

April 2008 - No. 155

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**CLOSE-UP:
BANANA**

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Polish zloty	3.4515
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Estonian kroon	15.6466
Slovak koruna	32.229
Turkish lira	2.003
South African rand	11.8205
South Korean won	1 562.55

Source: Central European Bank

A hue and cry against ACPs is so commonplace that attacks on these supplier countries often go unnoticed. The exposure of ACP banana suppliers to international vindictiveness seems to be inversely proportional to their weight in international trade. Not a week goes by without us seeing proof in the news. The latest attack took place at the banana forum held by AEBE from 14 to 16 April 2008 in Guayaquil, Ecuador. This is a very old strategy by dollar suppliers that would thus like to see the customs dues levied by the EU disappear one day and with it the preferential treatment awarded to the ACP countries. But what was more



perplexing was the talk by Professore Anania, an Italian economist well known at the European Commission and in the banana world. He is the designer, among other things, of an econometric model of the functioning of the European banana market. In particular, he used it during discussions on the reform of the common market organisation of banana in 2005 to attempt to predict the probable changes in the European market once the quota system had been replaced by the tariff-only system. He would doubtless have found it a pity to discard his model so quickly. So he ran it again, to the great joy of Latin American interests. Indeed, he showed that if the customs tariff remains at EUR176 per

tonne and if the ACP suppliers continue to be exempted from the payment of customs dues (as part of economic partner agreements), European imports from the ACP countries will increase by 80% between now and 2013, reaching nearly 1.5 million tonnes. What is most harmful in the eyes of dollar suppliers is that if the customs tariff were to be lowered, the difference would go straight into producers' pockets and not transit via intermediate operators! The model predicted this and equations never lie ... well, not all the time. It even seems that forecasts are sometimes right. It is a pity that the Professor had not worked on the subprime mortgage market, on world food supplies or, more prosaically, on the next week's winning Loto numbers. In the first two cases he would have alerted decision makers of the imminence of a world crisis and in the third he would have left for a golden retirement in Florida, abandoning his work on banana forecasts.

Denis Loeillet

Contents

Close-up by Denis Loeillet

p. 3 Banana

- European market banana supply in 2007: asking for more
- Banana in Europe in 2007: MFNs up, ACP and EU down
- Market sheet: banana in Poland
- Producer country sheet: banana in the Canary Islands
- Producer country sheet: banana in Martinique
- Statistics panorama: world, EU, USA, Japan
- The genetic diversity of banana in figures
- Banana diseases and pests

European market - February 2008

- | | | |
|--------------|--------------|----------------|
| p. 40 | • Indicators | • Easy peelers |
| | • Banana | • Litchi |
| | • Avocado | • Mango |
| | • Orange | • Pineapple |
| | • Grapefruit | • Sea freight |

Eric Imbert, Pierre Gerbaud, Thierry Paqui, Richard Bright

Wholesale market prices in Europe

p. 51 February 2008

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'Unpredictable'

is probably the adjective that best describes the world banana market. Analysis of European supply is proof of this. Europeans have never eaten so many bananas.

They contribute to the excellent world market dynamics that has even enabled the USA to return to the import levels attained in 2000. Russia, the Middle East and the Far East are also following the trend for growth. However, one should be careful not to be naively optimistic. Remember that 2007 prices only just reached 2006 levels and that intermediate costs have rocketed.

The defence of added value in a context of the sale of greater volumes has never been more topical. After analysis of the price trends in Europe throughout 2007 (FruiTrop 152, January 2008), we now deliver the second part of our annual examination of the banana market by way of the supply of world markets and especially the European Union and the United States.

Contents

- p. 5 European market banana supply in 2007 : asking for more
- p. 13 Banana in Europe in 2007 : MFNs up, ACP and EU down
- p. 16 Market sheet: banana in Poland
- p. 19 Producer country sheet: banana in the Canary Islands
- p. 23 Producer country sheet: banane in Martinique
- p. 26 Statistics panorama: world, EU, USA, Japan
- p. 29 The genetic diversity of banana in figures
- p. 34 Banana diseases and pests





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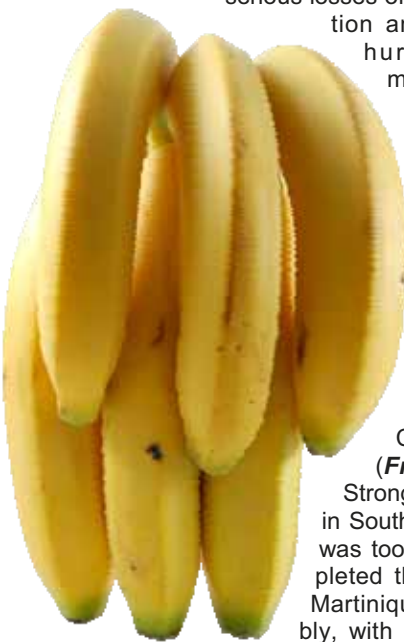




European market banana supply in 2007

Asking for more

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In 2007, the supplying of the world banana market was anything but ordinary. The year was very strongly marked by a succession of serious natural calamities. Whether they resulted from climate change or probability is of no interest to producer countries. They suffered serious losses of life and also of production and infrastructure. The

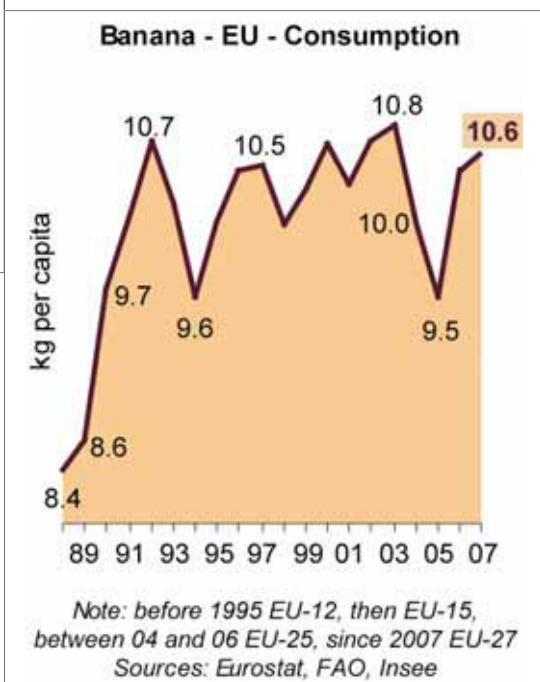
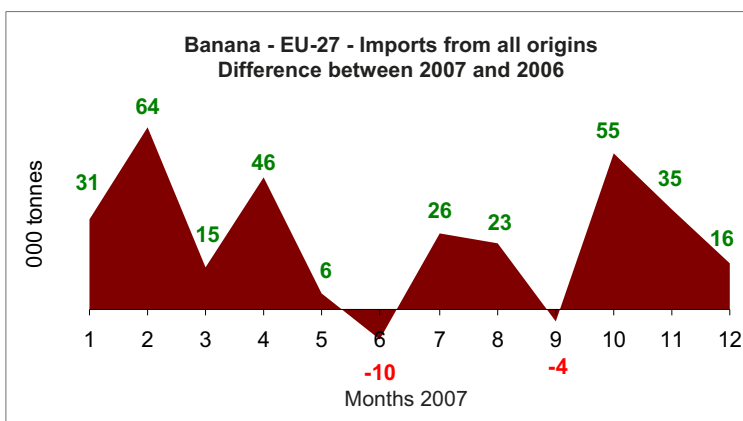
hurricane season was marked and long in the Caribbean. Production zones were hit several times and often devastated. Dean, one of the 2007 hurricanes, followed a disastrous route, starting to inflict damage in the Caribbean arc as it moved north and then shifted to the west, finishing far inland in Central America (*Fruitrop* 148, page 3).

Strong gales in Africa, floods in South America, weather that was too cold and too dry completed the apocalyptic picture. Martinique suffered considerably, with all the plantations flattened. Guadeloupe, the Dominican Republic (twice), St Lucia, St Vincent, Jamaica, Cameroon, Colombia, Ecuador, etc. all suffered serious damage to production to varying degrees.

However, banana is perhaps unique in the agricultural world as it can start producing again quickly—with recovery taking from a few weeks if bad weather has just slowed the production

cycle, to several months (6 to 8 months depending on the zone) when the plantations have been entirely destroyed. Furthermore, it is difficult to compare even serious damage caused by floods or cold spells in a country like Ecuador with that caused when hurricane Dean swept through the Caribbean. In the first case, a few thousand hectares were affected in a production zone that totals hundreds of thousands of hectares. In the second, 100% of the area was destroyed. Finally, products and exports should not be confused. By definition, export channels do not take 100% of production but a varying proportion that depends on world demand. It has become almost banal to say that Ecuador has the capacity to mobilise very large extra volumes from one week to the next. Proof of this was seen in March and April 2008 when the first reports announced the flooding of nearly 28 000 hectares; finally, weekly exports from Ecuador increased to levels even higher than the averages of recent years.

But we can be reassured. Retailers in Europe and North America have not run short of banana. Paradoxically, the opposite occurred. Wishing to profit from the under-supply forecast, unaffected sources of supply sought to fill the gap and even finished by overdoing it. This suction effect was felt above all during the last quarter of the year and mingled with the under-



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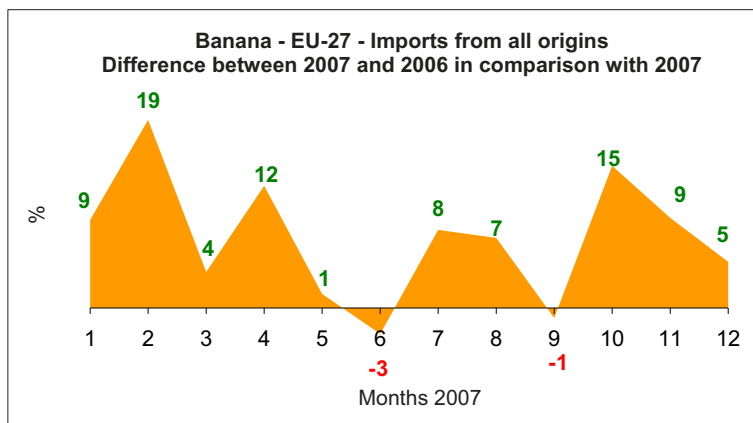
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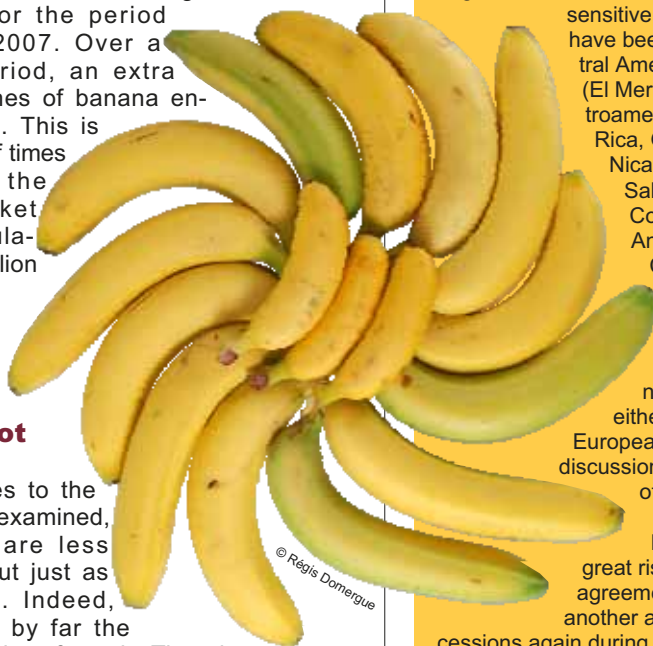


lying trend for a steady increase in imports that has been seen since 2006. Imports for 10 months in 2007 exceeded those of the preceding year, sometimes in colossal proportions as in February (+ 64 000 tonnes, i.e. 19% more than in 2006) and October (+ 55 000 tonnes, a 15% increase).

With a constant perimeter, the increase in EU-27 imports in 2007 was 300 000 tonnes in comparison with 2006. This is a gain of 7% and even 13% for the period 2005-2006-2007. Over a two-year period, an extra 750 000 tonnes of banana entered Europe. This is one and a half times the size of the French market and its population of 60 million people!

MFNs take the pot

If net supplies to the EU are now examined, the figures are less flamboyant but just as encouraging. Indeed, imports form by far the largest proportion of supply. The other part of supplies is accounted for by national production. The Canary Islands, Martinique, Guadeloupe, Madeira, Cyprus and Greece have supplied as much as 25% of European consumption in some years. In 2007, as a result of weather problems, the market share of European production fell to a tiny 11%, the worst score ever. Leading the supply table are imports from the dollar zone, or, in WTO terms, the MFNs (referring to the most-favoured nation clause). These supplies improved their performance again to more than 73% in 2007, 5% more than in 2006. ACP suppliers have long faces, with a market share of 16%, a 3% dip, the worst



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WTO dispute: not built for speed

The beginning and end of WTO negotiation is still the final settlement of the banana question. This comment might amuse the innocent but it is nonetheless true. Multilateral agreements will remain blocked until the settlement of the dispute between the European Union and certain Latin American countries—led by Ecuador. As we know, the problem concerns the customs dues (EUR176 per tonne or EUR3.20 per box) applied by the EU to banana imports from the MFNs. Indirectly, it also concerns the conditions of access to the EU market for ACP bananas. Indeed, these have been imported duty-free since the supplier countries signed economic partnership agreements (EPAs, replacing the Cotonou agreements) with the EU on 1 January 2008. Ecuador in December 2007 and then the US a few weeks later succeeded in obtaining the condemning of the EU without this changing the speed of overall WTO negotiations at all.

Discussions proceed very slowly at the WTO and the EU is involved in bloc by bloc bilateral negotiations in which banana is often a highly sensitive subject. Discussions have been started with the Central American common market (El Mercado Común Centroamericano, MCCA) : Costa Rica, Guatemala, Honduras, Nicaragua, Panama and Salvador) and the Andean Community (Comunidad Andina, CAN): Bolivia, Colombia, Ecuador and Peru). They could also start with Mexico and continue with Mercosur. Things do not go very quickly there either. For example, the European Commission refuses discussions with the CAN because of Ecuador's complaint.

In addition, there is a great risk of concluding an agreement with one party or another and having to make concessions again during the WTO negotiation phase. This is why the Commission would like to sign a single final agreement. A sign that banana is like itching powder in bilateral discussions, Pascal Lamy, Director of the WTO and former European Commissioner handling the 'banana case' has agreed to the mediation mission proposed by Colombia and Panama.

Even if the procedures seem to be complex, the basic problem is clear. The factors involved are the lowering of the customs tariff and the extent and rate of such a reduction. The European front is fairly weak here. France seems to be alone, defending with the ACP countries the maintaining of the current tariff level.

figure in their history. A precise analysis of each of these three groups of supply sources is provided below.

Overall, these results call for two comments, repeated many times since 2006. First, the liberalisation decided in Geneva and put to music by Brussels functions perfectly well. Not counting the effect of successive enlargements, the EU has never eaten so much banana. Second, the figures show that the clear winners in this liberalisation—without any doubt whatsoever—are the MFNs. They have profited fully from the increase in European consumption and also from the last enlargement. The EU is the world's leading market and the MFNs are the leading suppliers. Under these conditions, it is difficult for these producer countries to defend any sort of situation of despair in international negotiations. Although the last two verdicts

of the WTO dispute settlement body seemed to lean towards the plaintiffs (Ecuador and the USA). Totally ignoring the real facts and making statements using measures that no longer apply, the arbitrators condemned the EU import regime. The reasons mentioned were the customs tariff of EUR176 per tonne that is not consolidated at the WTO and a preferential quota for ACP suppliers in the old system that is no longer in force! The incoherence of the great globalisation wizard seems to have no bounds. Consumption is increasing, this is benefiting MFN produce, producer prices have never been so high and ACP countries—presented by the MFNs as the great parasites of the system—are attempting to maintain their commercial positions but without success. What could add to the happiness of the dollar suppliers? A decrease in customs dues? In any case, this is what some of them are asking for, with Ecuador in the lead, while others—Costa Rica and Colombia, who are wiser and aware of their own interests—are trying to reach a compromise with the EU.

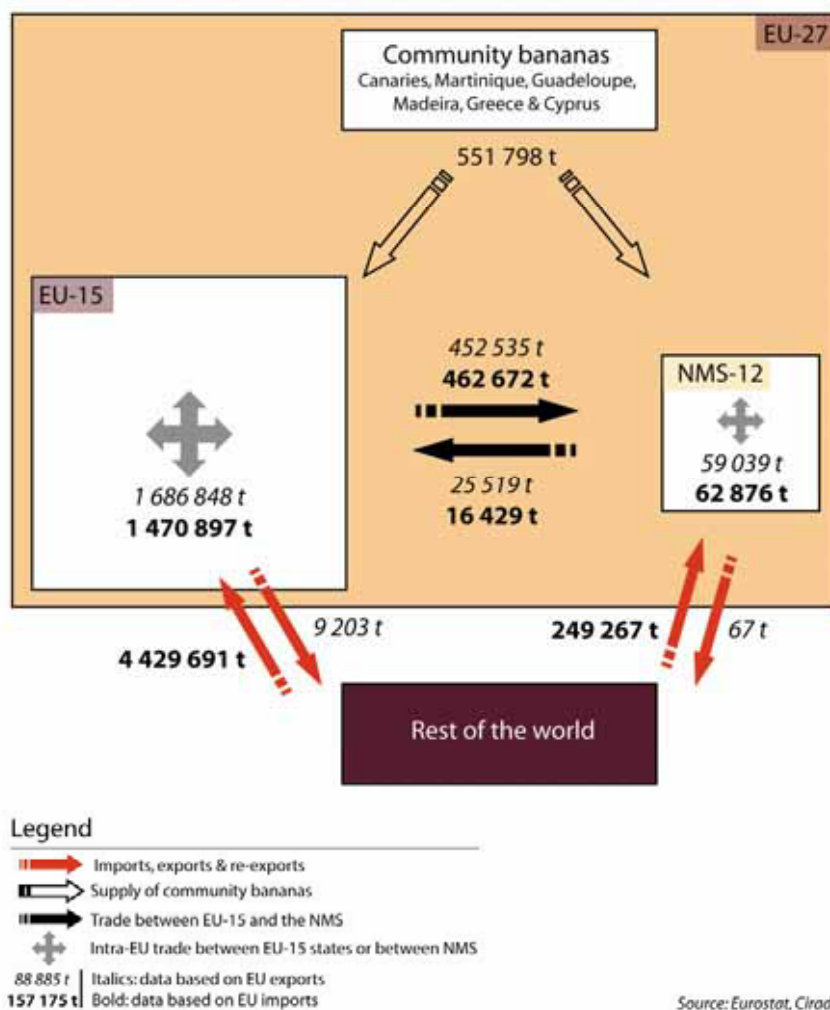
Marked increase in consumption

The liberalisation of the European banana market—in force since 1 January 2006—has had one of the effects hoped for, that of increasing consumption in the EU. This has increased by 1 kg per capita since 2005 and is now 10.6 kg. However, the effect is reduced when one takes into account the joining of Bulgaria (5.1 kg) and Romania (6.9 kg) in 2007 as these countries consume much less banana than the average for EU-25 and less still than EU-15. Average consumption masks considerable disparity. Most of the new member countries (NMCs) have a score of some 4 to 9 kg per year (average 6.7 kg) whereas the record, held by Sweden, approaches 17 kg. This is a fine performance in a food sector that is fighting to keep market shares, and is all the more exceptional as fruit and vegetables are becoming a lost cause.

It seems that excellent dynamics has become established and not only in Europe. Russia has been importing banana enthusiastically for two or three years (1 million tonnes in 2007, +15% since 2005). Russian operators are even ensuring supply security by investing in production, especially in Ecuador. Demand is also solid in the Mediterranean region, the Arab peninsula and in Asia. The United States is the second largest world market and after seeming to be set in a distinct downward movement has also contributed to market improvement. US imports have recovered and exceed the symbolic 4-million-tonne threshold that had not been reached since 2000.

