434**	**19 391 773**	**46 276**	**1 508**	**85 464**	**50**
	6.9%	79.1%	10.3%	3.7%	**100.0%**	2.3%	0.1%		
West and Central Africa									
Angola	120 000	10 000	287 000	15 700	**432 700**			*20*	*100*
Benin	45 000	100	18 000	9 000	**72 100**		200	*201*	*2 100*
Burkina Faso	100	10	15 000	10	**15 120**	*210*		2 968	*5 600*
Cameroon	1 300 000	200 000	500 000	220 000	**2 220 000**	254 610	*40 000*	*36*	
Cape Verde	10	30	8 830	30	**8 900**			*3*	
Congo	81 100	3 000	27 000	3 000	**114 100**			*11*	*2 000*
Congo (Dem. Rep.)	1 045 000	205 000	292 472	24 000	**1 566 472**	1 848	*3 000*		
Côte d'Ivoire	1 500 000	205 454	400 000	6 000	**2 111 454**	257 042	35 000	*150*	
Gabon	110 000	10 000	12 600	1 000	**133 600**			*2*	11 000
Gambia	8	1	180	1	**190**			*380*	
Ghana	1 680 000	50 000	130 000	10 000	**1 870 000**	65 000	*447*		*200*
Guinea	445 700	16 000	181 700	20 000	**663 400**	*19*	20		
Guinea Bissau	36 000	4 000	4 900	400	**45 300**	1			
Equatorial Guinea	39 000	3 000	8 000	1 000	**51 000**	*4*			*9 000*
Liberia	45 500	5 000	40 000	10 000	**100 500**			*1*	*14*
Mali	6 500	500	90 000	500	**97 500**			21 290	5 500
Mauritania		1	70	1	**72**	*2*		4 193	
Namibia					**0**	*8*		2 805	
Niger			350		**350**			*688*	2 500
Nigeria	2 258 000	127 000	263 300	85 000	**2 733 300**		*1*		*1 000*
Central African Rep.	81 000	7 000	96 000	30 000	**214 000**				*2 000*
St Helena								*50*	
Sao Tomé & Principe	3 000	1 000	1 500	1 000	**6 500**				*10*
Senegal	200	100	46 600	100	**47 000**	*34*		16 513	*2 300*
Sierra Leone	29 900	2 000	9 000	1 000	**41 900**		1	*10*	
Chad			10		**10**			*15 000*	*1 500*
Togo	9 500	1 200	24 300	700	**35 700**	15	2	2	100
Total	**8 835 518**	**850 396**	**2 456 812**	**438 442**	**12 581 168**	**578 793**	**78 671**	**64 323**	**44 924**
	70.2%	6.8%	19.5%	3.5%	**100.0%**	23.6%	0.9%		
North Africa & Middle East									
Algeria		1	318	1	**320**			179 578	
Saudi Arabia			1		**1**	*441*		252 375	
Bahrain			840	50	**890**	*845*		13 835	
West Bank		5	5 190	5	**5 200**			*10 000*	
Egypt	1	3 000	985 949	40 000	**1 028 950**	*20 108*		10 145	
United Arab Emirates			170		**170**	*14 797*		84 491	
Iraq			10		**10**			*414*	
Iran		3 000	102 300	3 000	**108 300**	*10*		5 663	
Israel		1 000	99 305	1 110	**101 415**	15		*23*	
Jordan		800	42 213	740	**43 753**	*177*		39 630	
Kuwait					**0**	*10 117*		30 000	
Lebanon	10	600	86 300	590	**87 500**	*35 000*		149	
Libya		1	2	1	**4**			11 584	
sous-total (contd. p. 77)	**11**	**8 407**	**1 322 598**	**45 497**	**1 376 513**	**81 510**		**637 887**	

