

April 2015 - No. 231

FRUITROP

English edition

Close-up Banana

www.fruitrop.com

**European
counter-season
avocado market**

**2015
forecasts**

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**“The French banana
strives every day
to protect our jobs.”**



With 10 000 direct and indirect jobs, 90% of which on permanent contracts, our banana sector stands up for our French social model by facing up to international competition. With the sustainable banana plan, our 650 independent producers work every day for the environment and the biodiversity.
Together, let's defend our agriculture!

LE BON GOÛT DE NOS RÉGIONS



The WTO, World Bank, IMF... in short all the organisations attending the sickbed of the world economy have raised globalisation as the sole bulwark against poverty and under-development. They all have a battery of indicators which show how much the increase in trade in goods and services benefits the peoples of the world. Other organisations believe the opposite, pointing out the negative externalities of applying such a belief. This year's big world climate summit being held in France will single out in particular the negative effects of long-distance transport on climate change, the destruction of local production industries by cheap imported products, the financialisation of the economy, which is also an avatar of globalisation, tax optimisation which distorts added value and taxation, etc. Do the adverse effects outweigh the benefits? Appraising the effects is often just a matter of the viewpoint of experts and campaigners. However, what we can be sure of is that agriculture pays a heavy tribute to this surging world trade. Since while there is trade in goods, diseases and pests can circulate just as freely – bully for them! As proof, Australia has been hit three times in a few weeks by invasive pests or diseases: two outbreaks of Tropical Race 4 (TR4) banana wilt, and the appearance of a devastating virus on a watermelon farm. The introduction of plant material is very often, or even practically always the cause. A red alert has been sounded and eradication plans are being drawn up. The Count of Montecristo would have said "May they perish in a way befitting their sins". And this is actually what has happened, though less poetically, with the boot now on the other foot. You will recall that Australia is one of the influential members of the Cairns group encompassing 19 countries, which since 1986, has advocated liberalisation of trade in agricultural products to all the global authorities. A principle which Australia itself often evades, yet it has been caught out by one of the realities of globalisation: the uncontrolled dissemination of diseases and pests.

Denis Loeillet



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

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Cover photograph: © Denis Loeillet

Banana

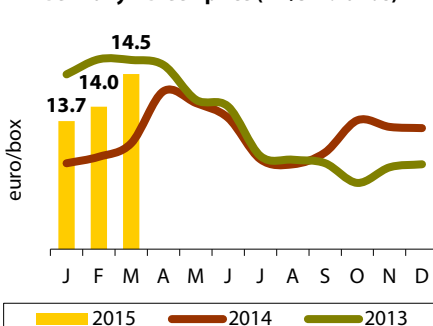
March 2015

The markets proved to be under tension in March. On the one hand, demand was particularly lively in Western and Eastern Europe because of the end of the school holidays, the still wintry temperatures and weak competition from seasonal fruits (citruses at an end, strawberries delayed). In addition, pre-planned promotions in the distribution sector created temporary sales peaks on certain markets. On the other hand, the feeling of fruit shortage, already observed in February, was intensified by logistical disruptions. Dollar banana imports remained normal to slightly above normal, with an Ecuadorian supply down slightly from February and close to last year's level, a steep rise from Colombia (+ 21 %) and Costa Rican imports again closer to average. However, the supply from Africa and the French West Indies remained slightly in shortfall (- 6 %), with Ivorian volumes still falling (- 16 %) though offset by stable, excess incoming Cameroonian shipments (+ 16 %), and by the rise from Ghana (+ 36 %). The FWI reached a standstill in their seasonal rise, due to unfavourable weather at the production stage (- 19 % from 2014). In this context, green banana prices, stable in early March, started to strengthen toward the end of the month. In Germany, contract prices were renegotiated upward in week 13, until the end of the year. In Spain, the market remained stable and lively, in spite of the seasonal rise from the Canaries which was stronger than in previous years. After recovering in February, the Russian market started to run out of steam again, under the effect of volumes returning to average and high prices.