The performance of the last two years has made people forget the unpleasant adjectives

Banana - EU-27 supply - 2007

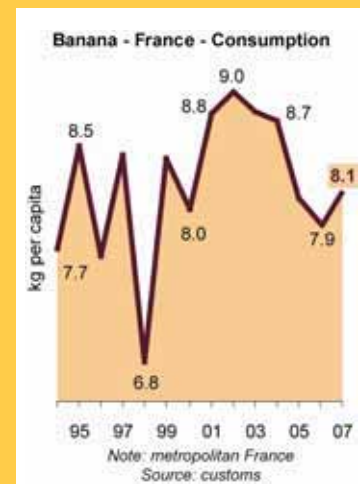
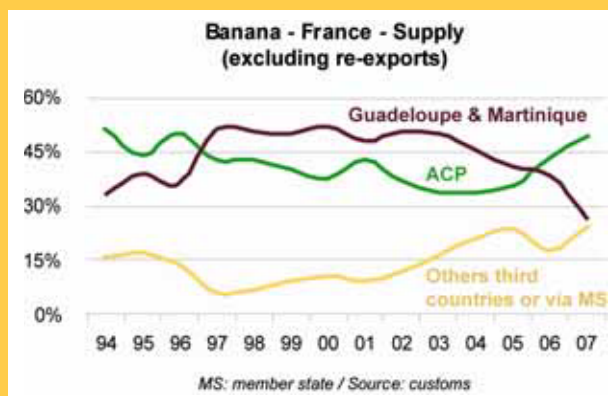
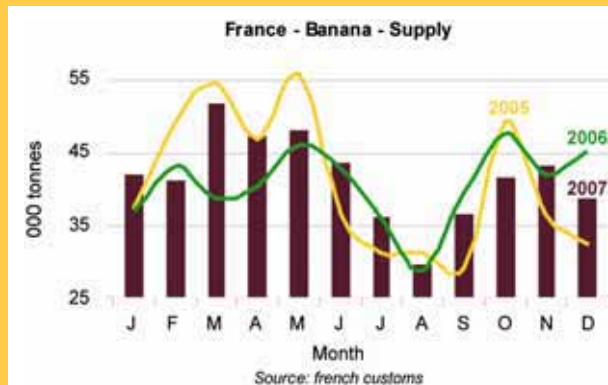


French market: try a little bit harder

The French are not great banana-eaters. The 2007 figures provided by the customs confirm the comparatively low per capita consumption of 8.1 kg per year. It has fallen by slightly less than 1 kg since the record set in 2002. But was 2007 the year of the reconquest of the market? The fall has been stopped and the curve has reversed, with a 200-g increase. Consumption has approached 500 000 tonnes, not counting trans-frontier movements of ripened banana. The other feature of 2007 was the inflow of banana from third countries. As experienced in 2005, more than 120 000 tonnes of dollar bananas were sold in 2007. This is 30% more than in 2006. Unsurprisingly, dollar and ACP (Africa and Surinam) banana supplies peaked in the months following the hurricane, profiting well from the partial absence of Guadeloupe and the total absence of Martinique. In the last quarter, banana imports from third countries (ACP and dollar) via other member countries averaged 27 000 tonnes per month in comparison with 21 000 tonnes in 2006 and 18 000 tonnes in 2005.

Analysis of a market by origin is difficult in a single market system in which goods come and go without strict control between states. So, with all the usual reserves, it would seem that, excluding re-exports,

the market share of French West Indian bananas fell to 26% in 2007 against 38% in 2006. ACP suppliers set a new record at 49% and the share of third countries other than ACP states increased to 24%. Re-exports marked time in 2007 at slightly over 150 000 tonnes. Two-thirds of this was shipped to Spain (30 000 tonnes), the Czech Republic (24 000 tonnes), Italy (24 000 tonnes) and the United Kingdom (19 000 tonnes).




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used to describe the world banana trade: lifeless, feeble or lethargic. Is this dynamics lasting and, above all, is there a risk of there being a decrease in added value throughout the chain? After analysis, it is difficult to conclude that there is a strong, single relation between 'supply volume' and 'import price'. Other parameters are involved, going beyond the classic

mechanism of increasing volumes and decreasing prices. We know, for example, that EU consumption is closely dependent on the weather and on supplies of competing fruits. As we repeat very often, this increase in consumption must be accompanied by an ambitious marketing plan combining

product innovation (variety, type of production, type of presentation, stage of ripeness, etc.) and an increase in consumption venues. Discussions between operators have been limited to price for too long, making this variable the lowest (and only) common denominator in the sector. It is now necessary to find the 'highest common denominator' of all the links in the chain to be able to continue to feed the virtuous circle that seems to have benefited banana for two years ■

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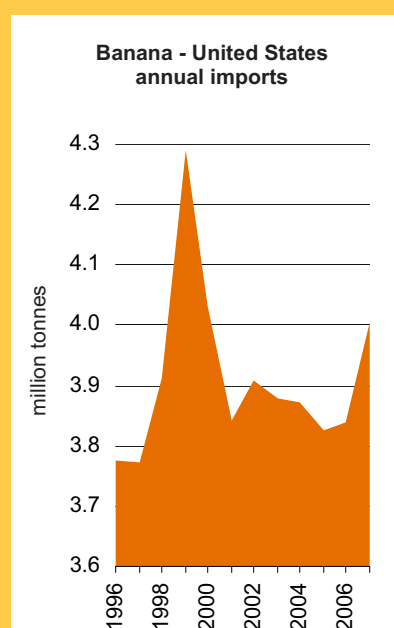
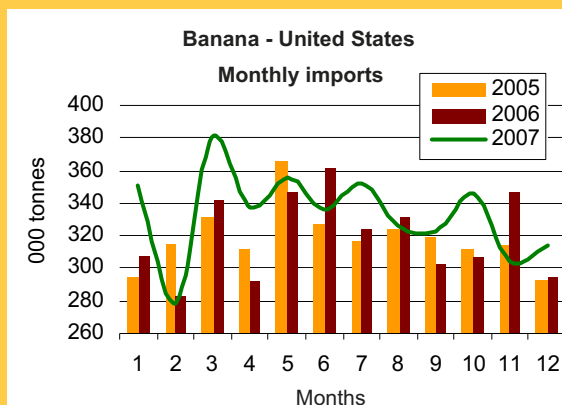
Banana — Consumption per capita in 2007	
	kg/year
EU-27	10.6
EU-15	11.2
NMS-10	6.8
NMS-2 (Bulgaria, Romania)	6.5
NMS-12 (10 + 2)	6.7

Source: CIRAD



Growth returns in the USA

Historic! The word is not too strong to describe the US market in 2007. Indeed, supply increased by 4%—unseen since 2002. And volumes even exceeded the symbolic 4-million-tonne level, and this had not happened since 2000. Unfortunately, this excellent news for the Latin American suppliers that ship practically all US banana supplies was perhaps a flash in the pan. If January 2008 figures are to be believed, there is again a fairly marked downturn with a 7% decrease. The classification of market suppliers has also changed considerably. Ecuador lost its leading position in 2007, sliding to third behind Guatemala and Costa Rica. In fourth position, Honduras increased shipments by 14%. Colombia is fifth with a 20% decrease in shipments (- 100 000 tonnes). Like Costa Rica, it chose to focus its efforts on the European market. Ecuador maintained its position in Europe and also strongly diverted its 'American' volumes to Russia.



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Banana in Europe in 2007

MFNs up, ACP and EU down

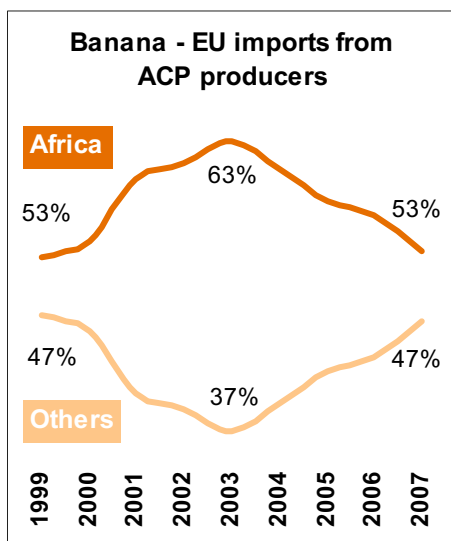
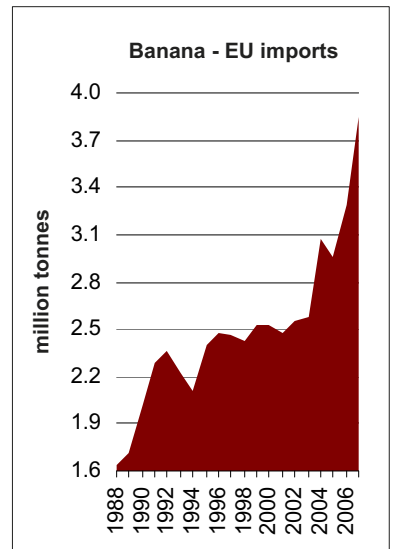
Not all suppliers benefited from the dynamics of a strongly growing market. MFN suppliers profited to the full from the liberalisation of the European market while ACP and community producers suffered extremely bad weather that hit their production capacity.

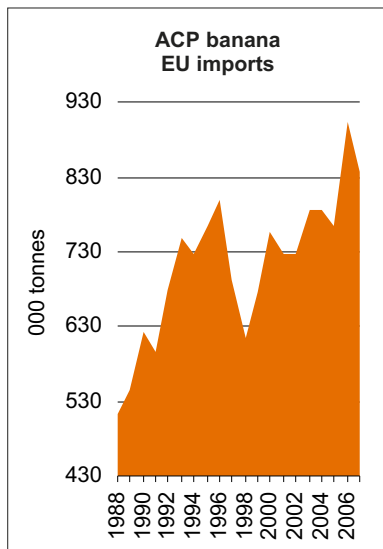
Dollar suppliers: a hold-up

Bananas shipped by MFNs, more commonly referred to as dollar bananas, confirmed their hold on the European market. Their market share has never been so large, reaching 73.4% in 2007, 5.4% up on 2006 on an import market that increased by 7%. Brazil (- 6%) and Guatemala (- 12%) were practically the only suppliers to show signs of weakness. The position of Ecuador in the EU stabilised, with shipments displaying a 1% decrease. However, it just maintained its lead over Costa Rica, Colombia and Panama. The three latter countries displayed two-figure growth at + 21%, + 16% and + 13% respectively. Peru and Honduras also scored better with + 48% and + 40%. These trends are sometimes related to the choice of target market that differs from one year to the next. For example, Colombia's position dwindled considerably on the United States market (- 20%) and it therefore chose to concentrate on the EU. The case was precisely the opposite for Guatemala which, after a disastrous European

season in mid-2006, returned to the United States market. Ecuador cumulated deficits in both the USA and the EU and concentrated more on the Russian market. Finally, Honduras and Costa Rica played in both courts, proving their substantial production potential expressed in 2007. As regards regulations, the question of the European customs tariff is still the exciting subject. The EU has been condemned

twice, to the benefit of Ecuador (end of 2007) and then the United States (beginning of 2008). This does not make much difference to the banana imbroglio. Customs dues are still set at EUR176 per tonne for these origins in 2008 and are very likely to remain so until the end of the year. In these hard times for European budgets, the member states and the Commission can still share the some EUR680 million in customs revenue.



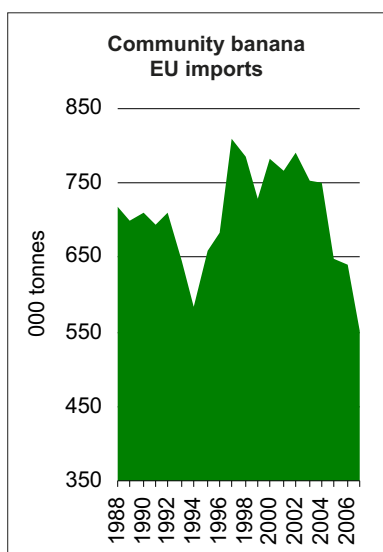


ACPs, or the very discreet hegemony

Expiatory victims of the dollar banana supplier countries, the ACP states kept a low profile in 2007. They reduced their shipments to the European market by 69 000 tonnes (total 837 000 tonnes), a 7% decrease in comparison with 2006. ACP bananas formed only 16% of total EU supplies in comparison with 18.7% in 2006 and 21.3% at the peak in 1994 just after the creation of the single European market for banana. An unusual feature is that the African ACP countries account for 95% of the decrease. Africa's share in ACP group supplies dwindled

from 56 to 53% in 2007. The other ACP countries have gained 10% since 2003 and now stand at 47%. All the other major sources reduced their shipments, except for the Dominican Republic, Surinam and Ghana. This situation is the result of bad weather (hurricanes and gales). Growth rates are in two figures for Ghana (+ 49%) and Surinam (+ 20%), showing that both countries are still in the investment and development phases as regards production capacity. The Dominican Republic, a favourite for organic and fair trade bananas, also displayed exceptional growth (+ 17%) in spite of floods and wind (in the south in the spring and in the north in December). Exports to the EU have increased five-fold since 1999!

The year was one of suspense as regards regulations. The signing of economic partnership agreements (EPAs) between the ACP states and the EU right at the end of the year reassured the banana sector in these countries. Their bananas now enter the EU duty-free and quota free (DFQF). The system is a better replacement of the ACP quota that was tight (775 000 tonnes) and required two monthly management of import rights on a first come, first served basis, making the system very complex, expensive and often uncertain. Even if many people consider that EPAs are bad for ACP economies—especially in Africa—because of the reciprocity of market opening (EU-ACP), they are a chance for export sectors like banana.



EU production: bad news from the sky

The fall was a tough one. In 2007, the market share of European production fell to 10.5% in comparison with 13.3% in 2006. This is the lowest figure ever seen. European producers have lost 7% in terms of market share since the common market organisation of banana came into force in 1993. Two effects were cumulated in 2007—the damage caused by weather to plantations in Martinique and Guadeloupe and enlargement to two new member states (Romania and Bulgaria), that purchase dollar bananas. Hurricane Dean reduced shipments from Martinique by nearly 100 000 t in comparison with the 2004-05-06 three year average and those from Guadeloupe were down by 14 000 t. This short-term trend conceals another that is more worrying still, that of the steady decrease of European banana production.

Since 2002, not counting the effect of hurricanes, it has decreased by 150 000 t, that is to say by nearly a fifth of the total in 2002. The Canaries have lost 60 000 t, Martinique 43 000 t, Guadeloupe 47 000 t and Madeira nearly 7 000 t. We are now far from the record of 810 537 t reached in 1997. The undertakings made by the EU in favour of its producers will be remembered (Regulation (EEC) 404/1993, 7th 'Whereas' clause): '... introduction of the market organisation should not place producers in a worse situation than at present, and since it is likely

to alter the levels of prices on those markets, provisions should be made for compensation to

cover the loss of income which may derive from implementation of the new system so as to permit the continuation of Community production at the costs entailed by the specific structural situation for as long as this remains unadjusted by the structural measures implemented...'.
© Régis Domergue

Often perceived and qualified as generous by certain member states and the majority of third country banana suppliers, Europe's policy of aiding its production did not have all the effects hoped for. Will the new European production support regime formula correct certain imbalances? For the second year running, some EUR280 million has been paid to European producers within the framework of European POSEI programmes that include specific measures for ensuring the continuity and development of local crops in extremely remote regions, taking their specific handicaps into account ■

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Banana — EU-27 imports — 2007

000 tonnes	AT	BELU	BG	CY	CZ	DE	DK	EE	ES	FI	FR	UK	EL	HU	IE	IT	LT	LV	MT	NL	PL	PT	RO	SE	SI	SK	EU-27	
Total 3rd count.	2 351	1 204 044	26 689	0	12 064	981 987	9 517	0	115 314	39	232 685	910 507	47 757	1 831	41 613	598 890	1 016	530	841	82 028	29 140	107 614	145 719	95 346	30 542	893	4 678 958	
incl. ACP	0	189 676	0	0	0	2 220	13	0	533	0	225 940	394 527	0	0	8 798	6 349	0	0	0	2 079	17	6 898	0	0	0	0	837 050	
of which ACP	0	189 676	0	0	0	2 220	13	0	533	0	225 940	394 527	0	0	8 798	6 349	0	0	0	2 079	17	6 898	0	0	0	0	837 050	
Ecuador	0	289 313	21 959	0	41	229 749	2 823	0	60 956	39	5 620	42 436	34 899	1 128	772	270 950	914	466	0	37 547	26 729	10 802	129 829	7 302	9 772	0	1 184 047	
Colombia	2 316	295 861	3 239	0	0	397 087	6 659	0	35 633	0	992	161 169	6 503	384	13 206	153 359	28	64	841	19 163	599	34 532	2 971	0	19 201	0	1 153 803	
Costa Rica	35	293 281	0	0	12 023	154 780	21	0	17 047	0	0	234 309	2 342	202	5 135	113 996	0	0	0	16 949	1 794	46 338	4 631	65 179	1 369	893	970 326	
Panama	0	79 447	0	0	0	183 217	0	0	21	0	0	15 505	3 104	0	267	35 570	0	0	0	2 101	0	7 224	4 469	22 865	201	0	353 991	
Cameroon	0	65 343	0	0	0	0	0	0	0	0	81 108	70 438	0	0	0	0	0	0	0	165	0	4 864	0	0	0	0	221 918	
Dom. Rep.	0	28 643	0	0	2 186	13	0	0	0	0	20	167 060	0	0	0	6 329	0	0	0	1 913	0	0	0	0	0	0	206 164	
Côte d'Ivoire	0	83 273	0	0	0	0	0	533	0	0	72 027	32 028	0	0	0	20	0	0	0	0	0	1 959	0	0	0	0	189 840	
Brazil	0	16 628	0	0	0	6 831	0	0	1 066	0	41	40 302	0	0	0	18 625	0	0	0	553	0	1 820	0	0	0	0	85 865	
Belize	0	0	0	0	0	0	0	0	0	0	0	52 543	0	0	8 631	0	0	0	0	0	0	0	0	0	0	0	61 175	
Surinam	0	0	0	0	0	0	0	0	0	0	54 342	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54 342	
Peru	0	22 460	0	0	7 616	0	0	39	0	75	337	0	0	0	0	0	0	0	0	3 004	0	0	0	0	0	0	33 531	
Ghana	0	11 855	0	0	0	0	0	0	0	0	18 439	3 034	0	0	0	0	0	0	0	0	0	76	0	0	0	0	33 404	
St Lucia	0	0	0	0	0	0	0	0	0	0	0	30 456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30 456	
Honduras	0	11 021	0	0	0	350	0	0	0	0	0	7 035	0	0	11 860	0	2	0	0	122	0	0	0	0	0	0	30 390	
Guatemala	0	20	1 492	0	0	126	0	0	0	0	10 911	902	0	0	1 320	0	0	0	0	114	0	0	3 818	0	0	0	18 703	
Jamaica	0	484	0	0	0	0	0	0	0	0	0	17 886	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18 371	
St Vincent	0	0	0	0	0	0	0	0	0	0	0	13 792	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13 792	
Venezuela	0	6 303	0	0	0	0	0	0	0	0	0	3 597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9 900	
Dominique	0	0	0	0	0	0	0	0	0	0	0	7 291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7 291	
Belarus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308	0	0	0	0	0	0	308	
Chile	0	0	0	0	0	0	0	0	0	0	0	238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238	
Mexico	0	0	0	0	0	0	0	0	1	0	7	0	0	0	118	0	72	0	0	0	0	0	0	0	0	0	220	
Total intra, incl.	99 169	38 850	11 094	3 538	107 178	455 351	80 559	9 902	47 896	70 697	250 675	66 425	58 891	78 004	12 600	84 921	19 845	19 661	3 685	84 983	200 214	44 355	8 645	88 256	12 266	50 945	2 008 605	
Total EU-15, incl.	97 185	37 970	11 059	3 538	97 100	450 625	80 559	7 902	47 894	70 465	250 082	65 871	58 815	67 275	12 600	77 795	18 206	13 750	3 599	84 726	189 188	44 355	4 655	88 256	12 266	33 583	1 929 318	
Belgium	26 679	3 169	0	0	29 425	370 647	2 776	2 023	1 749	6 836	138 939	18 974	10	28 607	458	12 977	2 901	1 324	0	48 778	61 570	258	0	2 370	486	14 937	775 891	
Germany	46 586	3 299	0	0	27 880	0	51 581	5 498	104	23 838	41 805	1 258	1	25 894	1 367	5 631	12 522	4 035	0	30 782	94 047	1	3 704	41 997	3	15 424	437 257	
Netherlands	18 237	19 114	20	1	14 454	39 580	17 850	12	7 970	19 672	20 992	18 396	38	179	68	25 416	2 604	7 805	19	0	22 001	331	270	22 953	610	161	258 751	
France	3 584	10 066	2 063	0	21 356	24 937	42	0	23 857	26	0	8 611	78	1 743	107	23 437	94	215	0	479	6 810	10 880	0	1	1	1 201	139 585	
Italy	463	409	4 803	942	3 385	10 906	0	0	4 223	0	16 177	98	58 606	3 428	0	43	371	3 565	1 245	1 245	4 024	4 060	620	0	9 470	1 860	128 698	
Spain	1 636	1 143	0	0	235	1 360	83	11	0	3 754	8	44	99	0	786	0	0	0	14	2 898	716	28 826	0	3	2	0	41 618	
UK	0	51	0	0	0	435	326	0	214	0	22 987	0	0	0	10 600	129	0	0	0	501	0	0	0	6 123	0	0	41 365	
Sweden	0	389	0	0	0	923	7 425	0	9 777	0	3 129	29	0	0	0	9 272	0	0	0	28	20	0	0	0	0	0	28 920	
Portugal	0	0	0	0	0	0	0	0	0	0	0	18 439	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22 208	
Ireland	0	20	0	0	0	32	169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18 660	
Denmark	0	306	0	0	0	5	0	0	0	0	0	58	0	0	0	0	0	16	0	0	0	0	0	14 368	0	0	14 754	
Austria	0	0	0	0	365	1 800	0	0	0	0	1 767	0	39	7 315	0	147	0	0	0	0	0	0	0	0	1 560	0	12 993	
Greece	0	0	4 174	2 595	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	61	0	134	0	6 974	
Finland	0	0	0	0	0	0	309	358	0	0	490	0	0	0	0	0	0	0	0	0	0	0	0	440	0	0	1 597	
Luxembourg	0	4	0	0	0	0	0	0	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	
Total NMS, incl.	1 985	880	35	0	10 078	4 726	0	2 001	2	232	593	554	76	10 730	0	7 125	1 640	5 911	86	257	11 027	0	3 991	0	0	0	17 361	79 287
Czech Rep.	21	867	0	0	0	359	0	0	0	0	590	0	0	3 498	0	41	1 104	0	0	0	8 137	0	2	0	0	0	31 588	
Slovakia	690	0	0	0	6 858	0	0	0	0	0	0	0	0	5 570	0	496	0	0	0	0	361	0	0	0	0	0	13 975	
Poland	578	0	0	0	2 984	1 831	0	0	0	0	0	554	0	60	3 991	464	1 580	0	257	0	0	134	0	0	0	129	12 562	
Lithuania	0	0	0	0	0	0	0	1 957	0	0	0	0	0	0	0	0	4 332	0	0	0	1 713	0	0	0	0	0	8 001	
Slovenia	683	0	0	0	20	0	0	0	2	0	0	0	0	1 247	0	2 369	0	0	0	0								

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



Market sheet

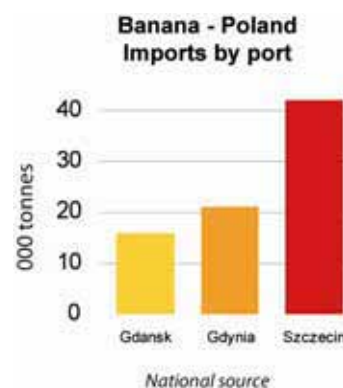
Banana in Poland

by Tomasz Kodlubanski
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Poland began to import increasing quantities of tropical fruits from 1989 onwards. Banana imports increased by about 35% in value between 1998 and 2005 (from EUR100 to 135 million). Consumption also increased strongly at the same time. This growth trend continued until Poland joined the EU in 2004 and banana consumption then fell considerably. This was the result of the very high prices of tropical fruits and especially of bananas. Bananas are at the top of the list of imported produce, ahead (in value) of grapes, easy peelers, walnuts, lemon and orange.