Estimates in tonnes Production and commerce 2010 data + EU import export and USA 2011 (or 2009 data in italics)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas						
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB	Total	Cavendish	Plantain	Dessert banana	Plantain
North Africa & Middle East (concluding)									
Morocco		500	249 000	500	**250 000**	50		26 712	
Oman		500	27 900	300	**28 700**	*209*		9 716	
Qatar					**0**	*460*		21 543	
Westerne Sahara					**0**			*2 500*	
Syria			840	10	**850**			219 430	
Tunisia		10	55	50	**115**	*20*		37 118	
Turkey		50	210 013	115	**210 178**	1 500		182 438	
Yemen	20	200	132 832	300	**133 352**	*84 612*		22	
Total	**31**	**9 667**	**1 943 238**	**46 772**	**1 999 708**	**168 361**	**0**	**1 137 366**	**0**
	0.0%	0.5%	97.2%	2.3%	**100.0%**	8.7%	0.0%		
Asia									
Afghanistan					**0**			37 566	
Azerbaijan					**0**			26 284	*18*
Bangladesh	13 000	120 000	468 734	216 520	**818 254**	*260*	*10*	*150*	
Bhutan	74	500	1 226	400	**2 200**			*9*	
Brunei		40	700	70	**810**			*90*	
Cambodia	10 000	45 000	79 000	25 000	**159 000**				
China	60	668 425	9 042 415	137 995	**9 848 895**	22 056		575 183	
South Korea					**0**	*255*		257 024	
North Korea					**0**			*20*	
Hong Kong					**0**	*21 546*		81 650	
India	2 600 000	9 000 000	6 897 900	13 400 000	**31 897 900**	*54 273*	1		
Indonesia	70 000	2 300 000	2 223 228	1 221 352	**5 814 580**	402	1	*328*	
Japan			170		**170**	*4*		1 109 068	*6 380*
Kazakhstan					**0**	*211*		46 603	*37*
Kirghizia					**0**	*40*		8 987	
Laos	1 000	7 000	34 500	18 000	**60 500**			*526*	
Macau					**0**			*2 194*	
Malaysia	40 000	210 000	255 000	120 000	**625 000**	*20 019*		*679*	
Maldives	90	3 060	2 500	850	**6 500**			*648*	*29*
Mongolia					**0**			*85*	
Myanmar	40 000	555 100	130 000	60 000	**785 100**				
Nepal		20 000	58 402	12 640	**91 042**	*181*		*187*	
Uzbekistan					**0**			*700*	
Pakistan	2 000	26 000	113 900	18 000	**159 900**	86 714		*2*	
Philippines	1 000	2 730 000	5 000 000	1 370 340	**9 101 340**	2 002 848		*1*	
Singapore					**0**	*38*		39 666	
Sri Lanka	62 000	293 420	162 000	55 000	**572 420**	230	*2 675*	3	*41*
Tajikistan								*120*	
Taiwan		100	700	200	**1 000**	10 000		*150 000*	
Thailand	60 000	650 000	650 900	224 000	**1 584 900**	24 878	100	9 214	
East Timor	10	40	710	50	**810**			*20*	
Turkmenistan								*100*	
Vietnam	2 000	595 600	681 400	202 400	**1 481 400**	*19 363*	11		
Total	**2 901 234**	**17 224 285**	**25 803 385**	**17 082 817**	**63 011 721**	**2 263 318**	**2 798**	**2 347 107**	**6 505**
	4.6%	27.3%	41.0%	27.1%	**100.0%**	8.8%	0.1%		
Oceania									
Australia	50	500	279 623	22 000	**302 173**	*23*		*114*	
Fiji	100	2 300	3 100	100	**5 600**	*112*		*2*	
Guam		145	345		**490**			*1 000*	
Cook Isl.		100	90		**190**	*22*			
Marshall Isl.								*50*	
Solomon Isl.		90	320		**410**				
Kiribati		3 800	1 600	400	**5 800**				
Micronesia	280	840	1 800	10	**2 930**				
Niue		10	100		**110**	*50*			
New Caledonia	160	1 800	2 000	600	**4 560**			*1*	
New Zealand					**0**	*52*		81 314	130
Palau								*50*	
Papua-New Guinea	500	500 000	90 000	42 000	**632 500**	*1 000*			
French Polynesia		2 300	3 100	500	**5 900**			*3*	
Samoa	100	13 900	4 500	500	**19 000**	*1*			
Samoa (USA)		230	810	60	**1 100**			*1*	
Tokelau		10	10		**20**				
Tonga	100	2 700	1 200	100	**4 100**				
Tuvalu	1	199	180	20	**400**				
Vanuatu	100	9 900	9 400	1 000	**20 400**	*4*			
Wallis & Futuna		1 000	300	100	**1 400**				
Total	**1 391**	**539 824**	**398 478**	**67 390**	**1 007 083**	**1 264**	**0**	**82 535**	**130**
	0.1%	53.6%	39.6%	6.7%	**100.0%**	0.3%	0.0%		