NORTHERN EUROPE — IMPORT PRICE

March 2015 euro/box	Comparison	
	previous month	average for last 2 years
14.52	+ 4 %	+ 3 %

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



Banana: puree prices in Europe in March 2015

Type	Price (USD/t)	Source	Comments
Aseptic ss, 22°Brix	625-675 cfr Rotterdam	Ecuador	Market quiet, with demand fairly low. Prices fell by 10 % over the past three months.

Note: cfr: cost and freight / Source: MNS-ITC Geneva



Mexican banana: still in the midst of a boom!

The 2014 customs figures confirmed Mexico's growing standing on the international banana market. Exports neared the 390 000-t mark in 2014, up by more than 40 000 t from 2013. In the space of six years, the volumes of Mexican Cavendish available on the international market more than quadrupled! While the neighbouring US market remained by far the leading outlet for Mexico, volumes rose much more modestly than in Europe between 2013 and 2014. According to Eurostat, Mexican shipments to the Community went up by nearly 20 000 t during this period, to more than 70 000 t. Mexico is now the number eleven extra-Community supplier to the market, just behind Surinam.

Sources: Mexican Customs, Eurostat

The French West Indies banana resplendent in the tricolour.

With a view to combating commoditisation, the Guadeloupe and Martinique banana industry has launched the "Frenchness" concept of the FWI banana, adopting an innovative packaging: a blue-white-red strap wrapped around batches of 3, 4, 5 or 6 bananas, in order to protect the product and promote the source. This strategy is synonymous with major investment for UGPBan in the port of Dunkirk, where FWI bananas are traditionally unloaded in France. New industrial facilities have been set up so that some of the bananas are repacked into 14.5 kg (net) boxes and strapped together in batches before being ripened in the Fruidor network. There will be marketing actions aimed at consumers and supermarket section managers, and a new mode of selling appear on the shelf, with the fruit presented in a hammock or US-style open top arrangement (stalk up, concave part facing the consumer). A test phase will start in early May 2015 in selected supermarket stores.

Source: UGPBAN

Banana — Mexico — Exports

tonnes	2008	2009	2010	2011	2012	2013	2014
Total	88 004	161 027	176 153	179 837	164 568	343 774	386 161
USA	72 415	125 642	159 518	165 768	133 674	264 350	279 087
Japan	5 395	4 744	3 705	3 018	1 465	2 991	3 093
EU-28*	2 000	22 000	13 000	9 760	20 439	53 971	70 882

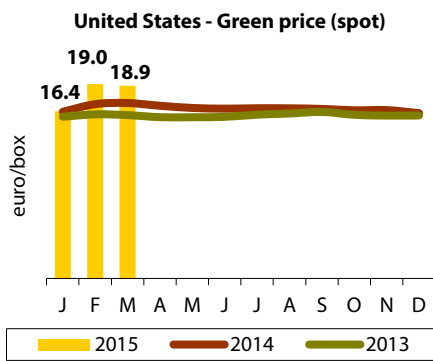
Sources: Mexican Customs, Eurostat

EUROPE - RETAIL PRICE

Country	March 2015		Comparison	
	type	euro/kg	February 2015	average for last 3 years
France	normal	1.62	+ 3 %	+ 4 %
	special offer	1.37	+ 9 %	+ 4 %
Germany	normal	1.30	0 %	- 4 %
	discount	1.16	- 2 %	- 5 %
UK (£/kg)	packed	1.12	- 2 %	- 8 %
	loose	0.72	0 %	0 %
Spain	platano	1.96	- 1 %	+ 6 %
	banano	1.32	+ 3 %	- 3 %

Banana

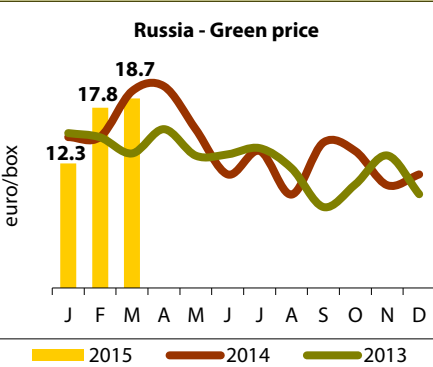
UNITED STATES



UNITED STATES - IMPORT PRICE

March 2015 USD/box	Comparison	
	previous month	average for last 2 years
18.90	- 1 %	+ 14 %