Importers and distributors

The number of banana importing companies increased continuously for a decade. Two main factors contributed this dynamic growth—high profitability and simplified organisation of the import and distribution sector. The first market collapse occurred in 2000 when the country was affected by a serious slump. Many small wholesaler and import companies went bankrupt and others merged. The number of banana operators decreased further after 2004 when Poland joined the EU. Today, importers in Silesia and western Poland dominate the market. In particular, they import the brands Chiquita, Consul and Amigo, buying directly from exporters in the production countries. Bananas are imported from Colombia, Costa Rica and Surinam. They are unloaded in the ports of Antwerp, Zeebrugge and Gdansk, from where it takes 24 hours to transport them in refrigerated lorries or railway trucks to the import/ripeners' warehouses, whose capacity is some 4 000 tonnes.



Banana — European Union to 27 — Evaluation of banana supplies — Tonnes

Year	Banana type or origin			Sub-total	Exports	Supplies
	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	763 966	2 405 180	3 827 352	43 082	3 784 270
1996	684 605	800 074	2 471 263	3 955 942	30 598	3 925 344
1997	810 537	693 054	2 464 412	3 968 003	16 571	3 951 432
1998	786 232	615 596	2 426 419	3 828 247	26 448	3 801 799
1999	729 303	675 993	2 522 455	3 927 751	27 359	3 900 392
2000	782 176	756 808	2 528 170	4 067 154	35 327	4 031 827
2001	767 268	728 776	2 474 665	3 970 709	34 284	3 936 425
2002	790 622	726 452	2 554 508	4 071 582	8 011	4 063 571
2003	754 216	786 798	2 578 827	4 119 841	6 020	4 113 821
2004	750 910	782 598	3 073 764	4 607 272	11 029	4 596 243
2005	648 395	764 357	2 959 464	4 372 216	4 970	4 367 246
2006	641 559	905 692	3 290 022	4 837 273	8 392	4 828 881
2007	551 798	837 050	3 841 908	5 230 756	9 270	5 221 486

(1)

(2)

(3)

(1) 1988 to 1993 inclusive: Eurostat + European Commission data for Madeira and Greece. From 1994 onwards: supplementary aid data.

(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

Supply

According to statistics published by GUS (the Polish statistics agency), more than a million tonnes of fresh and dried fruits was imported in 2006. Banana formed nearly 15% of Polish fruit imports. More than 34% of the banana volumes imported was re-exported. According to importers, the structure of banana supply has not changed much. Demand is influenced by price fluctuations that are in turn determined by the exchange rate and customs tariffs. Demand for banana increased each year until April 2004, when Poland joined the European Union. Application of the European customs tariff, when there had been none before, caused a sudden decrease in demand and the downward trend continued until the end of 2005 before stabilising. In spite of these problems, banana headed the list of imported produce from 2004 to 2006, ahead of grapes, easy peelers, walnuts, lemon and orange in terms of value.

Organisation of retail distribution

Nearly 500 wholesalers import bananas, but a fair number only do this sporadically. More than 11 000 retail outlets sell them. Since the end of 2005, their respective numbers have increased by 6.0 and 4.6% and the largest fruit importers include mainly firms with several types of operation and also purchasing centres, commission agents, ripeners, agrifood companies and chains of shops.

Strong specialisation has been observed among fruits importers for a number of years as banana requires ripening facilities. It is estimated that about 55 to 65% of bananas is sold by wholesale centres with purchasers being wholesalers, retailers, market stalls and importers from the eastern frontier. The rest is purchased directly by retail chains or via specialised importers. The Polish fruit market is a low price one and this is accentuated by purchases of mainly low grade fruits by distribution chains, supermarkets and superstores.

The main wholesale distribution channel

Thirty wholesale markets for agricultural and agrifood products currently exist in Poland. Most belong to the state via the Agency for the Restructuring and Modernisation of Agriculture. These markets handle mainly fruits, vegetables and flowers, together with processed products produced in Poland. They do not participate directly in trade but levy taxes on rented commercial premises and charge tolls for transport. The largest wholesale markets are in Warsaw, Gdansk, Poznan, Lublin and Wroclaw and cover 50 hectares of land. They have taken steps to obtain certificates of conformity to EU rules in order to guarantee the quality of the products sold.

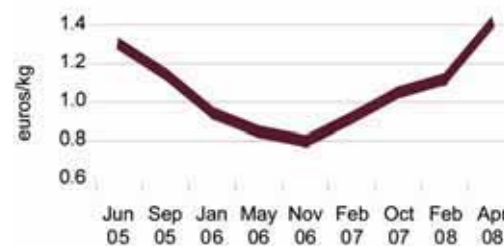
Banana - Poland - Imports			
tonnes	2005	2006	2007
Total extra EU-27, incl.	167 979	61 433	29 140
Ecuador	106 803	49 107	26 729
Costa Rica	27 885	5 069	1 794
Colombia	25 157	3 140	599
Total intra EU-27, incl.	72 496	168 597	200 214
Germany	34 289	81 363	94 047
Belgium	22 754	48 829	61 570
Netherlands	1 279	14 088	22 001
Czech Rep.	1 211	6 400	8 137
France	7 970	12 979	6 810
Italy	383	2 903	4 024
Lithuania	4 001	953	1 713

Source: Eurostat

Organisation of purchasing

Imported bananas are usually sold on wholesale markets by groups of fruit producers that have developed purchases of imported fruits or by local middlemen. As is stressed by importers, contacts with reliable partners supplying high-quality bananas are essential to ensure supply quality. Operators may also possess their own plantations, as do the multinational corporations and some domestic importers, mainly in southern Poland.

Banana - Poland - Retail price

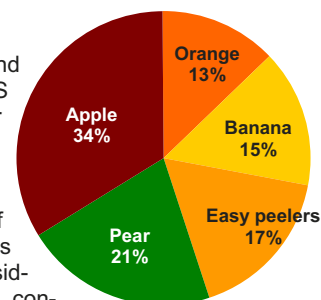


Source: GUS

Consumption

Annual banana consumption in Poland is fairly modest. According to GUS statistics, the average is 9.6 kg per person. The same sources report that fruit consumption—except for blueberry and citrus—decreased considerably in 2006. However, only 68% of Poles say that their need for fruits is satisfied. There still seems to be considerable scope for an increase in fruit consumption in Poland.

Poland
Distribution of the main fruit
consumption in 2006

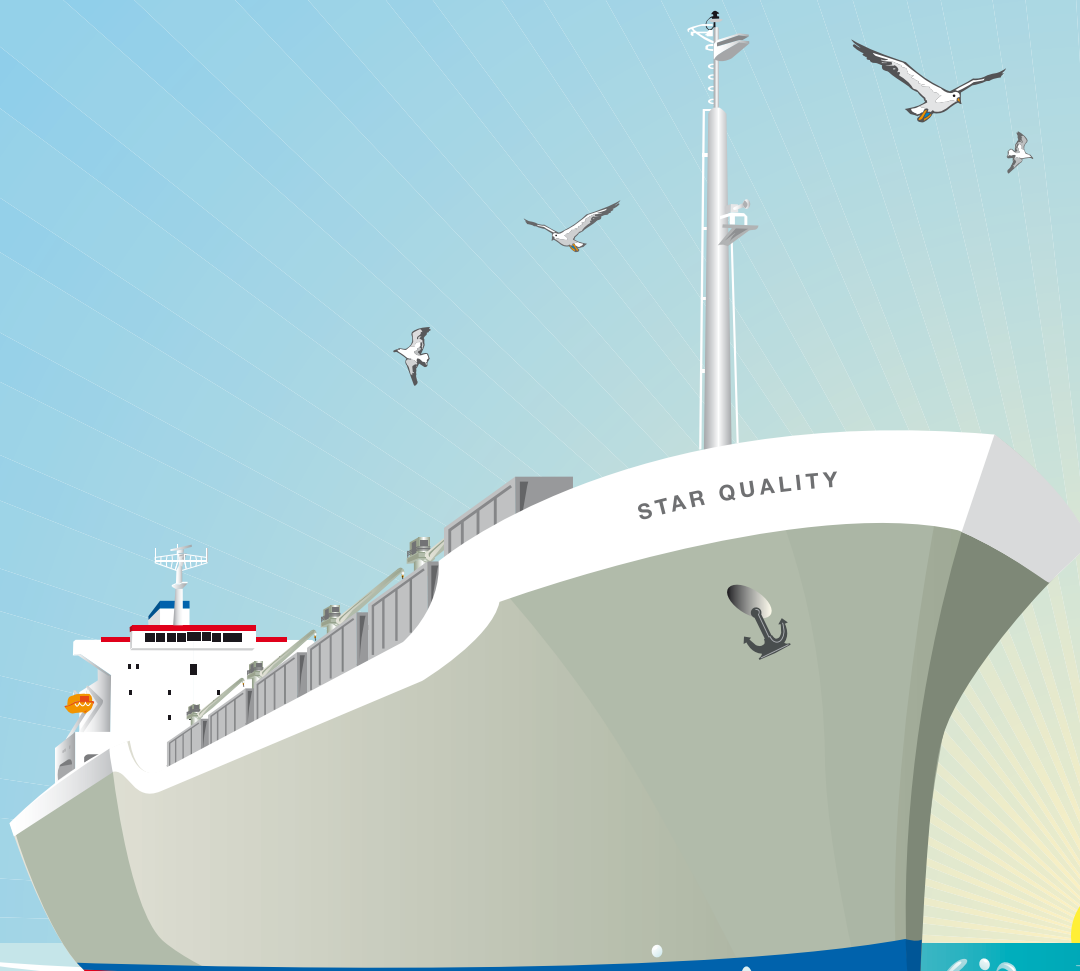


Source: GUS

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Producer country sheet

Banana in the Canary Islands

by Charles de Wulf
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History

The history of the introduction of banana in the Canaries is uncertain. There are two versions: either banana ('Silk Fig' or plantain type) was brought to southern Spain by the Arabs and subsequently shipped to the Canaries in 1477 (Guinigada monastery in Gran Canaria), or, during the same period, brought by the Portuguese from the nearby African coast, but further south. But everybody agrees that in 1516 Tomás de Berlanga took banana from Gran Canaria to Santo Domingo (Hispaniola), from where it was spread throughout America.

The Canary Islands are a volcanic archipelago in the Atlantic, off the coast of Africa, lying between 27° and 29°N and 13° and 18°W. From west to east, they consist of El Hierro, La Palma, La Gomera, Tenerife, Gran Canaria, Fuerteventura and Lanzarote. Tenerife, the largest, is in the centre of the archipelago and is 81 km long and 45 km wide. Banana is grown on the five northernmost island, with production totalling over 358 000 tonnes in 2007. Banana is by far the main crop in the Canaries, using 18% of the farm land and accounting for 38% of agricultural value.

Then, following the slump in the natural colorant cochineal, produced in the Canaries, the British introduced the Dwarf Cavendish variety at the beginning of the twentieth century. Fyffes is said to have started trade in these, thus forming the basis of production today.

Production has been steady overall during the last decade, with an annual total of some 350 000 tonnes. The proportion sold in the islands has varied between 6 and 19% (the record in 2003) over the same period. In 2007, 317 000 tonnes of banana was shipped to Spain and 40 000 tonnes sold on the local markets.

Canaries — Banana Production by island			
%	2001	2004	2007
Tenerife	42.3	42.9	42.7
La Palma	39.1	37.7	36.7
Gran Canaria	15.3	16.8	18.2
La Gomera	2.2	1.9	1.6
El Hierro	0.9	0.8	0.8
Fuerteventura	0.1	0.0	0.0

Source: Asprocan

Location of the plantations

The area under banana is fairly stable, with a peak of 9 710 hectares in 2004. Agricultural land is scarce and sells at up to EUR166 000 per ha. The figures are as follows for banana growing:

- area: 9 194 hectares, of which about a third is used for sheltered production;
- 10 945 growers;
- average area 0.84 ha per grower;
- average yield 43.5 tonnes per ha;
- average production 36.54 t per grower;
- about 25 000 direct and indirect jobs.

Banana is at its most traditional in **La Palma** and everybody has a banana plant. The island is very steep, covered with vast pine forests and has a large crater 9 km in diameter and 700 metres deep. Banana plantations are watered by sprinkler irrigation. The water is excellent and, above all, cheap—not the case in Tenerife. The bananas grown in La Palma are reputed to be the best.



Fuerteventura is a dry, sandy island. Banana production was symbolic and then finished in 2003.

El Hierro is the smallest of the islands. The winds there are strong and lasting. Export agriculture is limited to the El Golfo region in the north of the island. Banana is in competition with pineapple, which is less sensitive to wind and grown in greenhouses. The island is considered as a 'biosphere reserve' where growers wish to develop organic farming in priority.

La Gomera is a very mountainous island with no large fields but units of 20 to 30 plants at different levels. It has a problem of an ageing farming population.

Tenerife is the largest island in the archipelago, with much contrast and rich landscapes. It is crossed by a mountain range, with the Teide volcano (extinct) in the centre; at 3 718 metres, it is the highest mountain belonging to Spain. The central ridge means that the climate is different in the north and south of the island.

Gran Canaria is an island on which it is traditional to grow a lot of tomatoes and few bananas. The variety of landscapes is great, ranging from desert zones to tropical mountains, by way of valleys planted with bananas. Greenhouses are necessary in the south, more exposed to wind, but not in the north. A typical geographic feature is the barrancos, consisting of immense granite blocks, rising from the sea to an altitude of 2 000 metres.



Main technical features

The Canary Islands have the great advantage of being free from harmful fungal diseases as neither Yellow Sigatoka nor Black Sigatoka has been able to gain a foothold in this region that is too dry for them. Furthermore, the climatic conditions result in night temperatures of as low as 6°C and day temperatures of 15° in some zones. Conditions are thus clearly subtropical.

The main pests are in descending order of importance red spiders, scales and whitefly and mealybugs on the bunches, all treated with chemicals;

- soil pests include banana borer weevil but pressure is small (introduced about ten years ago). They are handled by trapping or, in organic plantations, by the use of poultry who eat the larvae;
- nematodes of the genera *Pratylenchus* (*goodeyi*), *Helicotylenchus* and *Meloidogyne* (no *Radopholus similis*). A biological activator in irrigation water is used to stimulate the microbial flora to control these nematodes.

Herbicides are not used frequently as the soil is covered by cut, dried leaves that rot very slowly. Postharvest treatments are not a major preoccupation as there are very few attacks by airborne fungi and the market is very close (2 days by sea).

The historical feature of the crop is the practically endemic presence of 'Dwarf Cavendish', still the main variety grown in open fields today. Although 'Grande naine' has been introduced, this is mainly grown under shelter (polyethylene shelters providing protection from wind). The sheltered plots are maintained for six years and open field plots for fifteen years and sometimes much longer. As land is scarce and requires considerable investment, cropping is continued for long periods. Water is scarce, especially on Tenerife, and managed frugally and accurately using long, old conveyance channels in the heart of the mountains. Use of fertigation is very common, with one supply line per row and then a secondary pipe with drippers set around each banana plant.

Production

Growers work in small areas with farming being more like gardening than a commercial plantation operation. They generally know all their banana plants and this makes it easier to choose the best suckers from generation to generation. Work in the fields is performed carefully in these small areas, with great attention paid to the production of bunches that are as large as possible and best matching the right time for sales.

A few features of banana growing in the Canary Islands

- Pressure from building prevents the extension of planted areas and even more the development of new farming areas.
- Banana cropping is very little mechanised.
- Soil was brought from the mountains and then spread on artificial terraces; this required substantial investment prior to planting. This technique is now forbidden.
- Application of organic matter is very important.
- Shoot to harvest time is from 4 to 6 months depending on the season.
- An average of one bunch per year is harvested.
- Close scheduling according to the best sales periods of the year: all the banana plants that have not flowered by October are cut to guide the daughter sucker. Work on the selection of daughter suckers and desuckering is thus of prime importance.
- The male buds are left in the spring to slow fruit filling and thus not clog the market.
- Harvesting is performed according to market pressure, whence the considerable differences in fruit grade from one period to another.
- The bunches are bagged about 45 days after flowering and after insecticide treatment to control mealybug and red spiders.
- Guying is performed either by tying the pseudostems together or by using steel stakes, with the bunch kept away from the pseudostem.
- The walls of concrete blocks around the fields are designed as wind breaks.
- Dried flowers are removed in the field with a knife (necessary for 'Dwarf Cavendish' pistils) at an average rate of 35 to 40 bunches per worker per day.
- Desuckering: about 300 plants per day.
- Work in the fields is from 7 a.m. to 2 p.m.



Organisation of the sector

The most representative group is the COPLACA cooperative that packs 140 000 tonnes per year, that is to say 34% of Canary Island production. It is made up of 30 technicians who manage 4 600 planters. COPLACA groups 20 cooperatives and 28 packing stations. Since 1993, COPLACA has created on an equal share basis with Fyffes a subsidiary called EURO-BANAN that is specialised in ripening (8 facilities handling a total of 115 000 tonnes for the Spanish market) and the fruit and vegetable trade. Banana is unloaded at the port of Cadiz three times a week, according to the island of departure. FAST ARENAS, one of the COPLACA cooperatives, packs 18 000 tonnes per year, working from Monday to Friday. This is one of the largest packing stations, where 60 people handle 2000 bunches a day, making 5 500 boxes of 17 kg bananas. It is important to note the box:bunch ratio of 2.75.



Growers do not have to handle packing as this is done by the cooperative in centralised sheds. Transport from the plantation to the packing station is estimated to cost EUR0.80 per bunch. Producers' organisations are funded by commission paid by planter members. The cooperatives have an estimated fixed cost of EUR0.30 per kg.

The profession has a central body called ASPROCAN (Asociación de Organizaciones de Productores de Plátanos de Canarias) which has federated since 1977 the six producers' groups (recognised by the EU) on five islands. Each group manages several cooperatives that assemble several planters and are equipped with one or more packing stations.

ASPROCAN works on the coordination and harmonisation of its members' operations in advertising and sales management. Planter's pay a subscription estimated to be EUR0.02 per kg of fruits produced.