Estimates in tonnes Production and commerce 2010 data + EU import export and USA 2011 (or 2009 data in italics)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas						
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB	Total	Cavendish	Plantain	Dessert banana	Plantain
Europe									
Azores			1 000		**1 000**				
Albania					**0**	*255*		17 535	
Germany					**0**	402 860	2 100	1 280 339	3 000
Andorra					**0**			*600*	
Armenia					**0**	*2 304*		8 458	
Austria					**0**	16 771		127 083	42
Belarus					**0**			36 669	*1 227*
Belgium - Luxembourg					**0**	1 200 000	34 900	1 344 196	36 817
Bosnia Herzegovina					**0**	*2*		36 951	*96*
Bulgaria					**0**	1 762	*5*	32 945	1 204
Canaries	1	5	385 000	5	**385 011**	350 000			
Cyprus			5 975	5	**5 980**	998		4 927	213
Croatia					**0**	*30*		49 379	*280*
Denmark					**0**	11 388	*3*	80 574	1 926
Spain			250	5	**255**	103 366	*969*	538 000	25 337
Estonia					**0**	192		11 354	8
Finland					**0**	705		70 103	8
France					**0**	244 120	11 971	742 022	14 675
Georgia					**0**	*2 013*		10 981	
Gibraltar								*150*	
Greece		5	3 290	5	**3 300**	14 935	*5*	139 563	96
Hungary					**0**	6 279		44 735	259
Faroe Isl.					**0**			822	
Ireland					**0**	22 681	*6 500*	74 797	14 588
Iceland			1		**1**	*6*		*5 745*	
Italy			340		**340**	55 788	*514*	661 937	5 896
Latvia					**0**	7 184		22 556	1
Lithuania					**0**	10 351	*56*	30 097	99
Macedonia					**0**	*67*	*9*	16 700	*106*
Madeira	100	1 000	18 000	1 000	**20 100**	14 000			
Malta					**0**	4		5 428	
Moldavia					**0**			10 536	*131*
Montenegro						*8*		6 561	
Norway					**0**			73 200	*21*
Netherlands					**0**	82 000	28 199	285 264	51 893
Poland					**0**	9 372		215 699	2 815
Portugal			3 500		**3 500**	19 714	*79*	156 000	438
Czech Rep.					**0**	48 717	*101*	137 984	284
Romania					**0**	3 114	*1 177*	37 861	1 917
United Kingdom					**0**	93 389	13 633	1 018 933	27 575
Russia					**0**	*11 481*	*37*	1 068 571	1 800
St Marin					**0**			*120*	
Serbia & Montenegro					**0**	890		41 876	*20*
Slovakia					**0**	10 634	*13*	52 551	2 720
Slovenia					**0**	17 810		67 684	1
Sweden					**0**	33 920		174 435	355
Switzerland					**0**	*3*		80 772	
Ukraine					**0**	*651*		227 316	
Total	**101**	**1 010**	**417 356**	**1 020**	**419 487**	**2 799 764**	**100 271**	**9 050 009**	**195 848**
	0.0%	0.2%	99.5%	0.2%	**100.0%**	30.9%	1.1%		
Total world	**19 908 211**	**34 836 396**	**52 417 811**	**22 554 196**	**129 716 614**	**18 459 634**	**699 220**	**18 165 187**	**692 236**
	15.3%	26.9%	40.4%	17.4%	**100.0%**	35.2%	3.5%		

Note 1: for EU member countries, imports excluding supplies from European production.

Note 2: differences between import and export totals result from re-exports between non-producer countries (intra-EU trade for example), the taking into account of two years (2011 and 2010) and the experimental nature of this work.

Source: Thierry Lescot of CIRAD, who used bibliographical research, surveys, professional sources, FAO, etc.