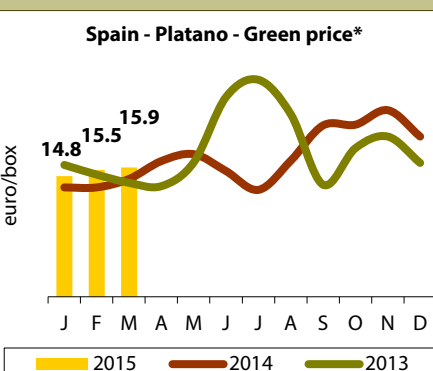
RUSSIA



RUSSIA - IMPORT PRICE

March 2015 USD/box	Comparison	
	previous month	average for last 2 years
18.70	+ 5 %	+ 14 %

CANARIES



CANARIES - IMPORT PRICE*

March 2015 euro/box	Comparison	
	previous month	average for last 2 years
15.90	+ 2 %	+ 12 %

* 18.5-kg box equivalent

■ **World banana market dipped again in February 2015.** European banana imports were down 2 % to 413 000 t in February 2015 from February 2014, with ACP sources (- 3 000 t) and dollar sources (- 6 200 t) on the wane.

For the ACPs, it is Africa which dragged down the trend. Cameroon had a good month with + 9 %, but could not offset the pronounced shortfall from Côte d'Ivoire (- 37 %) or Ghana (- 38 %). The Caribbean ACPs did 900 t better thanks to the Dominican Republic (+ 3 %), and just this once Saint Lucia (+ 27 %). For the South American ACPs, Belize smashed its record with 10 000 t exported to the EU, a rise of 61 %! Surinam was still a shade below its potential, down 11 %. Compared to the three-year average (February 2012-2013-2014), the results were more optimistic, with the ACP group up by 3 %.

The situation for the dollar sources was just as disparate. Ecuador cut back to 9 600 t (- 7 %), leaving the way open for Colombia to make a massive comeback (9 500 t, i.e. + 10 %). Costa Rica, which exhibited a worrying weakness in January, took an upturn with a 1 900 t rise from February 2014 (+ 3 %).

Panama and Mexico dropped steeply, while Peru was stable. Compared to the three-year average, the dollar group was up by 5 %.

February was a prosperous month for Martinique, with a 4 % gain, whereas the European producers group registered a 5 % fall due to Guadeloupe (- 10 %) and the Canaries (- 9 %).

Over the last twelve months (March 2014 to February 2015), EU-28 consumption amounted to 5 612 000 t, again up from the previous twelve months (+ 299 000 t), though this gain dwindled from month to month.

Consumption in the USA slumped by 4 % in the 1st two months, to 627 000 t. While all the sources over-performed, Colombia (- 15 %) and most of all Costa Rica (- 37 %) compromised the situation. The latter country operated resolutely in favour of Europe, where it recovered after a calamitous January, but remained becalmed in the USA despite a slight improvement in February. It is hard to understand this setback, and above all the trade-off in favour of the EU when the US dollar was at its highest.

Source: CIRAD

Banana - January to February 2015 (provisional)

000 tonnes	2013	2014	2015	Difference 2015/2014
EU-27 — Supply	883	958	941	- 2 %
Total import, of which	787	857	837	- 2 %
MFN	631	690	684	- 1 %
ACP Africa	88	95	81	- 15 %
ACP others	68	71	72	+ 1 %
Total EU, of which	96	102	105	+ 3 %
Martinique	23	24	30	+ 26 %
Guadeloupe	10	12	11	- 5 %
Canaries	61	63	60	- 5 %
USA — Import	738	740	716	- 3 %
Re-exports	84	90	88	- 2 %
Net supply	654	650	627	- 4 %

EU sources: CIRAD, EUROSTAT (excl. EU domestic production) / USA source: US Customs