ASPROCAN has set up a system to limit volumes so as not to clog the Spanish market and cause prices to collapse. Every Thursday, growers pass on their forecasts for the next week. The volumes released on the market are then gauged according to demand. If overproduction is forecast, the harvest is limited at the level of the six groups according to their annual sales volumes. Compensation for fruits destroyed

in the field is awarded from an equalisation fund. Producers contribute to the latter on the basis of EUR0.01 per kg of banana sold by the producers' organisation.

In addition to administrative services, each group has a quality team for the packing stations, a technical field team, a fruit purchasing department and a logistics team (management of refrigerated lorries leaving on the first leg of the journey to Spain).

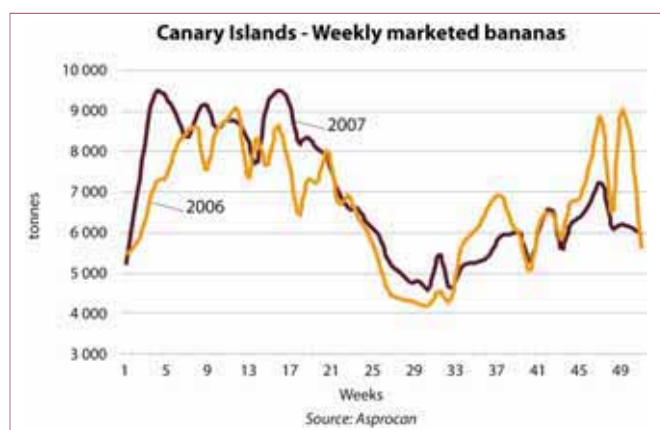
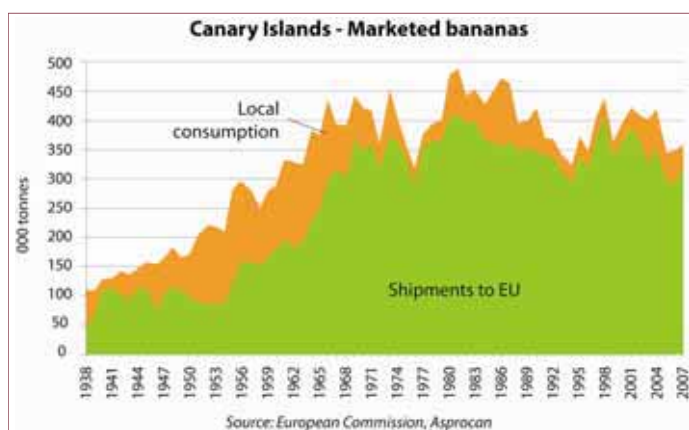
All Canary Island banana production is covered by an insurance company via a joint contract entered into by each producers' organisation. The insurance guarantees payment in case of accident such as gales, flooding, torrential rain, continuous rain, etc. The damage incurred must reach a certain threshold according to the risk and the stage of the crop.

On 1 July 2007, ASPROCAN instigated for a three-year period promotion funded jointly by the European Union (50%) and the Spanish government (25%) in collaboration with producers of tomato, avocado and other vegetable crops bearing the extremely remote region logo. The budget line is that for the promotion of this logo. Combined operations for the three main products, with an annual budget of a million euros, are planned in Spain (TV, magazines, SMS and e-mails to consumers, leaflets for wholesalers, press relations, medical personnel), in Portugal (leaflets for wholesalers) and Germany (TV advertising targeting consumers).

It is noted that ASPROCAN and UGPBAN, its counterpart in the French West Indies, work in close collaboration on technical subjects and policy, and also with producers in Madeira. These organisations are all members of APEB (Association of European Banana Producers, founded in 1989).



© Charles de Wulf



Traceability and environment

In 1993, when national protection systems gave way to the common market organisation of banana, Canary producers identified their fruit for Spanish consumers as being different to that from other sources as regards the variety ('Dwarf Cavendish') and presentation (scratched but full of taste).

Traceability from producer to consumer is effective in order to ensure food safety. The system was set up in 2004. Each bunch cut is identified by the reference of the producer's field. This information is used at the packing station to mark the box, flow pack or other packaging that reaches the consumer, such as film-covered punnets. Each box is then scanned automatically when the palette is complete and a palette traceability code affixed. The latter makes it possible to locate the palette in the lorry to better trace the produce. When the lorry leaves the packing station, the information is sent immediately to the COPLACA server and the EUROBANAN network sales office. Consumers can access information about the fruits they buy on the COPLACA website (www.coplaca.org) using data on retailers' labels.



As a more recent priority COPLACA has initiated an environment-friendly approach called 'COPLACA NATUR'. This recommends a reduction in the use of pesticides and the distribution of natural enemies. In addition to these concerns related to good agricultural practice and certification (AENOR) in workers' safety, cleanliness and hygiene in packing stations (self-monitoring and HACCP) and finally in food safety, a small amount of land is now involved in the testing of organic farming. Certified organic production is still very tiny but research institutes and the technical departments of producers' groups are working on it with much hope and determination. Fifty hectares now has organic certification.

ICIA

Instituto Canario de investigaciones agrarias

The Canary Island agricultural research institute, founded in 1971 (CRIDA) and based in Tenerife, is a research centre whose entire funding is provided by the local government. Its research work is focused mainly on tropical and temperate fruits and banana is an important field. The banana department is fairly closely linked with growers and is developing cooperation with CIRAD, its French counterpart operating in the French West Indies.

Research on banana is varied and covers the following main themes:

- alternatives to postharvest chemical treatment;
- the development of methods for banana borer control using fungi and entomopathogenic nematodes (endemic);
- evaluation of water distribution strategy in the non-saturated zone;
- evaluation of cultivars;
- evaluation of cover materials for sheltered production;
- reorientation of the production period and evaluation of local cultivars in integrated production systems.

CULTESA

an *in vitro* plant laboratory

CULTESA, a regional laboratory based in Tenerife, produces a million plants each year. The undertaking was founded in 1987 by the local government (CABILDO) and a bank at the service of growers. It produces mainly *in vitro* banana plants. Propagation is performed from mother plants selected in its own greenhouses and also from mother-plants bred by producers for several years. CULTESA stresses the importance of the role played by mass natural selection conducted in the field for many years (guidance, selection of the plants giving the largest bunches in all cases, etc.). It propagates mainly local varieties: 80% 'Dwarf Cavendish', several elite cultivars including one called locally 'Gruesa' (the holder of the world record for Cavendish bunch weight at 144 kg!) and 20% 'Grande naine'.

Banana plantations in the Canary Islands today consist of about 6 000 ha of 'Dwarf Cavendish' (with about 50% of the local cultivar 'Gruesa') and 3 000 ha of 'Grande naine' (several cultivars, grown mainly in greenhouses). The 'Dwarf Cavendish' varieties used in the Canaries are well suited to the soil and climate and to the market. They are more rustic, with better resistance to wind. The plant protection service has recently succeeded in forbidding the importing of foreign *in vitro* planting material, a growing trend for the preceding ten years, especially with material from Israel.



Producer country sheet

Banana in Martinique

Sheet compiled using data and analyses provided by Odeadom, CIRAD and Iedom.

Location

It is less than a century since Martinique switched to growing bananas, that are shipped solely to the European Union. The Cavendish variety forms nearly 98% of production and is grown on more than 6 500 ha, mainly in the north-eastern part of the island in the Lorrain and Marigot zone and in the Vauclin region in the south-east. Forming less than 2% of production, fig banana for the local market is grown on about 300 hectares.



Banana — Martinique — Areas and production				
	2003	2004	2005	2006
Number of farms	688	659	625	577
Banana UFS (ha)	8 670	8 498	7 543	7 209
Total UFS (ha) (*)	31 268	28 892	26 033	25 401
Ratio banana/total UFS (%)	28	29	29	28
Marketed production (t)	243 706	246 199	226 243	220 775
Yield (t/ha)	29.2	28.8	29.9	30.4

* UFS: Useful Farm Space / Source: DAF Martinique, European Commission

Production and exports

Farming is very specialised in Martinique. Banana growing, accounting for the greater part of agricultural added value (43% against 4% for sugar cane) was developed strongly after the collapse of sugar prices at the end of the 1960s. Nearly 5% of the working population and 49% of agricultural labour work in this sector—the main employer in nearly 60% of the island's communes. Farming a hectare of banana requires an average of 0.7 labour unit. Some 6 066 persons worked in the banana plantations in 2005. Most of the workers are employed on a permanent basis.

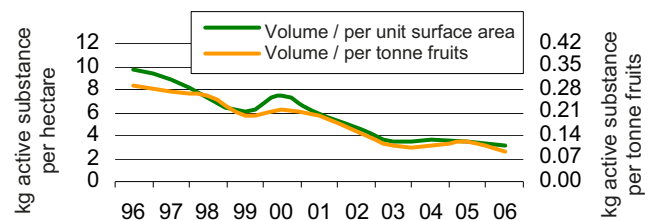
In 2006, there were 577 plantations, 172 fewer than in 2001. Most of the closures have concerned small and medium-sized plantations with areas ranging from less than 5 to more than 10 hectares and located in the north. The phenomenon is probably the result of on the one hand the setting up of the contrat de progrès (signed between professionals and the government in 2004) favouring the retirement of small farmers and on the other of the absence of economies of scale. Banana plantations have proportionally gained a larger share of the agricultural area of the island in the last five years. In addition, an increasing proportion of farms are becoming devoted to banana growing. In 2006, nearly 18% of farms were banana plantations against 11.1% in 2001.

The average yield increased from 26.3 tonnes per hectare in 2001 to 30.4 tonnes in 2006. The trend is correlated with the increase in average farm size from 12 hectares in 2001 to 12.5 hectares in

2006. The 64 large plantations of more than 50 hectares recorded an average yield of 33.7 tonnes per hectare in 2005 and accounted for 67% of the tonnage, while forming hardly 11% of farms. In contrast, the 289 small farms with less than five hectares, that is to say 50% of farms, had an average yield of 16.3 tonnes per hectare and produced 6% of the tonnage.

Like all European farming, banana growing in the French West Indies is subjected to strict regulations concerning respect of the environment and the use of pesticides. Growers' efforts, supported by the research sector and government services, have made it possible to set up integrated cropping systems that combine a weather watch, pathogen monitoring, crop rotation (especially with sugar cane), fallow, use of in vitro planting material that is free of nematodes, biological control and a search for varieties with more resistance to pathogens, leading growers to considerably reduce pesticide application (a reduction of 50% in 10 years). These results make Martinique and the French West Indies a zone with among the best environmental performance. The next agronomic challenge will be the application in the months to come of stricter rules for aerial spraying. However, the great threat feared by all growers is the arrival of Black Sigatoka disease caused by a highly pathogenic fungus that would endanger banana production.

Banana - Martinique - Evolution of the use of pesticides Insecticides and nematicides



Source : Chabrier et al, Phytoma 2005, 584 (7-8)

SA QUALITÉ UNIQUE N'EST PAS LE FRUIT DU HASARD.



C'est grâce au travail de ce planteur et de ses équipiers que la Banane de Guadeloupe et Martinique développe une qualité unique : soin minutieux et dévouement quotidien, voilà les clés de son succès. Un succès qui sera au rendez-vous dans vos rayons. Pensez à elle ! Pour en savoir plus :

bananeguadeloupemartinique.com



BANANE DE GUADELOUPE ET MARTINIQUE

RIEN NE PEUT LA BATTRE

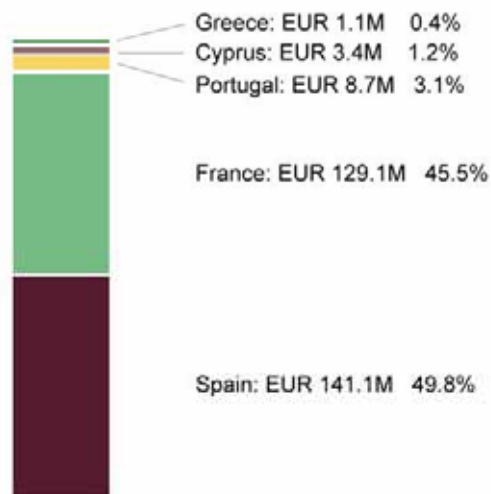
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CAMPAGNE CO-FINANÇÉE PAR L'UNION EUROPÉENNE
ET L'OFFICE DE DÉVELOPPEMENT DE L'ÉCONOMIE AGRICOLE DES DÉPARTEMENTS D'OUTRE-MER



Banana - Aid for European producers POSEI and single payment



Note:
POSEI: EUR 278.8M for the Canary Islands, Martinique, Guadeloupe and Madeira
Single payment system: EUR 4.6M for Greece, mainland Portugal and Cyprus

Support system

Since 1993, the EU has supported the European banana sector by providing financial aid for production and investment. This is performed within the framework of the common market organisation of banana (CMOB) and the social cohesion policy. Thus on the latter point, the 2000-2006 budget document (DOCUP) enabled the validation of 773 requests for financing by the budget and monitoring committee (Comité de programmation et de suivi) for a total of EUR71.6 million, funded mainly by the growers themselves, with 31.3% by the European Union (European Agricultural Guidance and Guarantee Fund, EAGGF) and 14.1% from national bodies.

The community production support system set up by the EU right at the beginning of the CMOB was reformed in 2006. The old system of compensatory aid for loss of income was based on calculation of the difference between the selling price on the European market and production cost in the European production zones. The reform led to separating the aid paid from the selling price. Since 2006, some EUR278.8 million, including 129.1 million for Guadeloupe and Martinique, has been paid to European growers within the framework of the POSEI programmes that include specific measures for ensuring the continuity and development of local agricultural production in extremely remote regions, taking their specific handicaps into account. Planters must maintain a minimum production level to receive aid corresponding to 100% of their historical reference.

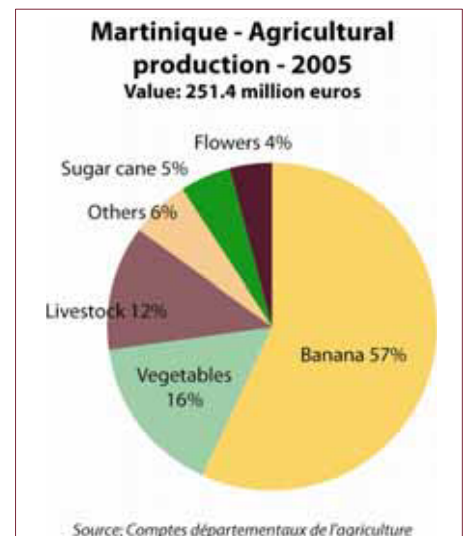
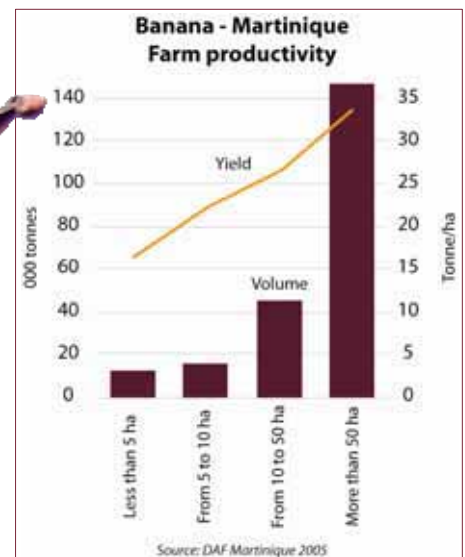
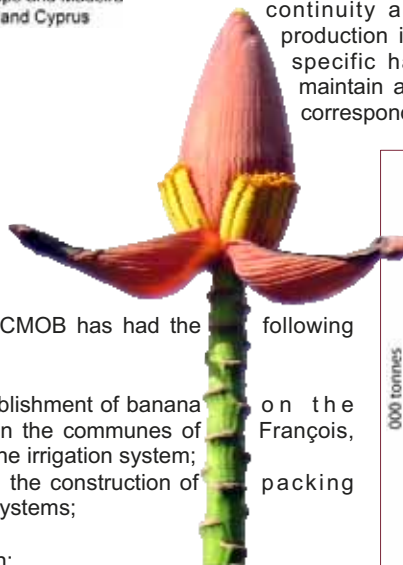
Organisation

According to professionals, the establishment of the CMOB has had the following effects in particular:

- the redeployment of cultivated land, with the re-establishment of banana on the fertile land in the south of the island, in particular in the communes of Saint-Esprit and Vauclin, thanks to the extension of the irrigation system;
- the restructuring of farms, with an increase in area, the construction of packing stations and the improvement of road and irrigation systems;
- improved yields;
- the development of integrated and organic production;
- the reorganisation of the profession.

A major event in the organisation of the profession was the founding in September 2003 of the Union des groupements de producteurs de bananes de Guadeloupe et Martinique (Ugpban) that now combines the two Martinique groups and the Guadeloupe group Les Producteurs de Guadeloupe (Lpg). While there were four groups of planters in Martinique in 2004 (Sicabam, Gipam, Cobamar and Banalliance), banana production became centred on two producers' organisations in 2006: Banamart, the product of the merging of Sicabam and Gipam in 2005, with the grouping of 420 planters (more than 90% of production), and Banalliance, founded in 1996, with 157 members and accounting for about 7% of production. The Cobamar group filed for bankruptcy at the end of 2003 and its members were divided between Banamart and Banalliance. The three groups provide direct support for planters in both islands in the agricultural techniques, purchasing, finance and human resources.

Ugpban handles the promotion and marketing of bananas from Guadeloupe and Martinique on the European market, forming 94% of production. With joint funding by growers (41%), the French government and EU funds (EUR9 million in 2005-2006-2007), Ugpban launched a vast advertising campaign for banana, using the 'Banane de Guadeloupe et Martinique, rien ne peut la battre'. The bananas from the two islands are divided into three product lines: 'banane planteur', 'banane montagne' and 'banane pays'. Today, 60% of banana production in Martinique is certified. The references used are: Agriculture raisonnée (France), GLOBALGAP (Europe) and Tesco Nature's Choice (United Kingdom). All bananas from Guadeloupe and Martinique bear a logo awarded by the European Commission attesting the origin and character of the production environment.