Wholesale market prices in Europe

April 2012

					EUROPEAN UNION — EURO				
					Germany	Belgium	France	Holland	UK
AVOCADO	Air	TROPICAL	BRAZIL	Box			12.80	15.85	
	Sea	ARDIT	ISRAEL	Box	4.75				
		FUERTE	KENYA	Box			4.00		5.94
			PERU	Box			4.50	6.85	6.06
			SOUTH AFRICA	Box	4.50		4.00	5.68	6.73
		HASS	CHILE	Box		13.88			
			ISRAEL	Box			8.38	11.65	
			KENYA	Box			6.17		
			PERU	Box			8.25		
		NOT DETERMINED	BRAZIL	Box					7.34
			ISRAEL	Box					5.88
		REED	ISRAEL	Box	4.50			5.80	
	Truck	HASS	SPAIN	Box	12.50		10.63	12.25	
		REED	SPAIN	Box					5.51
BANANA	Air	RED	ECUADOR	kg				4.88	
		SMALL	COLOMBIA	kg			6.50	5.98	
			ECUADOR	kg		5.67		5.17	
	Sea	RED	ECUADOR	kg				2.29	
		SMALL	ECUADOR	kg			1.70	2.01	
CARAMBOLA	Air		MALAYSIA	kg		4.73	4.86	4.75	4.53
	Sea		MALAYSIA	kg				3.17	
CHAYOTE	Sea		COSTA RICA	kg			1.20	1.43	
COCONUT	Sea		COSTA RICA	Bag				15.50	
			COTE D'IVOIRE	Bag		7.10	9.25	10.19	12.85
			DOMINICAN REP.	Bag				19.00	12.85
			SRI LANKA	Bag					10.41
DATE	Sea	MEDJOOL	ISRAEL	kg			6.50	8.37	
			MEXICO	kg	9.80			10.78	11.02
		MOZAFATI	IRAN	kg				3.13	
		NOT DETERMINED	ISRAEL	kg					6.37
			TUNISIA	kg				1.88	1.87
EDDOE	Sea		BRAZIL	kg				1.50	
			CHINA	kg			1.80		
			COSTA RICA	kg			2.00	1.50	
GINGER	Sea		CHINA	kg	0.81	2.10	1.30	1.18	0.94
			THAILAND	kg	1.15			1.02	1.06
GUAVA	Air		BRAZIL	kg				5.82	
KUMQUAT	Air		ISRAEL	kg					5.51
LIME	Air		MEXICO	kg			3.70		
	Sea		BRAZIL	kg	1.22		1.57	1.59	1.79
			MEXICO	kg			1.50		2.18
LITCHI	Air		THAILAND	kg				9.69	
MANGO	Air	AMELIE	BURKINA FASO	kg			2.50		
			MALI	kg			2.50		
		KENT	BURKINA FASO	kg			3.30		
			COTE D'IVOIRE	kg			5.50		
			MALI	kg			3.90		
			PERU	kg			6.00	5.17	
			SOUTH AFRICA	kg			6.00		
		NAM DOK MAI	THAILAND	kg				7.00	
		PALMER	BRAZIL	kg	3.75				
	Sea	ATKINS	BRAZIL	kg	1.13			1.50	1.23
			COSTA RICA	kg					1.43
		KEITT	PERU	kg		2.00			
		KENT	PERU	kg		2.00	1.35		1.53
		NOT DETERMINED	KENYA	kg					1.22
MANGOSTEEN	Air		INDONESIA	kg				7.32	

					EUROPEAN UNION — EURO				
					Germany	Belgium	France	Holland	UK
MANIOC	Sea		COSTA RICA	kg			1.23	1.00	
MELON	Air	CHARENTAIS	DOMINICAN REP.	kg			3.90		
			GUATEMALA	kg			4.50		
	Sea	CANTALOUP	COSTA RICA	kg				1.85	
			HONDURAS	kg					1.27
		CHARENTAIS	HONDURAS	kg			1.80		1.43
			MOROCCO	kg			1.50		
		GALIA	BRAZIL	kg					1.84
			COSTA RICA	kg					1.43
			PANAMA	kg				1.75	1.47
		HONEY DEW	BRAZIL	kg					0.98
			COSTA RICA	kg				0.80	0.86
			GUATEMALA	kg					0.73
			PANAMA	kg			0.60		0.73
		SEEDLESS WATER	COSTA RICA	kg				1.12	
			HONDURAS	kg					0.87
		WATERMELON	BRAZIL	kg					0.92
			COSTA RICA	kg				0.99	0.82
			GUADELOUPE	kg			0.55		
			PANAMA	kg					0.72
PAPAYA	Air	FORMOSA	BRAZIL	kg	3.11	3.00		3.93	
		NOT DETERMINED	BRAZIL	kg		3.57	3.65		4.37
			THAILAND	kg				4.69	
	Sea		ECUADOR	kg		1.71		2.43	
PASSION FRUIT	Air	NOT DETERMINED	COLOMBIA	kg	4.75		5.50		
		PURPLE	ISRAEL	kg			6.50	5.50	5.51
			KENYA	kg				5.00	4.59
			SOUTH AFRICA	kg	6.50		6.30		
			ZIMBABWE	kg				5.50	
		YELLOW	COLOMBIA	kg		8.75		9.17	
PERSIMMON	Air		BRAZIL	kg				3.80	4.08
PHYSALIS	Air		COLOMBIA	kg			7.75	8.33	5.51
			ECUADOR	kg					4.59
	Sea		COLOMBIA	kg	4.38			5.05	
PINEAPPLE	Air	NOT DETERMINED	BENIN	kg			2.00		
		SMOOTH CAYENNE	CAMEROON	kg			2.50		
			GHANA	kg			2.50		
		VICTORIA	MAURITIUS	Box		12.50		13.48	
			MAURITIUS	kg			3.60		
			REUNION	kg			4.20		
			SOUTH AFRICA	Box	11.00			12.10	
	Sea	MD-2	COSTA RICA	Box	10.56		7.50		7.96
			DOMINICAN REP.	Box			7.50		
			ECUADOR	Box			7.50		
PITAHAYA	Air	RED	VIET NAM	kg		6.00		6.52	
		YELLOW	ECUADOR	kg				9.00	
PLANTAIN	Sea		COLOMBIA	kg			1.00	1.00	
			COSTA RICA	kg					1.22
			ECUADOR	kg			0.85	0.96	
RAMBUTAN	Air		THAILAND	kg				7.72	
			VIET NAM	kg		7.25		8.10	
SWEET POTATO	Sea		EGYPT	kg			1.00		
			HONDURAS	kg				1.45	1.06
			ISRAEL	kg					0.82
			SOUTH AFRICA	kg			1.50		1.59
TAMARILLO	Air		COLOMBIA	kg		7.10		6.89	
YAM	Sea		BRAZIL	kg			1.65		1.04
			COTE D'IVOIRE	kg				1.13	
			GHANA	kg			1.15	1.21	