EUROPE - IMPORTED VOLUMES - MARCH 2015

Source	Comparison		
	February 2015	March 2014	2015 cumulative total compared to 2014
French West Indies	↘	- 19 %	+ 1 %
Cameroon/Ghana/Côte d'Ivoire	↘	+ 1 %	- 4 %
Surinam	↘	- 13 %	- 9 %
Canaries	↔↘	+ 16 %	+ 1 %
Dollar:			
Ecuador	↘	+ 3 %	+ 10 %
Colombia*	↗	+ 22 %	+ 17 %
Costa Rica	↗	+ 16 %	+ 13 %

Estimated thanks to professional sources / * total all destinations

Temperate fruits

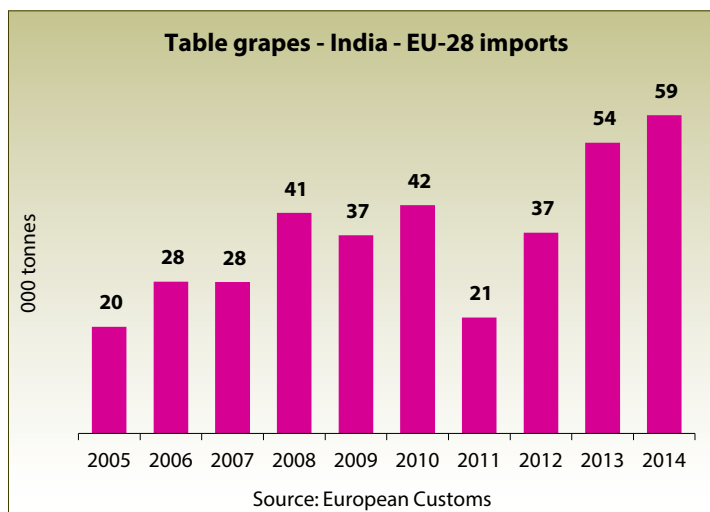
■ **New Zealand kiwi: a bright future once again.** The New Zealand industry has its smile back, after emerging from a long period of doubt due to the establishment of the Psa bacteriosis. The new cultivars planted seem to be highly resistant to the disease. The Zespri Sungold (Gold3) is particularly well adapted, and has helped restore the pre-Psa potential. Hence the quantities of Gold exported could reach 30 million boxes this campaign, according to Zespri's forecasts, as opposed to 29 million pre-Psa, with 25 million boxes of Sungold. This growth is actually set to continue, with a target of 50 million boxes by 2018. The first containers left the port of Tauranga in early April for Japan. The first ship bound for Europe is expected in early May.

Source: Zespri



■ **Indian table grape: potential curtailed.** While the season had an auspicious beginning, in spite of a slightly truncated start to the campaign, the hail which ravaged India's main production zone in mid-March caused major damage. Initial estimates actually reckoned losses of 20 to 50 %. Exports aimed at Europe however were well received, auguring for another rise in shipments, which flirted with the 60 000-t mark for the past two campaigns.

Source: Infocruit



■ **Southern Hemisphere pip fruits: a smooth campaign in the end...**

The apple and pear campaigns are for the moment proceeding smoothly. South African Williams came off the European market in early April, with Argentinean Williams taking over. Exports out of the port of San Antonio were down 29 % (95 800 t as at 31 March 2015). Overall, pear exports from the main Southern Hemisphere producer countries were down 19 % from 2014, with a considerable fall to Continental Europe (including Russia), while shipments to the Middle East and Asia were large. Conversely, the apple campaign started very hesitantly in Europe. Nonetheless overall exports were at a good level, with substantial volumes already imported by the Asian countries, and especially the Middle East.

Sources: Shaffe, Patagonia Norte

Pear — Southern Hemisphere Cumulative exports at week 17 (excl. USA)		
box (12.5-kg equiv.)	2015	Compared to 2014
Total EU (incl. Russia)	116 008	- 24 %
United Kingdom	7 557	+ 5 %
Continental Europe (incl. Russia)	108 451	- 25 %
Middle East	15 292	+ 17 %
Asia	9 478	+ 28 %
Total	140 779	- 19 %

Source: Shaffe

Apple — Southern Hemisphere Cumulative exports at week 13 (excl. USA)		
box (12.5-kg equiv.)	2015	Compared to 2014
Total EU (incl. Russia)	25 735	- 16 %
United Kingdom	8 505	+ 109 %
Continental Europe (incl. Russia)	17 230	- 35 %
Middle East	21 999	+ 108 %
Asia	16 566	+ 20 %
Total	64 300	+ 17 %

Source: Shaffe



Asparagus

Fresh Asparagus, Part of the elite of Mediterranean cuisine!