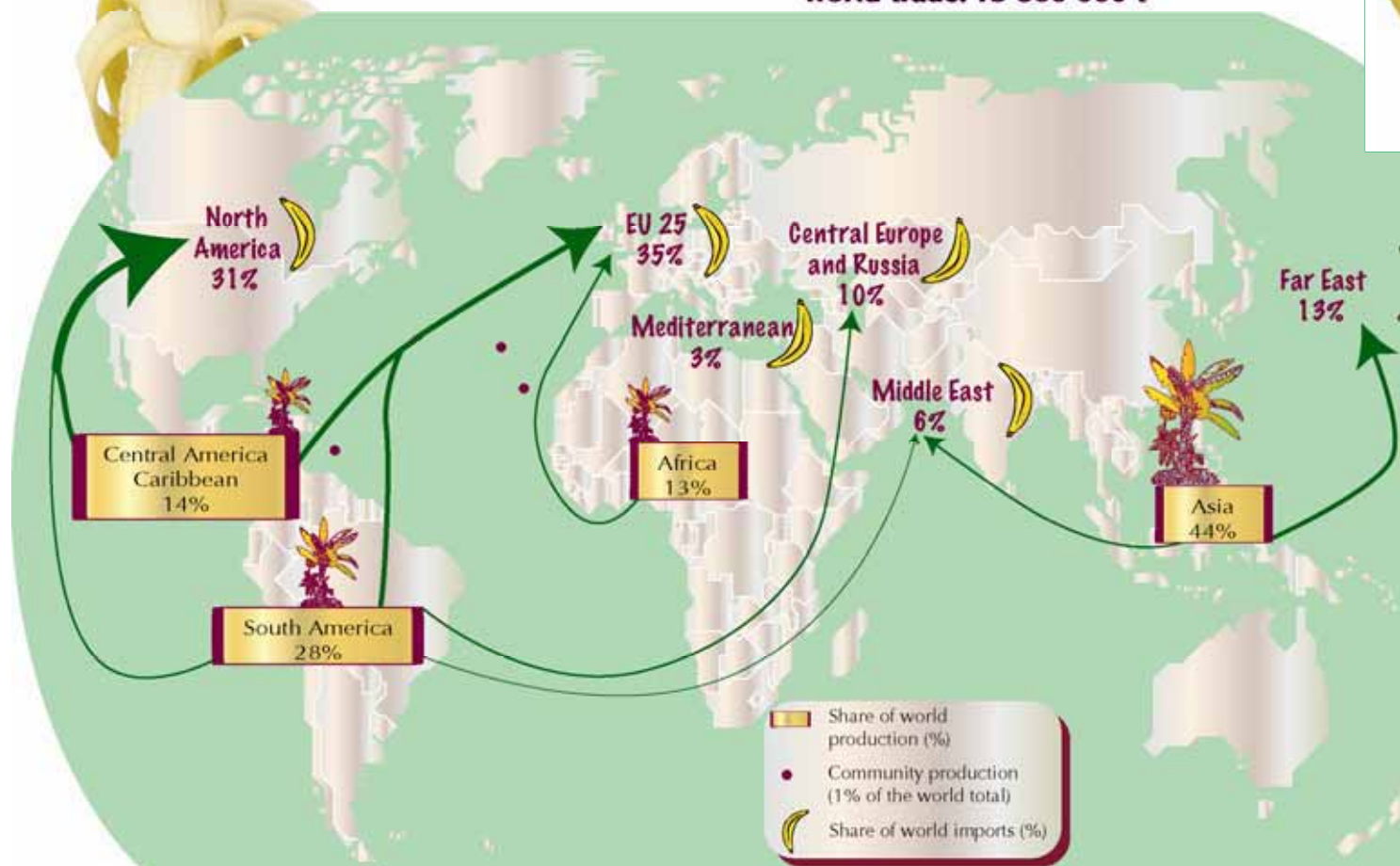


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Dessert banana...

production: 61 000 000 t

world trade: 13 800 000 t



Banana — United States imports

tonnes	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total, incl.	3 913 322	4 291 425	4 030 618	3 840 624	3 906 920	3 879 151	3 872 826	3 824 409	3 839 467	4 003 800
Guatemala	654 617	501 918	688 448	832 106	925 216	934 136	1 020 765	1 029 280	912 902	1 093 391
Costa Rica	1 090 973	1 603 844	1 361 405	1 082 088	901 485	976 078	865 298	822 731	927 361	1 036 897
Ecuador	1 080 124	1 169 467	975 960	946 584	1 021 830	972 475	918 926	904 306	994 335	929 175
Honduras	377 009	83 668	275 603	381 540	449 171	432 145	507 914	453 011	422 905	482 732
Colombia	415 116	605 819	602 836	473 784	506 441	469 306	464 592	513 748	473 826	377 232
Nicaragua	58 355	39 712	1 906	28 198	29 702	41 620	41 502	38 067	30 465	32 788
Mexico	220 582	140 802	85 123	63 809	42 339	35 197	33 586	33 796	38 573	31 508
Peru	-	-	302	5 656	23 196	13 756	12 384	22 345	25 056	17 848
Dom. Rep.	6 387	11 733	6 437	7 355	3 573	2 136	5 201	4 437	6 213	1 720
Panama	5 391	130 973	28 707	16 187	259	215	612	2 019	7 516	502
Venezuela	4 519	3 471	3 852	3 283	3 684	1 930	2 008	670	317	-

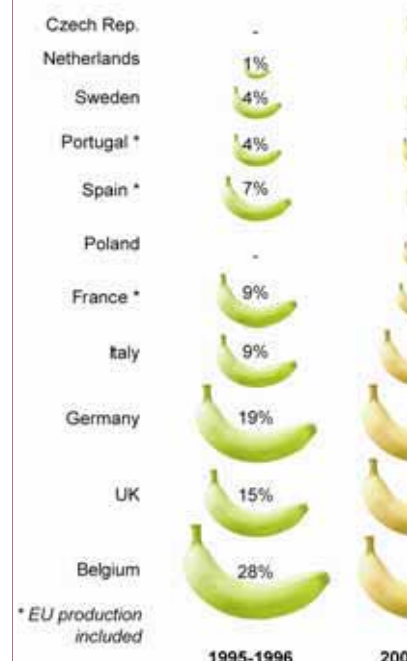
Source: US customs, code 0803002020 (excl. plantain)

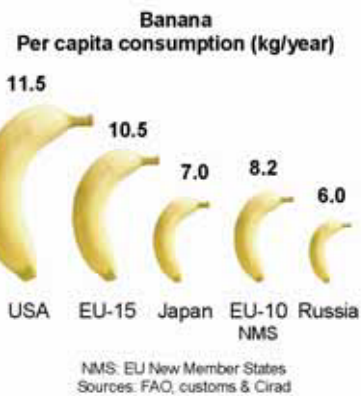
Banana — Japanese imports

tonnes	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total, incl.	864 853	983 204	1 078 655	990 554	936 272	986 643	1 026 014	1 066 873	1 043 634	970 594
Philippines	620 342	727 071	811 000	781 413	743 549	795 561	869 641	944 467	910 600	878 962
Ecuador	158 117	197 186	210 820	170 643	157 013	145 578	122 718	91 099	101 343	52 067
Taiwan	56 240	44 655	42 274	25 178	25 074	33 518	18 226	15 100	15 862	18 868
Peru	-	-	-	-	-	110	3 216	4 027	4 272	7 560
Mexico	1 798	1 722	1 394	2 044	2 562	3 057	3 303	3 739	3 948	4 611
Colombia	-	-	439	166	1 483	2 194	1 926	2 328	1 964	2 892
China	6 440	8 939	3 428	5 740	3 814	2 736	3 609	2 844	1 580	2 249
Thailand	675	900	1 332	1 513	1 252	1 793	2 204	1 794	2 373	2 089
Dominica	670	1 675	1 986	1 409	1 461	2 093	1 171	1 476	1 633	1 128

Source: Japanese customs, code 080300100

Banana - EU import by entry point



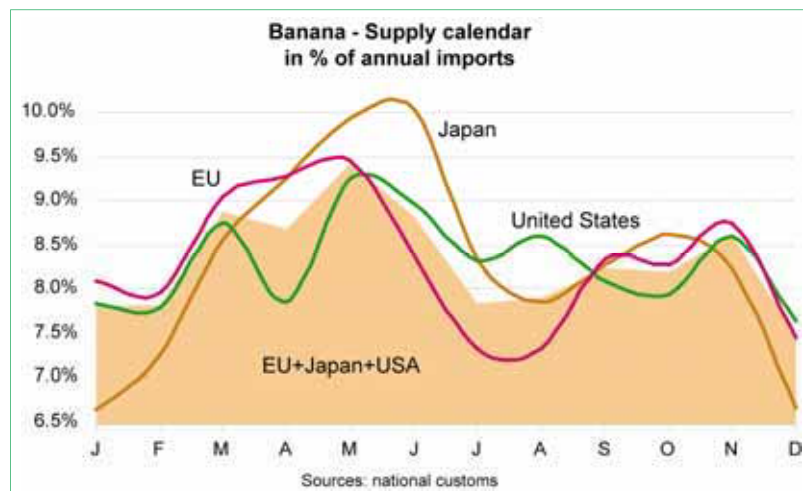


Banana World production - Tonnes			
2006	Cavendish	Other dessert	Total
World	46 620 128	12 339 269	58 959 397
India	7 358 600	2 019 00	9 377 600
Brazil	3 104 731	3 500 000	6 604 731
China	5 950 000	642 000	6 592 000
Ecuador	5 150 000	518 425	5 668 425
Philippines	3 300 000	993 000	4 293 000
Indonesia	1 790 000	887 608	2 677 608
Colombia	2 000 000	500 000	2 500 000
Costa Rica	2 080 000	133 618	2 213 618
Mexico	1 810 000	70 000	1 880 000
Guatemala	1 270 000	10 000	1 280 000
Egypt	875 999	1 000	876 999
Cameroon	600 000	260 000	860 000
Thailand	601 000	223 850	824 850
Bangladesh	555 000	210 710	765 710

Banana World exports	
2006	tonnes
World	13 800 000
Ecuador	4 402 395
Costa Rica	1 961 102
Philippines	1 908 328
Colombia	1 519 388
Guatemala	943 616
Honduras	444 673
Panama	320 494
Canaries	294 131
Cameroon	260 000
Côte d'Ivoire	245 000
Martinique	219 556
Brazil	212 210
Dom. Rep.	200 000
Belize	73 207

Banana World imports	
2006	tonnes
World	13 800 000
EU-25, incl.	4 838 000
Belgium	1 141 026
UK	855 684
Germany	853 938
Italy	513 181
France	442 570
United States	3 839 467
Japan	1 043 634
Russia	858 124
Iran	450 860
Canada	449 000
China	429 000
Argentina	302 000
South Korea	254 000

Sources: Thierry Lescot, FAO, EU, US and Japanese customs



Banana — European Union imports																
000 tonnes	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total	3 751	3 612	3 414	3 810	3 954	3 902	3 796	3 931	4 070	3 973	4 073	4 121	4 609	4 371	4 838	5 231
Total EU, incl.	705	642	585	657	685	811	785	730	782	768	791	755	750	648	642	552
Canaries	349	331	322	369	346	404	437	362	398	421	407	401	418	345	348	358
Martinique	198	181	152	188	250	277	240	259	271	234	264	244	246	226	221	129
Guadeloupe	115	97	82	63	61	98	74	84	88	89	95	86	59	54	48	40
Madeira	35	26	26	34	24	28	30	22	22	21	22	21	21	14	15	17
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-	3	6	7	5
Greece	8	7	3	3	4	4	4	3	3	3	3	3	3	3	3	3
Total dollar, incl.	2 367	2 220	2 102	2 387	2 466	2 395	2 393	2 520	2 475	2 455	2 579	2 509	3 074	2 959	3 290	3 842
Ecuador	675	605	549	632	686	738	568	695	674	705	829	800	993	1 059	1 026	1 184
Colombia	500	418	461	557	653	569	541	554	617	645	665	673	763	878	948	1 154
Costa Rica	452	480	622	564	604	603	640	663	657	634	686	725	840	623	825	970
Panama	471	413	299	416	311	358	417	422	389	348	307	303	368	281	311	354
Brazil	0	0	0	0	0	2	1	5	13	17	36	50	52	63	96	86
Peru	0	0	0	0	0	0	0	0	0	1	7	6	10	12	23	34
Honduras	195	194	27	56	114	70	151	68	108	106	20	11	18	19	18	30
Guatemala	33	27	20	58	62	58	61	42	30	3	0	2	2	3	27	19
Venezuela	0	0	1	13	18	30	30	42	18	12	9	12	23	17	15	10
Total ACP, incl.	679	750	727	766	803	696	618	681	760	730	727	787	785	764	906	837
Cameroon	110	147	158	165	167	157	116	161	206	216	230	293	262	253	259	222
Dominican Rep.	38	62	86	75	61	49	56	42	60	86	97	109	101	145	177	206
Côte d'Ivoire	144	161	149	160	181	166	158	192	200	218	211	202	211	184	228	190
Belize	28	39	47	41	54	53	53	56	68	52	38	74	80	74	73	61
Surinam	30	28	33	28	26	29	21	39	34	29	7	0	19	35	45	54
Ghana	0	0	0	2	3	3	4	3	3	3	3	1	2	4	24	33
Saint Lucia	122	113	92	101	107	71	70	66	73	35	49	33	43	28	36	30
Jamaica	75	77	76	84	89	77	62	52	41	43	41	42	29	12	32	18
Saint Vincent	71	58	32	48	44	30	39	38	43	31	33	21	24	15	17	14
Dominica	52	53	43	33	39	35	27	28	28	18	17	10	12	12	13	7

Note: May to December only for Cyprus in 2004 / From 1995, EU-15 / From 2004 to 2006, EU-25 / Since 2007, EU-2007 / Source: Eurostat

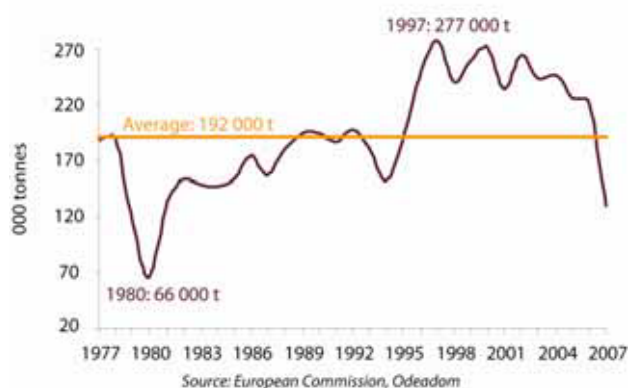
Shipping

The second European producer after the Canary Islands, Martinique has shipped an average of 220 000 tonnes of banana to the EU for 20 years. The best score was 277 000 tonnes in 1997. Bananas from Martinique and Guadeloupe have a 40% share of the French market. About 25% of production is shipped to other destinations in Europe: Spain, the United Kingdom, Germany, certain new member countries, etc. Last year was marked by the passage of hurricane Dean that destroyed all the banana plantations on 17 August. Bananas from Martinique returned to the European market at the beginning of April 2008, that is to say less than eight months after the catastrophe.



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Martinique - Marketed bananas



Logistics

Producers in Martinique and Guadeloupe have joint logistics. The four container ships of the CMA-CGM shipping line (dedicated shipping on the Martinique-Guadeloupe-Dunkirk-Le Havre-Rouen-Montoir route) handle 100% of the transport of bananas to Europe on a weekly basis. The voyage lasts for 9 days, with departure from the West Indies on Saturday evening and arrival in Dunkirk on Monday. Two facilities unload the containers at the port of arrival and manage forwarding to ripening facilities.

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The genetic diversity of banana in figures

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 2006

Tonnes	Cooking bananas		Dessert bananas		Total
	Plantain AAB group	Highland bananas + ABB group + others	Cavendish	Gros Michel + others	
North America	0	9 000	10 000	100	19 100
South America	5 641 492	707 677	11 319 379	5 000 097	22 668 645
Central America	1 100 764	142 143	6 395 306	247 846	7 886 059
Caribbean	939 765	597 017	1 302 372	301 905	3 141 059
West and Central Africa	9 002 675	1 140 272	2 729 126	536 142	13 408 215
East Africa	1 275 586	13 370 982	1 810 727	737 838	17 195 133
North Africa & Middle East	26	8 862	1 713 898	7 881	1 730 667
Asia	834 300	10 010 080	20 625 051	5 440 775	36 910 206
Oceania	1 381	543 788	316 871	65 684	927 724
Europe	101	905	397 398	1 001	399 405
World total	18 796 090	26 530 726	46 620 128	12 339 269	104 286 213

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

Estimates in tonnes Production and commerce 2006 data (or 2005 data in italics)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas		Total	Cavendish	Plantain	Dessert Banana	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB	Cavendish	Gros Michel & others					
North America									
Canada					0	715		449 610	150
Greenland					0			70	
Saint Pierre & Miquelon								30	
United States		9 000	10 000	100	19 100	449 660		3 824 401	262 604
Total	0	9 000	10 000	100	19 100	450 375	0	4 274 111	262 754
	0.0%	47.1%	52.4%	0.5%	100.0%	10.5%	0.0%		
Central America									
Belize	25 222	9 000	80 000	2 000	116 222	73 207	100	20	
Costa Rica	73 000	3 635	2 080 000	133 618	2 290 253	1 961 102	30 000	2 360	2 970
Guatemala	250 000	22 355	1 270 000	10 000	1 552 355	943 616	97 900	4 300	40
Honduras	240 994	44 000	587 078	15 000	887 072	444 673	830	34 010	6 030
Mexico	303 891	13 000	1 810 000	70 000	2 196 891	70 170	60	30	
Nicaragua	50 000	30 000	75 000	5 000	160 000	30 465	13 130	2 260	27
Panama	85 000	10 153	430 000	9 228	534 381	320 494	670	670	
Salvador	72 657	10 000	63 228	3 000	148 885			49 570	46 020
Total	1 100 764	142 143	6 395 306	247 846	7 886 059	3 843 727	142 690	93 220	55 087
	14.0%	1.8%	81.1%	3.1%	100.0%	60.1%	13.0%		
South America									
Argentina			166 800	36	166 836	50		302 200	
Bolivia	176 000	10 500	100 000	87 501	374 001	55 650	50		
Brazil	453 290	30 000	3 104 731	3 500 000	7 088 021	212 210	25	10	
Chile					0	220		195 330	
Colombia	3 057 000	400 000	2 000 000	500 000	5 957 000	1 519 388	126 091	5 800	60 900
Ecuador	600 000	108 012	5 150 000	518 425	6 376 437	4 402 395	130 000		
French Guiana	2 764	600	5 000	846	9 210				
Falkland Isl.								20	
Guyana	15 000	1 990	14 000	2 589	33 579	26	30		
Paraguay		300	35 220	9 700	45 220	6 970			
Peru	1 027 120	120 000	270 000	280 000	1 697 120	57 000	42 850		110
Surinam	10 318	1 000	50 000	1 000	62 318	45 146	10		200
Uruguay					0			49 550	
Venezuela	300 000	35 275	423 628	100 000	858 903	14 892	12 080		
Total	5 641 492	707 677	11 319 379	5 000 097	22 668 645	6 313 947	311 136	552 910	61 210
	24.9%	3.1%	49.9%	22.1%	100.0%	55.8%	5.5%		
Caribbean									
Anguilla			1					70	12
Antigua & Barbuda	1	3	212	4	220			770	330
Aruba					0			1 400	580
Bahamas	5	20	3 440	35	3 500	3 430		5 010	2 300
Barbados	5	25	615	15	660			2 240	1 050
Bermudas	500	30	420	76	1 026	160	179	270	
Cayman Isl.	28	5	205	1	239			73	
Cuba	40 000	492 283	139 517	200 000	871 800	30		10	
Dominica	3 600	600	15 000	500	19 700	13 298	1 380		
Dominican Rep.	390 000	22 045	497 433	50 000	959 478	200 000	3 000		
Grenada	780	300	989	150	2 219	0	3		
Guadeloupe	8 240	550	60 000	2 000	70 790	45 850			400
Haiti	378 419	75 000	135 000	20 000	608 419	2	300	10	1 000
Jamaica	20 000	483	90 000	15 701	126 184	31 863	10	90	
Martinique	15 000	3 000	235 000	3 000	256 000	219 556			3
Montserrat	75	3	70	2	150			60	50
Netherlands Antilles			10		10	10		1 410	1 425
Puerto Rico	74 352	2 000	50 000	2 201	128 553				600
St Kitts & Nevis					0			420	500
St Lucia	1 250	50	44 000	5 000	50 300	40 000	60		
St Vincent & Grenadines	3 060	60	22 000	3 000	28 120	20 000	1 150	1	40
Trinidad & Tobago	4 150	500	6 900	100	11 650	40	50	1 360	560
Turks & Caicos Isl.								220	100
Virgin Isl. (UK)	50	10	260	20	340			40	27
Virgin Isl. (USA)	250	50	1 300	100	1 700				1
Total	939 765	597 017	1 302 372	301 905	3 141 059	574 239	6 132	13 384	8 978
	29.9%	19.0%	41.5%	9.6%	100.0%	44.1%	0.7%		

Estimates in tonnes Production and commerce 2006 data (or 2005 data in <i>italics</i>)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas		Total	Cavendish	Plantain	Dessert Banana	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB	Cavendish	Gros Michel & others					
East Africa									
Botswana					0	10		8 000	
Burundi	70 000	1 118 679	70 000	280 000	1 538 679				
Comoros	2 000	11 000	51 000	1 000	65 000			20	
Djibouti			1		1			1 200	
Eritrea			10	1	11	20		15 000	
Ethiopia	100	1 000	209 450	900	211 450				
Kenya	430 000	400 000	290 000	80 000	1 200 000			1 180	
Lesotho					0			2 500	
Madagascar	20 000	12 612	225 000	45 000	302 612	20			
Malawi	200 000	47 614	44 156	10 000	301 770				
Mauritius	10	761	9 000	1 000	10 771			1	
Mayotte	640	6 400	16 500	1 000	24 540				
Mozambique	5 000	5 383	80 000	3 000	93 383	3 700			
Réunion	10	500	7 200	4 790	12 500				
Rwanda	50 000	2 173 010	114 870	135 200	2 473 080	57	1		
Seychelles	100	576	1 120	250	2 046	1		1	
Somalia	4 000	1 000	15 000	2 000	22 000	30	1		
South Africa	20	120	341 049	2 500	343 689	640		5 390	
Sudan		1 000	74 791	2 000	77 791	1 500		20	
Swaziland			380	1	381				
Tanzania	300 000	300 000	145 000	5 000	750 000	314	1		
Uganda	193 558	9 290 797	30 000	163 558	9 677 913	2 200	1 040		
Zambia	1	30	600	38	669	20		810	
Zimbabwe	147	500	85 600	600	86 847	1 880		260	
Total	1 275 586	13 370 982	1 810 727	737 838	17 195 133	10 392	1 043	34 382	0
	7.4%	77.8%	10.5%	4.3%	100.0%	0.6%	0.1%		
West and Central Africa									
Angola	120 000	10 000	161 851	14 000	305 851			20	
Benin	45 000	100	13 500	9 000	67 600		200	10	2 100
Burkina Faso	100	10	15 000	10	15 120			328	5 600
Cameroon	1 200 000	200 000	600 000	260 000	2 260 000	260 000	30 000	36	
Cape Verde	10	30	6 530	30	6 600				
Central African Rep.	73 000	7 000	80 000	30 000	190 000				
Chad			10		10			1 250	1 500
Congo	60 000	4 000	70 000	17 000	151 000			10	
Congo (Dem. Rep.)	1 000 000	203 030	290 470	24 000	1 517 500	26		20	
Côte d'Ivoire	1 300 000	200 000	500 000	6 000	2 006 000	245 000	35 000	150	
Equatorial Guinea	28 000	3 000	14 000	6 000	51 000	4	100		9 000
Gabon	120 000	50 000	12 135	500	182 635			1	5 000
Gambia	1	1	10	1	13			380	
Ghana	2 165 000	350 000	360 000	25 000	2 900 000	30 000	20 000		200
Guinea	420 000	15 000	125 000	30 000	590 000	1	20		
Guinea Bissau	36 000	3 000	4 800	200	44 000	1			
Liberia	39 000	3 000	95 500	20 000	157 500	274			10
Mali	10 000	1 000	60 000	1 000	72 000			5 000	5 500
Mauritania		1	70	1	72	2		886	17
Namibia					0	3		1 608	
Niger			350		350			1 712	2 500
Nigeria	2 357 000	83 000	260 000	85 000	2 785 000	54		4 500	
St Helena								15	
Sao Tomé & Príncipe	6 500	6 500	7 200	6 800	27 000				10
Senegal	200	100	29 600	100	30 000			14 780	2 300
Sierra Leone	19 464	1 000	9 000	1 000	30 464		1	10	
Togo	3 400	500	14 100	500	18 500	15	2	2	1
Total	9 002 675	1 140 272	2 729 126	536 142	13 408 215	535 380	85 323	26 218	38 238
	67.1%	8.5%	20.4%	4.0%	100.0%	19.6%	0.9%		
North Africa - Middle East									
Algeria		1	10	1	12			157 080	
Bahrain			730		730	310		8 330	
Egypt	1	3 000	875 999	1 000	880 000	2 980			
Iran		2 000	70 000	2 678	74 678	210		450 860	
Iraq			10		10			5 000	
Israel		1 000	120 000	1 028	122 028	760			
Jordan		1 000	40 000	1 113	42 113	4 990	30	6 320	
Koweit					0			23 000	
Lebanon	10	600	80 000	590	81 200	200		450	
Libya		1	2	1	4			46 129	
Morocco		500	202 000	500	203 000			4 930	
Oman		500	25 000	455	25 955	1 010		4 390	
Qatar					0	120		13 050	
sub-total (contd on p. 32)	11	8 602	1 413 751	7 366	1 429 730	10 580	30	719 539	