Note: according to grade

These prices are based on monthly information from the Market News Service, International Trade Centre UNCTAD/WTO (ITC), Geneva.
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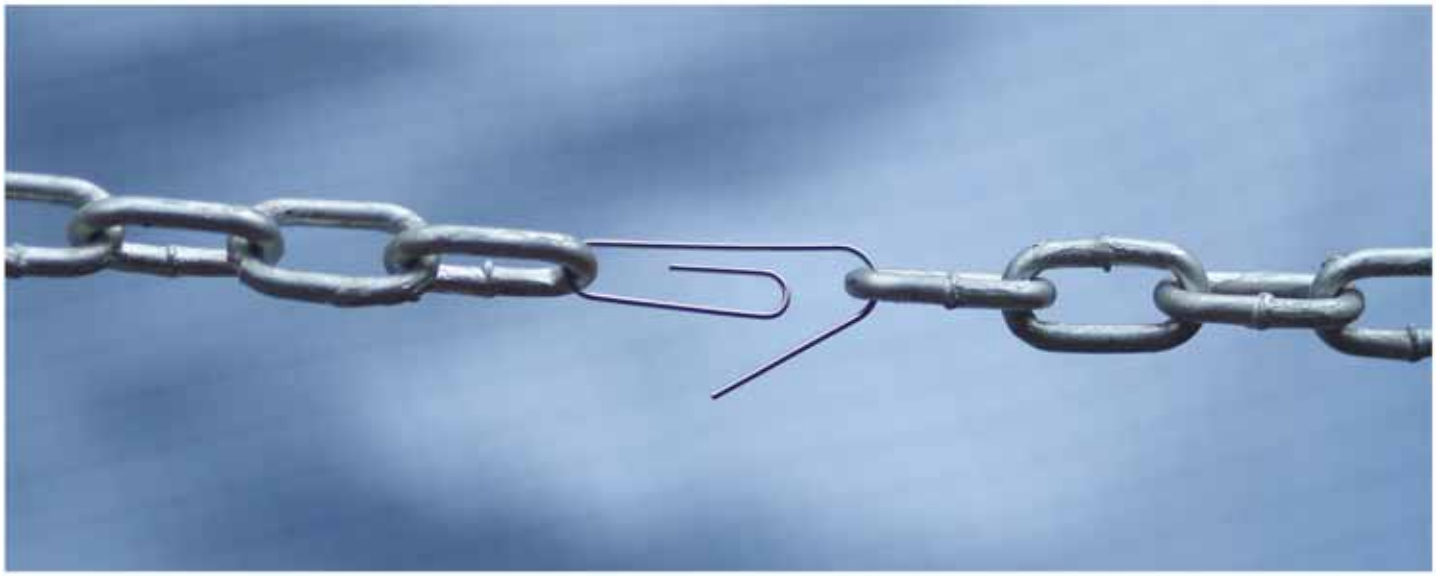

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