Whether part of an everyday meal or an official occasion, with meat, fish or seafood, and with white wine or red wine, you are sure to fall for asparagus! A natural product with a high nutritional value, fresh asparagus is a delicious vegetable providing a host of culinary options, for consumption hot or cold, as a starter, in soups or creamed, or as a side dish. Its nutritional qualities make it part of a healthy daily diet. It is low in fats and salt, yet rich in vitamins and other useful elements.



ASPARAGUS TABLE OF NUTRITIONAL VALUES (per 100 g serving)			
Energy	85 kJ (20 kcal)	Folic acid (B9)	52 µg
Carbohydrates	3.88 g	Coline	16 mg
Sugars	1.88 g	Vitamin C	5.6 mg
Plant fibres	2.1 g	Vitamin E	1.1 mg
Fats	0.12 g	Vitamin K	41.6 µg
Protein	2.2 g	Calcium	24 mg
Vitamin A	38 µg	Iron	2.14 mg
β-carotene	449 µg	Magnesium	14 mg
Lutein & Zeaxanthin	710 µg	Manganese	0.158 mg
Thiamine (B1)	0.143 mg	Phosphorus	52 mg
Riboflavin (B2)	0.141 mg	Potassium	202 mg
Niacin (B3)	0.978 mg	Sodium	2 mg
Pantothenic acid (B5)	0.274 mg	Zinc	0.54 mg
Vitamin B6	0.091 mg		

Source: US Department of Agriculture Nutritional database

European asparagus is produced, packed and distributed under conditions aimed at ensuring **consumer safety, protecting** the farmer and the environment, saving available resources, and in general terms, ensuring the continuity of the ecosystem. Agri-business manufacturers and wholesalers have the necessary **certifications** provided by accredited product safety management and quality bodies.

In this benchmark system, European asparagus production applies **European legislation** (the most stringent in the world in this respect), but also in parallel, to an increasing extent, a series of **international management system standards (ISO and AGRO standards) and protocols (GLOBAL GAP, BRC, IFS, etc.)**. These systems ensure both the process and procedure quality and food safety, throughout the asparagus vertical production and marketing chain, from field to shelf. These are the factors that make Greek-produced European asparagus stand out on the global market, and maintain its advantage over international competition.

In Greece, asparagus is grown in areas of high ecological value and incomparable beauty, in accordance with the rules stipulated by European standards. Its superiority is mainly due to the unique physiology of the production regions. The unique combination of geographic, geological and climate particularities interacts with the genetic characteristics of the plant, leading to the production of a delicious and economic crop, with high nutritional value. European asparagus is produced, packed and distributed under conditions aimed at ensuring consumer safety,

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Greek-produced European asparagus is characterised by a quality of texture and flavour conferred by a mild Mediterranean climate and the fertility of the Greek soil. Among the main Greek asparagus regions are Kavala, Evros and Aetoloacarnania. A natural border between Macedonia and Thrace, the river Nestos delta forms a vast fertile region housing a plethora of flora and fauna species. Between its right bank and Keramoti lagoon, on the plain irrigated by its water and in the uniquely temperate natural environment of the village of Agiasma, lies the Kavala asparagus cultivation zone. Further east, between the ecosystems of the Evros delta and Dadia forest, unique in Europe, lies the town of Tychoero, characterised by its development policy and progressive outlook. The area of the Tychoero ecotourism centre and around the lake form the setting of the asparagus fields of the

Department of Evros. In western Greece, in the middle of the biggest Greek Department, Aetoloacarnania, along the River Acheloos, Greece's largest by volume, lies Agrinio valley, surrounded by lakes, rivers, and high mountains. The mild winters of this region's plains provide ideal conditions for growing asparagus whose taste has made it a hit on the international export markets.