Estimates in tonnes Production and commerce 2006 data (or 2005 data in <i>italics</i>)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas		Total	Cavendish	Plantain	Dessert Banana	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB	Cavendish	Gros Michel & others					
North Africa - Middle East	(concluding)								
Saudi Arabia			1		1	2 250		233 420	
Syria			740	10	750	10		94 170	
Tunisia		10	55	50	115	20		60 000	
Turkey		50	178 000	155	178 205	60		151 020	
United Arab Emirates			171		171			38 000	
West Bank			9 200		9 200			10 000	
Western Sahara					0			100	
Yemen	15	200	111 980	300	112 495	58 530		80	
Total	26	8 862	1 713 898	7 881	1 730 667	71 450	30	1 306 329	0
	0.0%	0.5%	99.0%	0.5%	100.0%	4.2%	0.0%		
Asia									
Afghanistan					0			850	
Azerbaijan					0			7 740	
Bangladesh	13 000	120 000	555 000	210 710	898 710	260		150	
Bhutan					0			9	
Brunei		10	610	60	680			550	
Cambodia	10 000	65 000	52 621	30 000	157 621				
China	1 000	460 000	5 950 000	642 000	7 053 000	53 740		429 100	
East Timor			1 000		1 000			20	
Hong Kong					0	11 946		72 200	
India	453 200	1 879 500	7 358 600	2 019 000	11 710 300	14 410	1		
Indonesia	50 000	2 450 000	1 790 000	887 608	5 177 608	3 670	1	440	
Japan			185		185	30		1 066 900	6 380
Kazakhstan					0			9 730	1
Kirghizia					0			2 250	
Laos	1 000	7 000	22 000	18 000	48 000	5 150		10	
Macau					0			1 835	
Malaysia	40 000	214 406	160 000	120 000	534 406	33 840		460	
Maldives	100	3 900	5 000	1 313	10 313			580	20
Mongolia					0			480	
Myanmar	40 000	400 000	102 000	60 000	602 000				
Nepal		20 000	20 000	12 634	52 634	46		5 440	
North Korea					0			20	
Pakistan	1 000	2 000	141 655	10 000	154 655	8 500			
Philippines	1 000	2 500 564	3 300 000	993 000	6 794 564	1 908 328		40	
Singapore					0	220		35 740	
South Korea					0	700		253 980	
Sri Lanka	162 000	312 000	20 480	10 000	504 480	160	20		2
Taiwan		100	700	200	1 000	66		1 683	
Tajikistan								120	
Thailand	60 000	980 000	601 000	223 850	1 864 850	41 860	5	5 150	
Turkmenistan								100	
Uzbekistan					0			1 340	
Vietnam	2 000	595 600	544 200	202 400	1 344 200	27 040		30	
Total	834 300	10 010 080	20 625 051	5 440 775	36 910 206	2 109 966	27	1 896 947	6 403
	2.3%	27.1%	55.9%	14.7%	100.0%	10.2%	0.0%		
Oceania									
Australia	50	500	240 000	25 020	265 570	20		30	
Cook Isl.		100	50		150	22			
Fiji	100	2 207	3 400		5 707			1	
French Polynesia		2 300	3 800	500	6 600			2	
Guam		145	200		345			1 000	
Kiribati		3 839	700	400	4 939				
Marshall Isl.								50	
Micronesia	300	1 190	800	10	2 300				
Niue		40	30		70	8			
New Caledonia	130	1 800	2 000	600	4 530			5	
New Zealand					0	1		77 480	
Palau								50	
Papua-New Guinea	500	500 000	54 500	35 000	590 000	1 000			
Samoa	100	15 000	6 175	3 000	24 275	1			
Samoa (USA)		150	478	50	678			1	
Solomon Isl.		90	321		411				
Tokelau		10	5		15				
Tonga	100	2 900	600	100	3 700				
Tuvalu	1	165	100	4	270				
Vanuatu	100	9 442	3 500	1 000	14 042				
Wallis & Futuna		3 910	212		4 122				
Total	1 381	543 788	316 871	65 684	927 724	1 052	0	78 619	0
	0.1%	58.6%	34.2%	7.1%	100.0%	0.3%	0.0%		

Estimates in tonnes Production and commerce 2006 data (or 2005 data in italics)	Production					Exports		Imports	
	Cooking bananas		Dessert bananas		Total	Cavendish	Plantain	Dessert Banana	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB	Cavendish	Gros Michel & others					
Europe									
Albania					0			16 810	
Andorra					0			600	
Armenia					0	590		8 190	
Austria					0	9 437		132 494	86
Azores			1 000		1 000				
Belarus					0	70		19 680	
Belgium - Luxembourg					0	726 224	27 000	860 000	27 910
Bosnia Herzegovina					0	10		44 930	96
Bulgaria					0	130		54 900	
Canaries	1	5	362 189	5	362 200	294 131			
Croatia					0	50		53 950	280
Cyprus			6 525		6 525	16		2 858	2
Czech Rep.					0	28 658	82	145 783	1 162
Denmark					0	15 943		87 377	2 380
Estonia					0	1 418		17 582	
Faroe Isl.					0			341	
Finland					0	2 309		64 398	41
France					0	172 818	1 130	673 597	11 790
Georgia					0	50		7 380	
Germany					0	449 100	750	1 306 509	1 380
Gibraltar								150	
Greece			2 948		2 948	2 048		97 229	251
Hungary					0	197		70 292	468
Iceland					0	5		4 730	
Ireland					0	7 575	840	51 562	5 870
Italy			386		386	133 083	160	660 012	3 400
Latvia					0	843		28 059	
Lithuania					0	7 005	20	27 970	338
Macedonia					0	10	10	2 160	15 430
Madeira	100	900	20 600	996	22 596	15 317			
Malta					0	399		4 565	49
Moldavia					0			6 900	80
Netherlands					0	59 000	4 630	279 828	7 850
Norway					0			73 200	
Poland					0	24 864		250 158	2 755
Portugal			3 500		3 500	28 515	3 000	153 632	3 431
Romania					0	80		143 170	
Russia					0	12 080		863 500	
St Marin					0			120	
Serbia & Montenegro					0	25	20	39 840	400
Slovakia					0	8 792	20	87 305	676
Slovenia					0	7 416		36 155	5
Spain			250		250	21 800	1 200	425 167	17 470
Sweden					0	27 970		188 067	85
Switzerland					0	10		74 220	
Ukraine					0	20		240 800	
United Kingdom					0	23 108	1 760	924 526	22 380
Total	101 0.0%	905 0.2%	397 398 99.5%	1 001 0.3%	399 405 100.0%	2 081 116 25.3%	40 622 0.5%	8 230 696	126 065
Total world	18 796 090	26 530 726	46 620 128	12 339 269	104 286 213	15 991 644	587 003	16 506 816	558 735
	18.0%	25.4%	44.7%	11.8%	100.0%	34.3%	3.1%		

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 (2005 and 2006) and the experimental nature of this work.

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



Banana diseases and pests

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).



Gros Michel



Panama disease

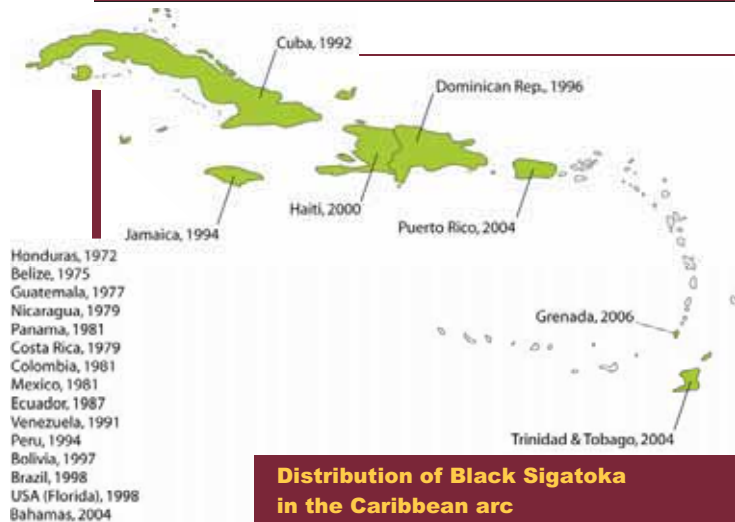
- **Race 2** affects the Bluggoe subgroup (ABB, cooking bananas).
- **Race 3** affects *Heliconia* spp. and sometimes Gros Michel.
- **Race 4**, identified in the Canary Islands in 1931, affects the Cavendish group sporadically and under certain environmental conditions but only in subtropical zones (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

Two main types of leaf streak disease endanger the banana industry: Black Sigatoka and Yellow Sigatoka. A new species called *Mycosphaerella eumusa* is even more aggressive than Black Sigatoka and seems to be spreading in Asia and the Indian Ocean. Black Sigatoka (also called black leaf streak disease or BLS) is caused by the fungal leaf parasite *Mycosphaerella fijiensis*.

Spread is from plant to plant in continental zones. The sea is a natural obstacle. Although the risk of natural dissemination of the spores of the fungus by wind cannot be ruled out, the spread of the disease from one zone to another is generally the result of uncontrolled movement of plant material. The disease is present in all the producer countries in Latin America, Africa and Asia. The Caribbean countries were long protected by their island geography. The new feature that strongly increases the risk for the Lesser Antilles is the spread of the disease in the Greater Antilles in Cuba, Jamaica, the Dominican Republic, Haiti, Puerto Rico, Grenada and Trinidad & Tobago. The fungus destroys the foliage of banana plants. The disease appears in the form of small black streaks that soon develop into necrotic patches. The spread of lesions causes the total destruction of banana leaves before the bunch is harvested, with the fruits being at an advanced stage of ripeness making them unsaleable.

The process is exactly the same as that of Yellow Sigatoka, another fungal disease observed for about 60 years in all the continents. This is caused by the fungus *Mycosphaerella musicola* and led to rational chemical control set up by professionals in Martinique and Guadeloupe. Spraying is performed in relation to surveillance of the disease. Today, Yellow Sigatoka is controlled with a small number of sprays (five to seven per year). There are fundamental differences between the two leaf streak diseases. Unlike Yellow Sigatoka, Black Sigatoka can infect both export banana and plantain. As it spreads rapidly, it is also more difficult to control. Depending on the country and control facilities and techniques, control requires from 12 to more than 50 sprays per year.

Two control strategies

The export banana plantations in the major Latin American producer countries form vast agro-industrial complexes in alluvial plains. Given the size of plantations (several hundred or even several thousand hectares), contamination from outside is weak. There are no nearby centres of infection. The

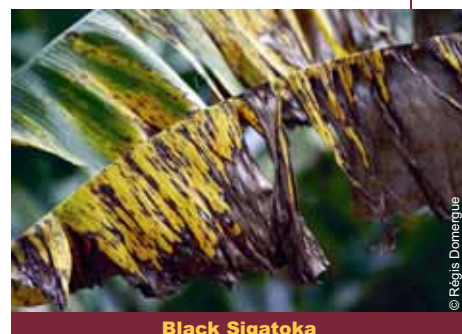
agroclimatic homogeneity makes it possible to organise and rationalise crop spraying for large complexes. The low cost of labour facilitates essential control work (regular defoliation).

In this context, the impact of spraying as a nuisance is not always taken into account by the large companies that do not hesitate to use systematic control strategies leading to more than 50 sprays per year. Application is at regular intervals and generally consists of contact fungicides (chlorothalonil, dithiocarbamate, etc.) that by definition are of low efficacy—treatment every 10 to 15 days—requiring a large number of sprays to control the disease. Systemic fungicides are sometimes used but always as a water-based emulsion.

CIRAD has developed a rational strategy using warning methods based either on disease monitoring in the plantation or on the observation of climatic descriptors (evaporation, temperature, etc.). It has been applied in particular in Guadeloupe, Martinique, Cameroon and Côte d'Ivoire. It consists of performing spraying only at the appropriate moment. The main objectives are:

- improving control efficacy while decreasing the number of sprays per year;
- limiting the risks of the selection of fungicide-resistant races;
- reducing pollution and increasing respect for 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, etc.) that are effective for a long time. Mixing them with a low volume (13 to 15 litres per ha) of petroleum oil (also fungistatic) extends the efficacy of each spray and therefore helps to reduce the number of sprays per year. These two types of leaf streak control strategy have similar efficacy. However, the consequences are totally different with regard to the appearance of resistance in the fungus.



Black Sigatoka

The systemic fungicides available on the market have a single-site effect on the pathogen, enhancing the inducing of resistant fungal strains when these substances are used in excess. In Central America, resistance to benzimidazoles was observed only two years after their first utilisation. This led to greater use of contact products, with 15 to 40 kg active substance per hectare per year. Warning techniques and a reduced number of sprays resulted in the appearance of resistance phenomena in Guadeloupe, Martinique, Cameroon and Côte d'Ivoire only after 10 or even 15 years of use.

New control methods are essential

Present control strategies cannot be used indefinitely. Thought should soon be focused on the adopting of an overall approach combining new hybrids resistant to the leaf streak diseases and cropping systems that make it possible to conserve this resistance.

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

Moko disease

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

Two types of symptoms are observed depending on whether the bacterium is spread via the soil or by a machete 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 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, rain-water splashes and wind. There are no resistant varieties. Control is by a six-month quarantine period and the destruction of infected plants and those nearby. Free movement of animals is forbidden. This wilt was observed and described in onset in Ethiopia in about 1968 (this affected the staple food-stuff 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 Congo in 2004, Rwanda in 2005 and Burundi, Tanzania and Kenya in 2006.



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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 per cent 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 as a result of stress.

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 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 mealybugs—*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: tissue culture plants derived from micropropagated healthy interspecific hybrid varieties of banana and 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 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 streak disease

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 are available. A control system combining entomophagous nematodes and sordidin traps is being developed.

However, the banana borer remains a major pest constraint for banana crops—whether on industrial plantations or smallholdings. 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 inoculum are

being studied and may in time form an alternative to chemical control.



Banana borer on a corm

Nematodes



Nematode

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 is accentuated by other pathogens (fungi and bacteria). In particular, fungi of the genus *Cylindrocladium* are strongly pathogenic and can cause lesions similar to those made by nematodes. The combination of the two

pests causes very serious damage. 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 in intensive plantations are still largely dominated by application of chemicals (mainly organophosphorus compounds and carbamates) that carry substantial sanitary and environmental risks. 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 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.



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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.

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.

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.

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.



Ripe-fruit anthracnose



Wound anthracnose



Treatment by swabbing



Treatment by spraying



Crown rots



Healthy crown



Indicators

The main fruits	In shares by total volume and expenditure on fruits for the month in France		
	%	Volumes	Expenditure
	Apple	24	20
	Easy peelers	21	22
	Orange	13	10

Pages

The trends for the main produce of the month significantly influence the overall situation of the fruit market. A column entitled 'Indicators' discussing these fruits precedes the pages devoted to a selection of exotic and citrus fruits.

Banana.....	41
Avocado.....	43
Orange.....	44
Grapefruit.....	45
Easy peelers.....	46
Litchi.....	47
Mango.....	48
Pineapple.....	49
Sea freight.....	50

FEBRUARY 2008

Apple

Demand slowed a little on the domestic market, especially as a result of the school holidays. Likewise, exports were not quite as brisk as they had been in January. Nevertheless, the stocks remaining to clear were at only an average level at the beginning of the month. Prices therefore remained stable and fairly high.

Feb. 2008 / Feb. 2007

Pirce	↗	Vol.	↘
-------	---	------	---

Easy peelers

Under-supply became more marked. The Spanish clementine and 'Clemenvilla' seasons ended fairly early. The early start of the end-of-season varieties from Spain and the more marked presence of fruits from other sources did not make up for the deficit. Prices of good quality fruits were very high.

Feb. 2008 / Feb. 2007

Pirce	↗	Vol.	↘↘
-------	---	------	----

Orange

As for easy peelers, supply was very measured. Shipments from Spain were well below average as the 'Navel' season finished early. The market was very open to other sources (Tunisia and Morocco) but arrivals did not make up for the shortage of Spanish fruits. Prices remained well above average.

Feb. 2008 / Feb. 2007

Pirce	↗	Vol.	↘
-------	---	------	---

Sea freight

After a weak start to the year all the bleak forecasts published at the beginning of the month were confounded by events that took place from week 6. Despite the early departure of the NYKCool/Seatrade VSA from the South African deciduous season, the late start to the Chilean and Argentinean fruit harvests, fewer vessels utilised in the W African banana business, despite a high exit price for Ecuadorian bananas, historically high bunker prices, and finally despite a moderate squid catch in the South Atlantic, by mid month it was evident that demand for capacity was about to exceed supply.

Feb. 2008 / Feb. 2007

large reefers	↘	small reefers	↘
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Notes concerning market appraisal methodology

The statistics on the following pages are estimates of quantities put on the market in France. They are only calculated for the main supplier countries and are drawn up using information on weekly arrivals or market release statements by representative operators. The figures in the 'Main fruits' section above are provided by the CTIFL, with SECODIP being the source. The data published in the French market pages are provided solely as a guide and CIRAD accepts no responsibility for their accuracy.



© Denis Loelliet

Banana

FEBRUARY 2008

After being marked in January, the supply deficit decreased in February. However, shipments from the French West Indies remained very small and limited to fruits from Guadeloupe (production in Martinique started again but a strike prevented practically all shipments). Arrivals from Africa remained at an average level. The shortage in goods from Côte d'Ivoire continued to be compensated by large volumes from Cameroon. However, arrivals of dollar bananas increased considerably and approached a normal level. Exports from Colombia and Costa Rica to all destinations were still short. However, the volumes from Ecuador were above average and seem to have been directed massively to the EU at the expense of the Mediterranean market.

Nevertheless, the market was well oriented. Consumption was boosted by much warmer weather than average, except in mid-month. Limited competition from the other fruits of the season (citrus and apples) also played a favourable role. Retail prices were at average levels.

The price increase that had started in January continued. The levels reached at the end of the month matched the very high prices of 2005 and 2006.