The main asparagus bodies operating in these regions are:

- **Kavala farmers' cooperative:** the successor to an association founded in 1927. Its main mission is to boost, support and coordinate the activities of its members, while attempting to expand, and consolidating the results of its production and commercial activities.
- **"Acheloos" Aetoloacarnania farmers' cooperative:** the cooperative was founded in 1998. The produce of cooperative members are brought together, processed, packed and exported to European Union and East European markets.
- **Agiasma SA:** the company started up in 1998, in the asparagus production and packing business. It is currently active in the production and sale of agricultural produce and equipment, as well as planting stock.
- **Tychoero farming cooperative:** the cooperative was founded in 1990. Its mission is collective management of its members' farming businesses, as well as creating and operating production and marketing facilities.
- **Komara farming cooperative.** These bodies contribute today to managing the production and marketing future of Greek-grown European asparagus.

Now that the Mediterranean diet and enjoyment of good cooking are part of the modern European way of life, fresh European asparagus - thanks to its long tradition, certified quality and undeniable preference by consumers - has rightly taken its place among the elite of Mediterranean cuisine!



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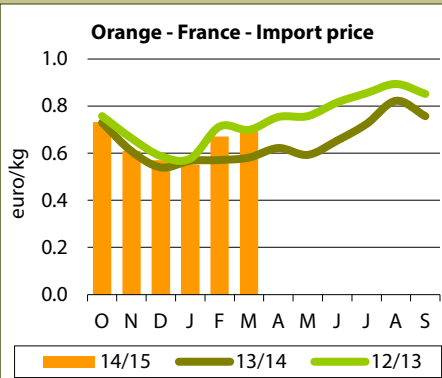


www.euasparagus.gr

Orange

March 2015

The orange market maintained a good balance. However, Spanish Navelate volumes reached their peak around mid-March with seasonal levels, while Tunisian Maltaise shipments rose to register high levels. In addition, on the juice oranges side, the Spanish Valencia Late campaign started, despite the availability of Salustiana batches (season extended because of rains delaying the end of the campaign, and bigger production than in previous years). However, the market maintained a good balance thanks to lively demand, stimulated by the scarcity of competing fruits (strawberries delayed, and easy peelers on the wane), to temperatures still cool for the season and to a good overall supply quality. Hence prices gradually strengthened to register above-average levels.



Review of the 2014-15 Spanish citrus campaign: desperate situations call for desperate measures! A real shock therapy has been recommended by the trade union AVA-ASAJA, after a 2014-15 deemed a "total disaster". The flagship measure of the plan proposed by the Young Farmers' trade union is a wave of large-scale uprooting operations affecting 10 000 ha of Nules clementine and Naveline and Navel orange orchards, which would withdraw 300 000 t of overproduction from the market. According to AVA-ASAJA, the orchards abandoned in the Valencia region due to non-profitability amounted to 10 000 ha in ten years, 3 000 ha of which for the 2013-14 season alone. The figures from the Ministry of Agriculture confirm this trend. Nonetheless, Spanish citrus production has risen by approximately 1 million tonnes in the past decade, thanks to the increase in productivity and surface areas, especially in Andalusia.

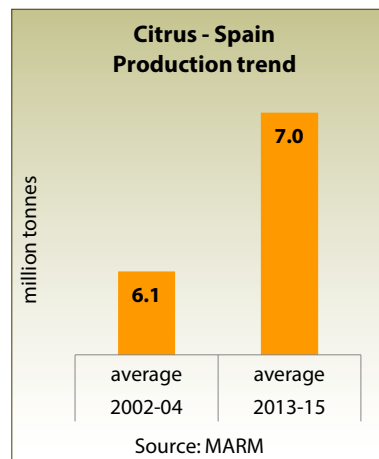
Source: Reefertrends

New easy peeler varieties in Spain. IVIA has unveiled to professionals three new triploid late-season easy peeler varieties. Alborea, derived from a cross between Fortuna and Wilking, is harvested from mid-December to early February, and has characteristics closer to clementines than Tangeloes. It is not sensitive to alternaria. Meanwhile, Coral and Tri 5 are derived from Fortuna and the common mandarin, from which they have inherited highly specific organoleptic characteristics. Maturing between January and February, they are however prone to alternaria. Final tests will be conducted, before they are potentially made available to citrus growers. The two varieties above, created by IVIA and officially catalogued in June 2013, have hitherto met with lukewarm success. Approximately 400 000 Safor trees, a variety derived from Fortuna and Kara, available in February and March, have been planted to date. Meanwhile sales of Garbi, derived from Fortuna and Murcott, and harvested from mid-February to mid-March, have reached approximately 175 000 plants.

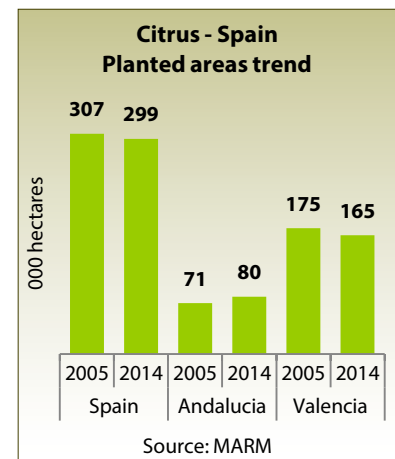
Source: CIRAD

PRICE	Type	Average monthly price euro/15-kg box	Comparison with average for last 2 years
	Dessert orange	10.35	+ 7 %
Juice orange	8.85	+ 5 %	

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
Dessert orange	↗		+ 0 %
Juice orange	↗		+ 21 %



Source: MARM



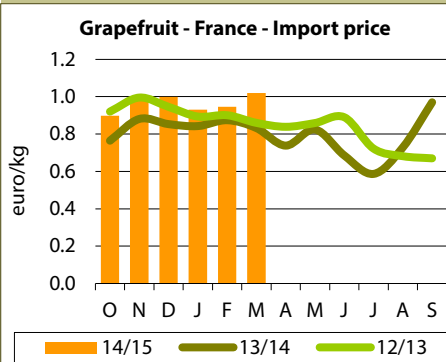
Source: MARM

VOLUMES	Varieties by source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Spanish Navel	↗	+ 0 %	Rise in Navelate shipments, with average volumes for the season. Good overall supply quality.	+ 3 %
	Spanish Salustiana	↗	+ 21 %	Volumes climbing before the beginning of the seasonal fall. Levels higher than in previous years, with the ebb in supply coming later.	+ 18 %
	Tunisian Maltaise	↗	+ 50 %	Tunisian Maltaise volumes on the rise. Larger volumes than in previous years.	+ 13 %
	Spanish Valencia Late	↗	-	Some limited first Valencia Late batches. Campaign starting with bigger volumes than last year, and normal size profile.	-

Grapefruit

March 2015

Despite slow sales for the season, prices continued to strengthen on the grapefruit market. Floridian imports were up from February, though the overall levels remained in shortfall (- 14 %), and stocks limited. In addition, volumes started to fall in week 13. In spite of the slowness of sales, prices continued to increase, reaching historically high levels (+ 31 %), given the ongoing fall in the euro/dollar exchange rate. On the Mediterranean grapefruit side, sales maintained decent fluidity. The supply rose, though levels remained below average because of the Turkish campaign winding down (volumes only available in Northern Europe) and smaller incoming Israeli shipments than in previous years. Prices also continued to rise.



PRICE	Type	Average monthly price	Comparison with average for last 2 years
		euro/17-kg box equivalent	
	Tropical	22.20	+ 31 %
	Mediterranean	12.58	+ 14 %

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
	Tropical	↗	- 14 %
	Mediterranean	↗	- 12 %

VOLUMES	Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Florida	↗	- 14 %	Floridian supply up from January, though levels still in shortfall. Campaign winding down from week 13.	- 15 %
	Israel	↗	- 18 %	Rise in Israeli volumes, though supply still down on previous years.	- 9 %
	Turkey	=	+ 50 %	Turkish volumes rising to North European markets before the end of the campaign. No shipments to France from mid-March.	+ 33 %

■ Citrus: juice prices in Europe in March 2015.