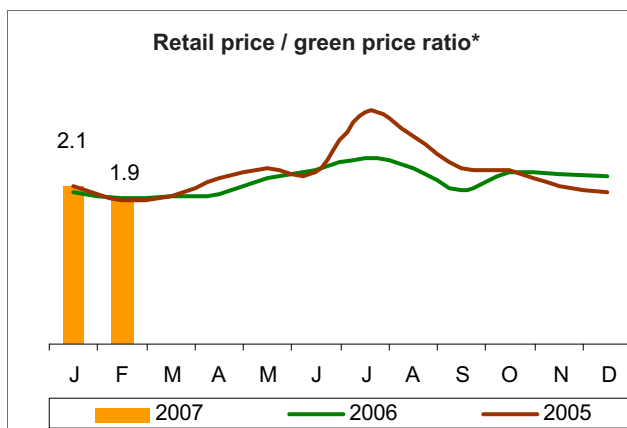
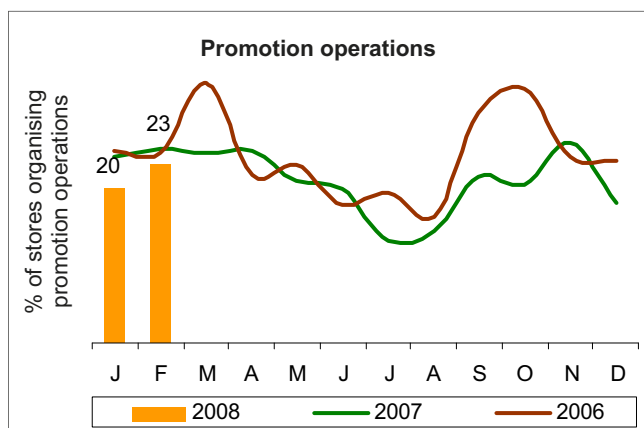
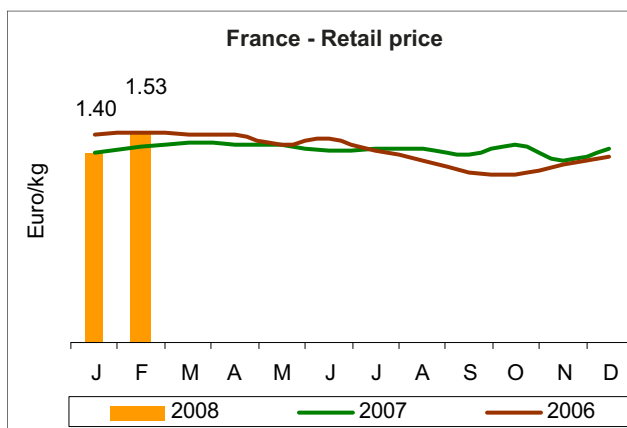
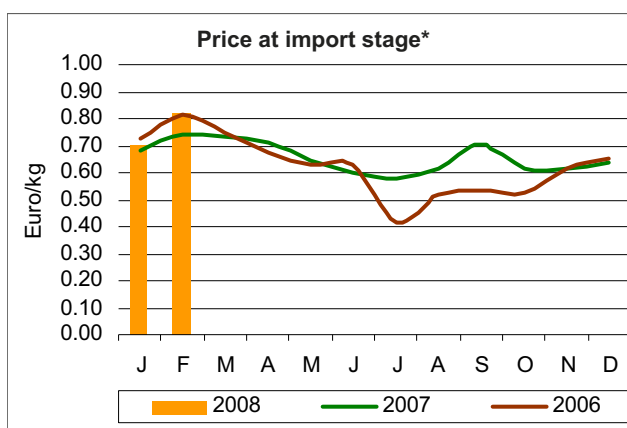
Monthly and annual comparisons

Volumes*	EU reference price**
February 2008 / January 2008	
↘ - 10%	↗ + 20%
February 2008 / February 2007	
↘ - 34%	↗ + 9%

* Arrivals from Africa/West Indies

** Aldi price

French banana market — Indicators



* African origin

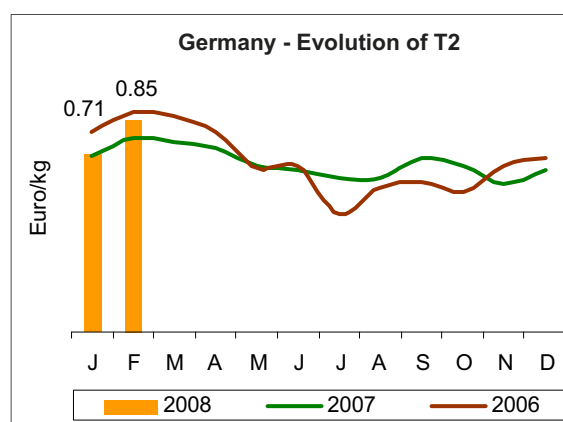
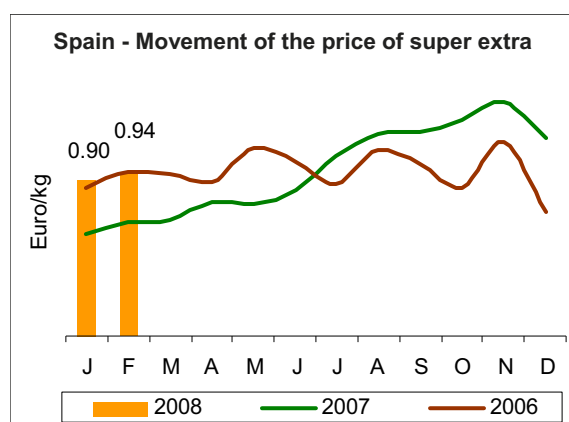
European banana market — Indicators

Main origins in Europe

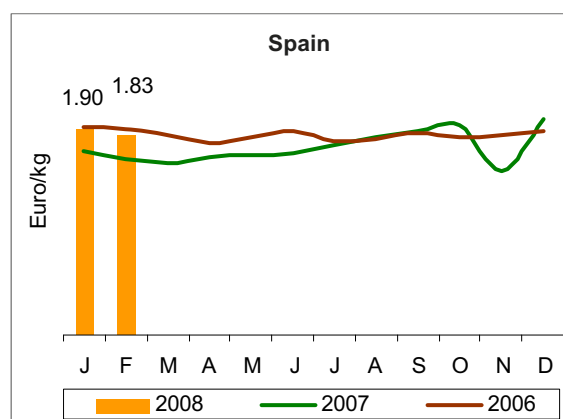
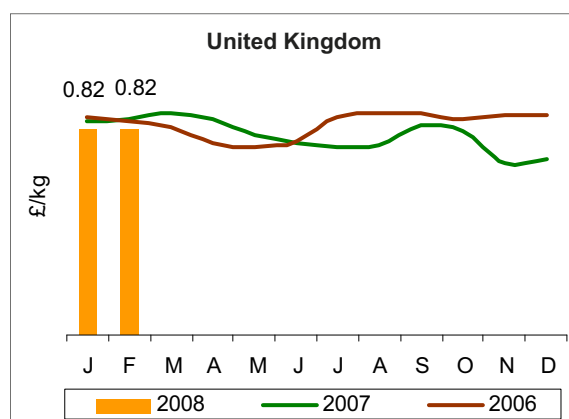
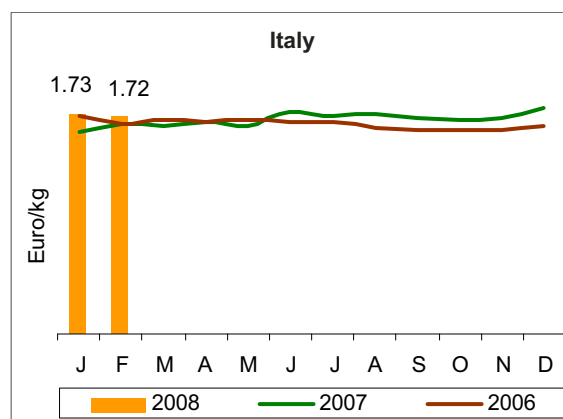
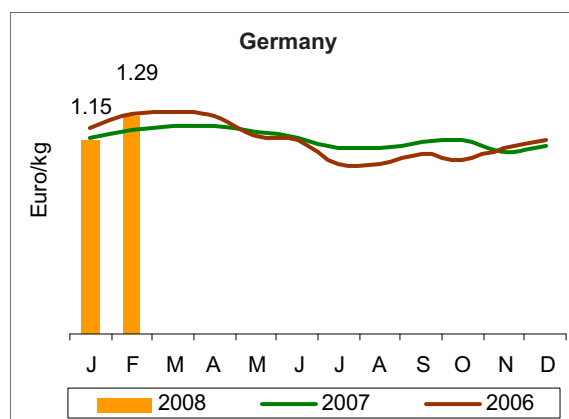
Tonnes	February 2008	Comparisons (%)		Total season 2008	Season comparisons (%)	
		2008/2007	2008/2006		2008/2007	2008/2006
Martinique	101	- 99	- 99	111	- 100	- 100
Guadeloupe	2 589	- 27	- 18	4 973	- 37	- 31
Canaries	31 340	+ 14	+ 8	61 047	+ 11	+ 131
Côte d'Ivoire*	9 000	- 32	- 52	19 274	- 31	- 44
Cameroon	20 634	+ 8	+ 23	43 618	+ 2	+ 28
Ghana	3 041	+ 15	-	6 631	+ 11	-

* Except for container movements

Green price in Europe



Retail price in Europe



Sources: CIRAD, SNM, TW Marketing Consulting



Avocado

FEBRUARY 2008

After being very noticeable in January, under-supply became more marked. Already displaying a deficit since the beginning of the season, Israeli exports plunged after the country was hit by frost at the end of January. In addition, the Chilean season finished early because of the wave of frost there in summer 2007. Finally, arrivals from Mexico remained substantially below average as the United States market continued to be very buoyant with an average wholesale price of some USD28 per 11 kg lug against USD18 per lug in the two preceding years. Only Spanish deliveries were larger than in previous years but did not make up for the deficit from the other production sources.

Demand remained typical for the season. Prices increased throughout the month and approached EUR10 euros per box for 'Hass' and EUR8 per box for green varieties, supplies of which were particularly limited.

More information...

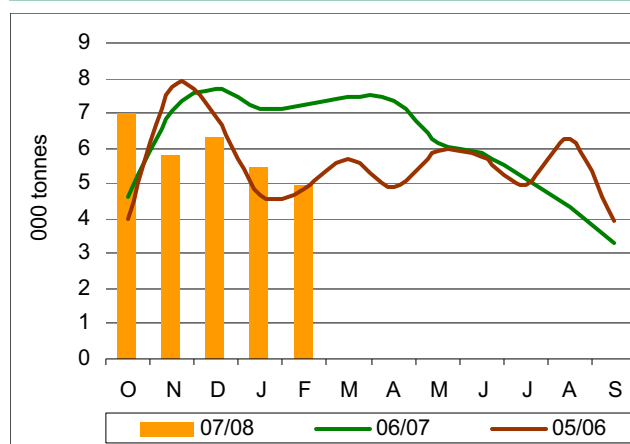
Exports of Chilean 'Hass' to the EU totalled some 6.6 millions boxes during the 2007-2008 season. This is nearly 3 million boxes down on the volumes exported during the previous season, with the reason being the frost that hit the plantations in summer 2007.

Monthly and annual comparisons

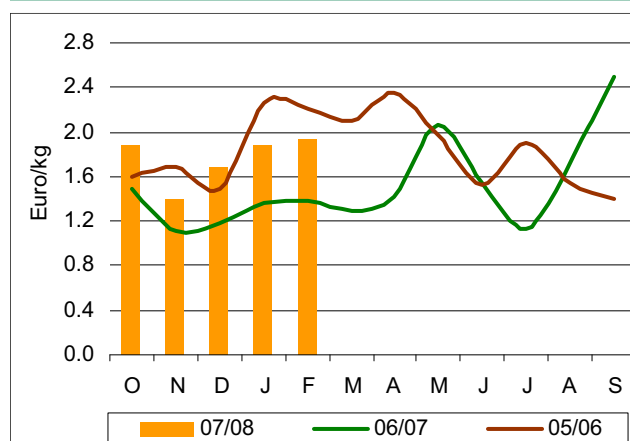
Volumes	Price
February 2008 / January 2008	
↘ - 9%	↗ + 3%
February 2008 / February 2007	
↘↘ - 31%	↗↗ + 41%

Estimated market releases in France

Volumes



Price at import stage



Estimated market releases in France by origin

Tonnes	February 2008	Comparisons (%)		Total season 2007/2008	Season comparisons (%)	
		2008/2007	2008/2006		07-08/06-07	07-08/05-06
Mexico	1 002	- 3	- 43	6 404	+ 8	- 35
Chile	115	- 65	-	6 048	+ 7	+ 122
Israel	1 659	- 50	+ 43	8 554	- 44	+ 2
Spain	2 198	+ 19	+ 32	8 562	+ 16	+ 10
Total	4 974	- 31	+ 3	29 568	- 15	0



Orange

FEBRUARY 2008

The market remained very well oriented. Demand held at the seasonal level. However, under-supply continued to be the rule as volumes from Spain were still well below average. The early start to the Navelate season did not make up for the early slowing down of the 'Navel' season as the harvest was small. In addition, the complement in the form of 'Salustiana'—also from Spain—was smaller than average as production of this variety was also limited. Prices had already been high in January and increased further to about 10% above average for Spanish fruits.

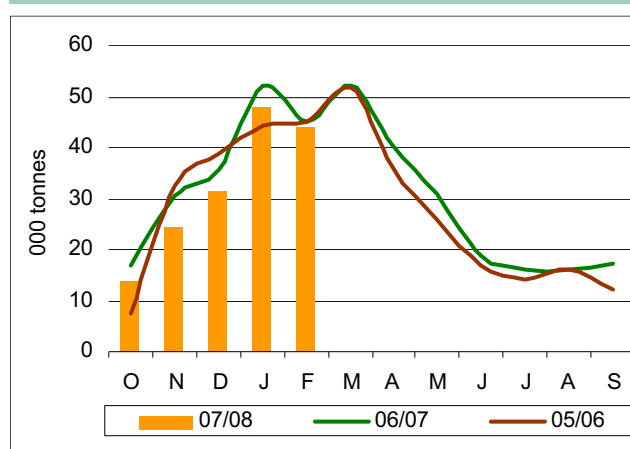
This very open market context benefited other origins. Shipments of 'Maltese' were large but sales were fluid. Prices held at slightly above the average. Likewise, large volumes from Morocco, consisting mainly of 'Washington' blood orange, were sold at distinctly higher prices than usual.

Monthly and annual comparisons

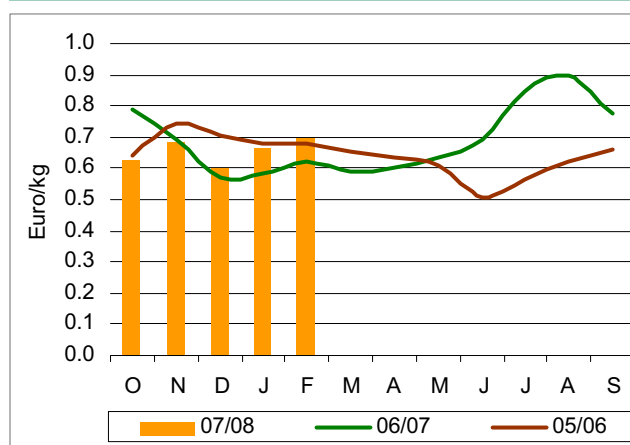
Volumes	Price
February 2008 / January 2008	
↘ - 8%	↗ + 5%
February 2008 / February 2007	
↘ - 2%	↗ + 13%

Estimated market releases in France

Volumes



Price at import stage



Estimated market releases in France by origin

Tonnes	February 2008	Comparisons (%)		Total season 2007/2008	Season comparisons (%)	
		2008/2007	2008/2006		07-08/06-07	07-08/05-06
Spain	34 976	- 14	- 4	134 356	- 15	- 9
Morocco	1 447	+ 124	- 48	2 085	+ 25	- 41
Tunisia	7 463	+ 115	+ 32	13 456	+ 31	+ 22
Total	43 886	- 2	- 3	149 897	- 12	- 8



Grapefruit

© Eric Imbert

FEBRUARY 2008

The market worsened considerably. First, demand slowed with the end of the wave of special offers in January and the strong decrease in sales to the catering industry during the school half-term holidays. Supply also increased. However, shipments from Turkey decreased sharply. Turkish exporters concentrated 80 to 90% of their shipments on the Eastern European countries after the frost that hit the Adana region at the end of January. In addition, arrivals from Israel and Spain were fairly moderate. However, shipments from Florida were 40% greater than the average for the last three years. As fruits were smaller this season, Florida operators were unable to repeat last year's massive exports to the Japanese market. A proportion of the volumes seems to have been redirected to the EU market, especially as the exchange rate was favourable for European importers.

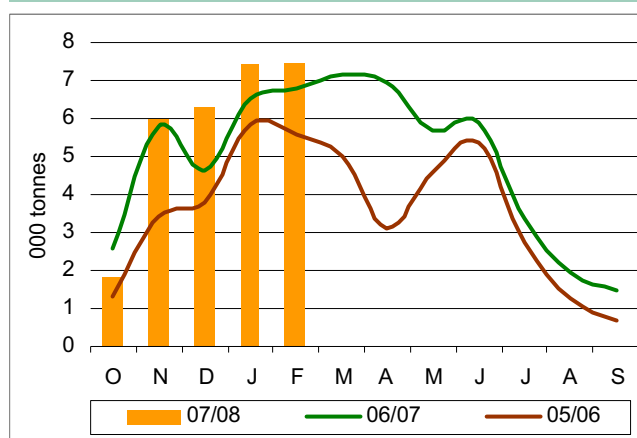
In this context, and in spite of demand focused on fruits from Florida, prices (especially for size 48) fell to below the level observed during the preceding season. The situation was similar for the Mediterranean origins even though supplies were limited.

Monthly and annual comparisons

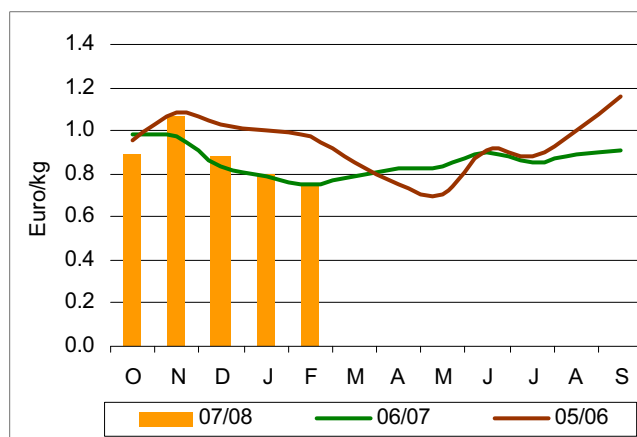
Volumes	Price
February 2008 / January 2008	
↗ + 1%	↘ - 6%
February 2008 / February 2007	
↗ + 10%	0%

Estimated market releases in France

Volumes



Price at import stage



Estimated market releases in France by origin

Tonnes	February 2008	Comparisons (%)		Total season 2007/2008	Season comparisons (%)	
		2008/2007	2008/2006		07-08/06-07	07-08/05-06
Florida	6 102	+ 26	+ 66	21 912	+ 16	+ 92
Israel	921	+ 12	+ 51	4 241	+ 16	+ 29
Turkey	450	- 59	- 66	2 617	- 24	- 51
Total	7 473	+ 10	+ 34	28 770	+ 11	+ 44



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Easy Peelers

FEBRUARY 2008

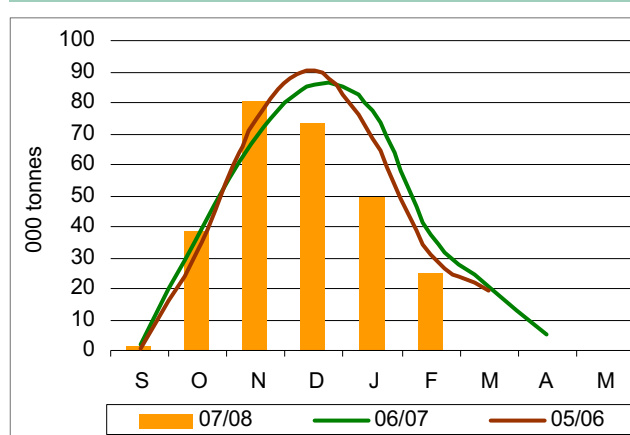
Supplies of easy peelers were particularly small. The deficit in arrivals from Spain was already marked since December and increased further. Arrivals were about 30% smaller than average. The clementine and 'Clemenvilla' season finished early. 'Hernandina', 'Ortanique', 'Nadorcott' and 'Fortuna' took over early but merely eased the deficit somewhat. The other suppliers profited from this more open market. Deliveries of 'Nour' from Morocco were much larger than in February 2007 in spite of a distinct production deficit. A few batches of 'Nadorcott' ('Afourer') completed supplies. The 'Minneola' season finished early both in Turkey (production losses caused by frost) and in Israel (early start to sales). Supplies were completed by a few batches of 'Or' from Israel and 'Mandora' from Cyprus.

Monthly and annual comparisons

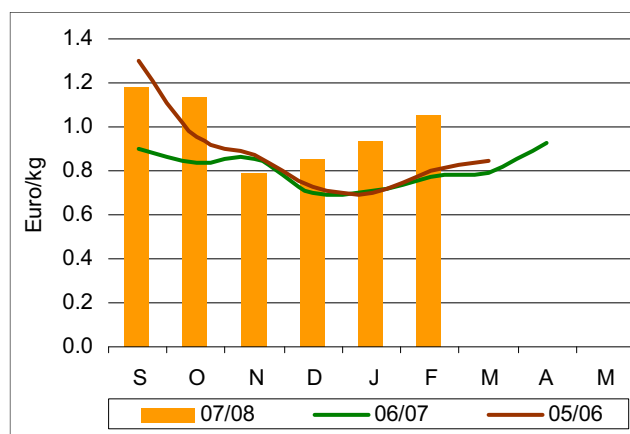
Volumes	Price
February 2008 / January 2008	
↘ - 49%	↗ + 12%
February 2008 / February 2007	
↘ - 33%	↗ + 37%

Estimated market releases in France

Volumes



Price at import stage



Estimated market releases in France by origin

Tonnes	February 2008	Comparisons (%)		Total season 2007/2008	Season comparisons (%)	
		2008/2007	2008/2006		07-08/06-07	07-08/05-06
Corsica	-	-	-	15 826	- 35	- 7
Morocco	2 708	+ 560	- 1	14 990	- 19	- 43
Spain	22 534	- 37	- 18	239 097	- 10	- 6
Total	25 242	- 33	- 19	269 913	- 12	- 9



Litchi

FEBRUARY 2008

February marks the end of sales of litchi from the Indian Ocean zone. Arrivals from Madagascar were very small and sales were mainly of fruits shipped in sea containers that had arrived in January. South Africa continued to ship litchi throughout the month in steady, but comparatively small quantities. Prices were slightly high at the beginning of the month as a result of a short-lived increase in demand but then decreased as fruit quality deteriorated.

Fairly limited volumes of litchi were available at the end of the previous month. Demand gained momentum temporarily at the end of January/beginning of February with the Chinese New Year celebrations. This event enhanced the sale of large quantities of fruits from Madagascar and South Africa, at least in large cities. Subsequently, as tonnages were modest, litchi gradually ceased being a fruit for mass consumption and regained its position as an exotic. Prices remained fairly stable. Those mentioned below are for fruits of satisfactory quality. Distinctly lower prices were also recorded for ageing, less tractive produce. Sales of litchi from Madagascar

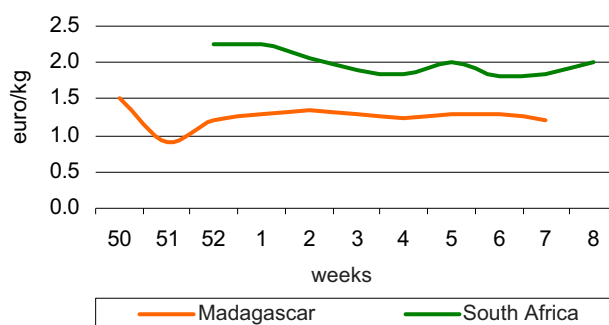
finished in mid-February whereas deliveries from South Africa continued for a few more weeks. The quality of South African fruits was particularly fragile this year and many batches affected by mould had to be resorted before being sold. At the end of the month, 'Mauritius' variety litchi from South Africa was replaced by 'Red McLean'.

It will be noted that the last litchi from Madagascar changed hands at higher prices than in the same period in 2007. The volumes were much smaller this year. However, the price ranges of South African litchi were broader as a result of the shortage of goods.

Litchi — Arrivals — Estimates in tonnes

weeks 2008	6	7	8	9
By sea				
South Africa	100	100	100	50
Madagascar	20	-	-	-

Litchi by sea - Madagascar and South Africa Average import price on the French market in 2007-2008



Litchi — Estimated volumes marketed in Europe

Tonnes	2006-2007	2007-2008
Madagascar	21 140	21 600
South Africa	3 000	4 440
Réunion	250	250
Mauritius	250	200
Total	24 640	26 490

Litchi — Import price on the French market — Euro/kg

Weeks 2008		6	7	8	9	February 2008 average	February 2007 average
By sea							
South Africa	sulphur treated	1.50-2.10	1.35-2.00	1.50-2.20	1.75-2.00	1.50-2.10	1.75-2.00
Madagascar	sulphur treated	1.10-1.50	1.20-1.30	-	-	1.15-1.40	0.80-1.00



Mango

FEBRUARY 2008

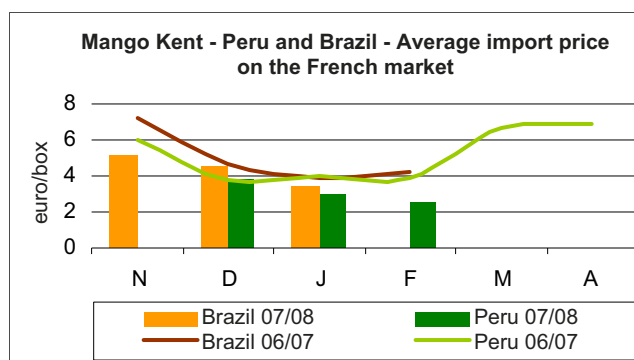
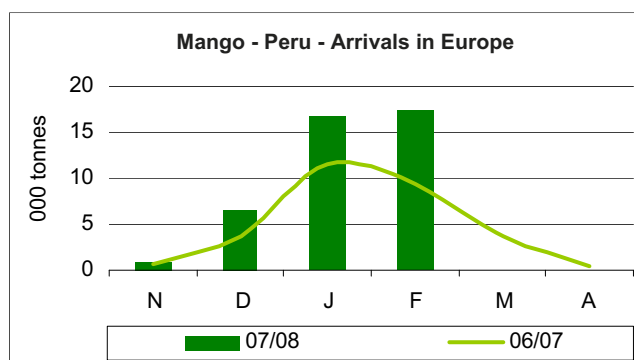
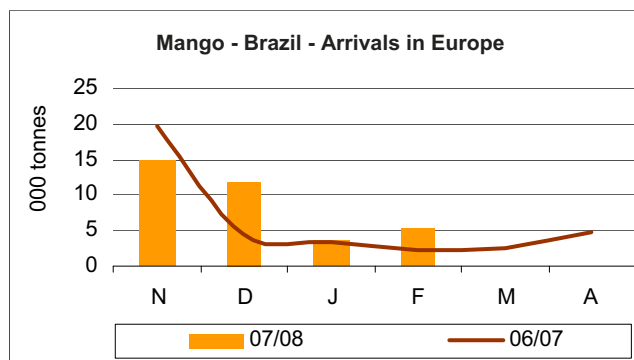
February was similar to January, with very large deliveries from Peru, the clearly dominant source of mango for the European market. Although Brazil shipped less than Peru, quantities were large—greater than those arriving during the same period last year. These plethoric, steady deliveries kept the European market over-supplied and prices were particularly low.

Demand was quiet on all European markets throughout February and arrivals were substantial, resulting in lasting over-supply. 'Kent' mangoes from Peru were shifted with difficulty. Large stocks soon formed, increasing commercial pressure on the various European markets. In this context, operators had to make considerable price concessions in order to stimulate sales. Prices remained at EUR2.00 to 3.00 per box throughout the period, but sales at less than this were also common. Paradoxically, deliveries of 'Tommy Atkins' from Brazil, a variety

that was forming only a small proportion of overall supply, sold better.

The air mango market was also depressed as a result of excessively large deliveries in comparison with demand. In addition, numerous batches received at an advanced stage of maturity weighed on sales averages in the second and third weeks of the month. A few complementary batches of 'Haden' from Brazil sold at EUR3.00 and then 3.50 per kg at the end of the month. This produce suffered from competition from Peruvian mango.

Mango — Weekly arrivals — Estimates in tonnes				
weeks 2008	6	7	8	9
By air				
Peru	100	100	50	30
By sea				
Brazil	1 340	950	1 300	1 700
Peru	2 110	7 500	4 000	3 750



Mango — Import prices on the French market — Euros

Weeks 2008		6	7	8	9	February 2008 average	February 2007 average
By air (kg)							
Brazil	Haden	-	-	3.00	3.50	3.25	4.00-4.20
Peru	Kent	3.00-3.80	3.00-3.50	3.00-3.50	3.00-4.00	3.00-3.70	4.05-4.60
By sea (box)							
Brazil	Tommy Atkins	3.00-3.50	3.00-3.50	3.00-3.50	3.00-3.50	3.00-3.50	4.00-4.50
Peru	Kent	2.00-3.50	2.00-3.00	2.00-3.00	2.50-3.00	2.10-3.10	3.25-4.50
Ecuador	Kent	3.00	-	-	-	3.00	3.50-4.00



Pineapple

Pineapple — Import price		
Euros	Min	Max
By air (kg)		
Smooth Cayenne	1.50	1.95
Victoria	1.50	3.70
By sea (box)		
Smooth Cayenne	6.50	10.00
Sweet	7.50	12.00

FEBRUARY 2008

The pineapple market was fairly busy in February. Supply from Latin America was fairly small and the decrease in demand as a result of the winter holidays did not have much effect on prices, which remained fairly high throughout the month. In spite of a slight increase in business on the air pineapple market right at the beginning of the month, sales were quiet and supply fairly small. The Chinese New Year improved sales of 'Victoria' in the first week of the month but they soon slumped and prices were very low.

The small supply of both 'Sweet' and 'Smooth Cayenne' enabled operators to conclude sales at good prices throughout the month. 'Sweet' benefited more from the situation. In spite of considerable supply imbalance with mainly small fruits from all supply sources, 'Sweet' sold at distinctly higher prices than 'Smooth Cayenne'. Even though only very small quantities of 'Smooth Cayenne' were available, prices were hardly able to clear the EUR10 per box level. A decrease in business was observed on the French market in the second week of

the month, mainly because numerous operators were on holiday. However, prices remained very good as supply from Latin America was small at this time. Sales to export markets (northern Europe) remained very dynamic.

The situation on the air pineapple market was much less interesting—especially as regards prices. Demand was fairly weak overall and operators voluntarily reduced their imports in the hope of being able to stimulate the market. The decrease in supply

from Cameroon at the end of the month, as a result of the events there, made it possible to boost demand for fruits from this source. In addition, the quality of fruits from Benin was fairly uneven.

'Victoria' only sold at better prices during the first week of the month. Sales were fairly irregular thereafter. The presence of a large number of batches from Côte d'Ivoire put the other sources under pressure at all times.

Pineapple — Import prices on the French market — Main origins — Euros

Weeks 2008		6	7	8	9
By air (kg)					
Smooth Cayenne	Benin	1.70-1.85	1.70-1.85	1.70-1.80	1.50-1.75
	Cameroon	1.70-1.90	1.70-1.85	1.50-1.80	1.50-1.95
	Côte d'Ivoire	1.70-1.90	1.80-1.85	1.80-1.85	1.80-1.85
	Ghana	1.60-1.70	1.60-1.70	1.60-1.70	1.60-1.70
Victoria	Côte d'Ivoire	2.50	2.00-2.00	2.00-2.50	1.50-2.00
	Réunion	3.50-3.70	3.50-3.70	3.50-3.70	3.50-3.70
	South Africa	3.00	3.00	3.00	2.50-3.00
By sea (box)					
Smooth Cayenne	Côte d'Ivoire	6.50-10.00	6.50-9.00	6.50-9.00	6.50-9.00
Sweet	Côte d'Ivoire	7.50-11.00	7.50-12.00	8.50-12.00	8.50-12.00
	Cameroon	7.50-11.00	7.50-12.00	8.50-12.00	8.50-12.00
	Ghana	7.50-11.00	7.50-12.00	8.50-12.00	8.50-12.00
	Costa Rica	10.00-12.00	9.50-10.50	9.50-11.00	8.50-10.00



Sea freight

FEBRUARY 2008

After a weak start to the year all the bleak forecasts published at the beginning of the month were confounded by events that took place from week 6. Despite the early departure of the NYKCool/Seatrade VSA from the South African deciduous season, the late start to the Chilean and Argentinean fruit harvests, fewer vessels utilised in the W African banana business, despite a high exit price for Ecuadorian bananas, historically high bunker prices, and finally despite a moderate squid catch in the South Atlantic, by mid month it was evident that demand for capacity was about to exceed supply.

With all the indicators seemingly pointing one way the market took off in the opposite direction. The year-to-date average weekly TCE earnings curve for 2008 most closely resembles the market trend in 2006. One of the major contributing factors in the sharp rise of the charter market was the 'performance' of the Panama Canal - to the point in fact where an understanding of its role is critical for operators and charterers alike. The Canal is being expanded partly in order to accommodate the increasing size of newbuild vessels and partly in response to increased traffic. The dramatic net increase in the number of vessels plying global trade lanes is likely to be reflected to some degree by an increasing demand for use of the Canal - for the next five years at least all shipping can theoretically expect worsening delays. The new locks/expansion will not be completed before 2014. These locks are much bigger than the existing locks and will allow

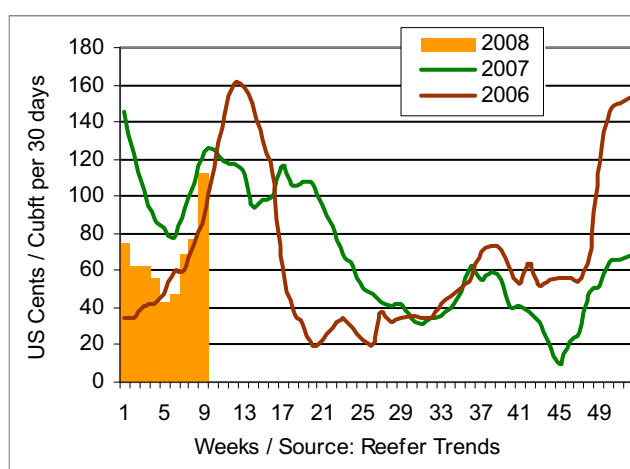
tandem lockages of ships that now use a full chamber - this will have a significant impact on capacity throughput. The additional throughput will depend on the size of ship demanding service and the mix. In other words the additional capacity could be as many as 20-25 transits per day or as few as 8-10 depending on the size of vessel. The present capacity of the Canal is about 38-40 transits per day based on the present mix of ships but 6-7 years from now that mix could be different. Also critical in the development of the charter market has been the willingness of retail customers in both the US and EU to pay a higher price for their bananas and other fruit which has been similarly short. Chiquita, Bonita and Del Monte were all able to impose a US\$2 per box pricing surcharge onto their banana contract costs. The Russian and Med markets meanwhile also continued to pay historically high prices.

Monthly spot average

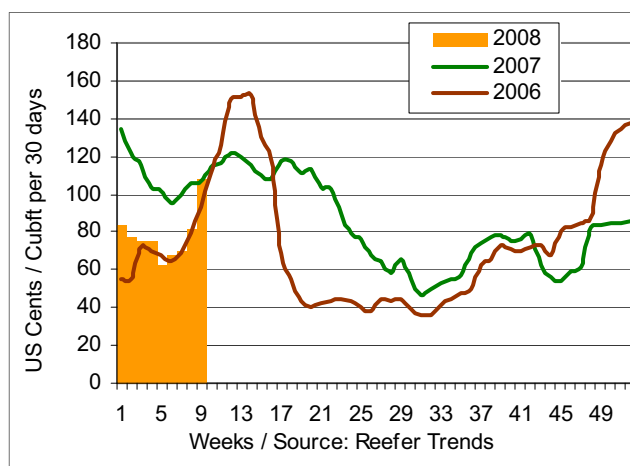
US\$/cents/cubic foot x 30 days	Large reefers	Small reefers
February 2008	79	85
February 2007	100	104
February 2006	66	75

Weekly market movement

Large reefers (450 000 cuft)



Small reefers (330 000 cuft)



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Wholesale market prices in Europe

February 2008

					EUROPEAN UNION — IN EUROS				
					Germany	Belgium	France	Holland	UK
AVOCADO	Air	HASS	DOMINICAN REP.	Box				9.75	
			BRAZIL	Box			10.00		
	Sea	FUERTE	ISRAEL	Box		9.00		9.00	
			PERU	Box			7.38	8.50	
		HASS	DOMINICAN REP.	Box			8.75		
			ISRAEL	Box		10.38	8.75		
			MEXICO	Box	11.00		8.38	9.00	
		NOT DETERMINED	CHILE	Box				9.25	
			ISRAEL	Box			7.95		8.26
			PERU	Box					9.05
	Truck	ARDIT FUERTE	ISRAEL	Box		8.75		9.00	
			SPAIN	Box		8.00			
			GREECE	Box		8.00			
		HASS NOT DETERMINED	SPAIN	Box				8.75	
			SPAIN	Box	8.00				5.95
		MINI	GREECE	Box				12.50	
BANANA	Air	RED SMALL	ECUADOR	kg				6.00	
			COLOMBIA	kg		6.50	7.12		
			ECUADOR	kg				4.17	
CARAMBOLA	Air		MALAYSIA	kg	3.70		4.57	5.40	4.52
	Sea		MALAYSIA	kg		4.84		3.43	
COCONUT	Sea		COTE D'IVOIRE	Bag		5.50	5.95	3.50	
			DOMINICAN REP.	Bag			7.50	10.57	9.91
			SRI LANKA	Bag		12.38			7.93
DATE	Sea	NOT DETERMINED	ISRAEL	kg		3.40		2.63	
			TUNISIA	kg				1.80	
		MEDJOOL	ISRAEL	kg	8.40	7.00	8.50	7.55	5.82
			SOUTH AFRICA	kg		7.60			
			UNITED STATES	kg	8.40				
GINGER	Sea		BRAZIL	kg			1.80		
			THAILAND	kg		1.38		1.27	1.48
			CHINA	kg		1.58		1.34	1.48
GUAVA	Air		BRAZIL	kg			4.00	4.50	
			THAILAND	kg		4.65			
KUMQUAT	Air		ISRAEL	kg	3.50		4.00	3.25	3.97
LIME	Sea		BRAZIL	kg	1.28	1.22	1.25	1.11	1.37
			KENYA	kg					1.98
			MEXICO	kg		1.33	3.80	1.61	1.32
LITCHI	Sea		SOUTH AFRICA	kg		2.50		2.25	2.31
MANGO	Air	KENT	PERU	kg				4.00	
		NOT DETERMINED	AUSTRALIA	kg	4.57				
		PALMER	BRAZIL	kg		3.75			
		NAM DOK MAI	THAILAND	kg				8.90	

					EUROPEAN UNION — IN EUROS				
					Germany	Belgium	France	Holland	UK
MANGO	Sea	ATKINS	BRAZIL	kg				1.00	0.99
		KENT	PERU	kg	0.69	0.63	0.88	0.75	0.99
		NOT DETERMINED	BRAZIL	kg	0.69				
MANGOSTEEN	Air		THAILAND	kg		8.00		7.25	
MANIOC	Sea		COSTA RICA	kg		1.30	1.11	1.22	
PAPAYA	Air	NOT DETERMINED	BRAZIL	kg		2.29		2.35	
			COTE D'IVOIRE	kg			2.50		2.49
			ECUADOR	kg		2.29			
			GHANA	kg		2.29			
	Sea	FORMOSA NOT DETERMINED	BRAZIL	kg				2.90	
			BRAZIL	kg		1.85		1.25	
			ECUADOR	kg				1.85	0.99
			MALAYSIA	kg					1.59
PASSION FRUIT	Air	PURPLE	ISRAEL	kg			5.00		
			KENYA	kg	5.00	4.00		4.50	4.15
			ZIMBABWE	kg		5.00		4.38	
		YELLOW	COLOMBIA	kg	5.20	6.20	8.40	6.33	
PERSIMMON	Air		ISRAEL	kg	2.40	2.40		2.80	1.59
PHYSALIS	Air	PREPACKED	COLOMBIA	kg			8.75	5.73	6.05
			THAILAND	kg					6.61
	Sea		COLOMBIA	kg	4.59	5.63		5.10	
PINEAPPLE	Air	SMOOTH CAYENNE	CAMEROON	kg			1.85		
			GHANA	kg		1.50	1.75		
		VICTORIA	COTE D'IVOIRE	kg			3.00		
			MAURITIUS	Box		12.00		10.50	
			REUNION	kg			3.55		
	Sea	MD-2	SOUTH AFRICA	Box	11.00	11.00		10.75	
			COSTA RICA	Box	12.80	13.00	10.50	12.75	11.82
			GHANA	Box	9.88				
PITAHAYA	Air	RED	ECUADOR	kg				6.17	
			THAILAND	kg		5.33			
			VIET NAM	kg	5.67	6.16		6.25	
	Sea	YELLOW	COLOMBIA	kg				8.00	
		RED	VIET NAM	kg	3.00				
PLANTAIN	Sea		COLOMBIA	kg			0.73		
			COSTA RICA	kg				0.82	
			ECUADOR	kg		0.77			
RAMBUTAN	Air		THAILAND	kg				6.25	
			VIET NAM	kg		6.90		6.25	
SWEET POTATO	Sea		EGYPT	kg					1.78
			ISRAEL	kg		1.34	1.33		1.32
			SOUTH AFRICA	kg		1.42			
			UNITED STATES	kg	1.67				
TAMARILLO	Air		COLOMBIA	kg	5.60	5.60	8.40	5.60	
YAM	Sea		BRAZIL	kg			1.58		
			GHANA	kg				1.02	

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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