Type	Price (USD/t)	Source	Comments
Grapefruit	Frozen concentrate, 58°Brix, red, ratio 9.5+	1 500-1 600 cfr Netherlands	Prices on the white market fell over the past three months, because of increasingly weak demand. The pink market is weakening, while the red market is holding up, depending on the ratio.
	Frozen concentrate, 58°Brix, pink, ratio 9.5+	1 700-1 800 cfr Rotterdam	
	Frozen concentrate, 58°Brix, white, ratio 9.5+	2 600-2 800 cfr Rotterdam	
Orange	FCOJ, Pera, 66°Brix, loose, ratio 14-16	1 950-2 050 fca Netherlands	Scarce production in Brazil, but better yields, which helped price hold up. Demand for FCOJ is continuing to drop worldwide, with prices potentially falling in case of a good harvest in Florida and Brazil. Good blood orange harvest in Italy, enabling price stability.
	FCOJ, blood orange, 55°Brix	2 600-2 700 EUR/t exw Italy	
Lemon	Frozen concentrate, cloudy, 500 gpl	4 500-4 750 cfr Rotterdam	Prices should continue to fall, since a normal harvest is expected in Argentina. The Mediterranean harvest started slowly due to strong fresh fruit demand.
	Frozen concentrate, clear, 500 gpl	5 200-5 500 cfr Rotterdam	

Note: cfr: cost and freight / fca: free carrier / exw: ex-works / Source: MNS-ITC Geneva

■ Uruguayan citrus: diversification to the benefit of the United States and varietal conversion.

Does the 2014 bounce-back by exports signify a new dynamic for Uruguayan citrus sector? After a decade of steady decline, the volumes placed on the international markets rose by approximately 20 % in 2014 to reach 126 000 t. Professionals are banking on two

strategic avenues to consolidate this trend. The shipment diversification trend needs to be continued, in particular in a context where the European market, the main current market, appears less attractive in the long term because of the weakness of the euro. Efforts to increase shipments to the United States, which received just over 4 000 t in 2014, must continue. Varietal conversion is the other key element to this recovery programme. Of the 7.2 million citrus plants in the country, 3 million are varieties no longer of interest to the international market.

Citrus — Uruguay — Exports					
tonnes	2010	2011	2012	2013	2014
World, incl.	150 186	120 463	93 490	110 777	126 000
EU-28	118 929	88 389	63 651	75 820	76 508
Russia	12 673	9 813	9 220	12 691	13 606
Brazil	6 089	9 774	8 710	11 988	12 561
USA	-	-	-	91	6 004
Canada	2 394	3 238	1 813	3 085	4 269
Persian Gulf	3 938	5 542	5 022	2 923	4 449

Source: Comtrade

Sources: Top Info, El Pais

Roots & tubers

Q1 2015

Sweet potato (SP)

Some batches of Spanish white-fleshed SPs marked the end of the European produce campaign in January. With marginal shipment quantities, they sold on a footing of 1.25 euro/kg. The bulk of the white-fleshed SP supply was provided from January to March by Egypt, Honduras and to a lesser degree by China. Fairly stable in January and February, the Egyptian SP rate (0.70-0.80 euro/kg) strengthened slightly in March, climbing by 0.15 to 0.20 euro/kg. Produce from Honduras sold on a downward trend of 1.50-1.60 euro/kg to 1.30-1.40 euro/kg, progressively dipping between the start and end of the period. Chinese SPs, which supplemented the supply, sold steadily at 1.20 euro/kg, falling to 1.00 euro/kg in late February, when shipments from this source were interrupted. At the end of the period the South African campaign began, with white-fleshed SPs selling at around 1.40 euro/kg.

Around 1.60 euro/kg in early January, the Honduran orange-fleshed SP rate

dipped in February (1.30-1.40 euro/kg), before partially recovering in March to around 1.40-1.50 euro/kg. Meanwhile, the United States and Israel also supplied orange-fleshed SPs, with their sale prices following the same trend as Honduran produce, but at higher levels (+ 0.10 to 0.20 euro/kg).

In March, the United States diversified its shipments, with batches of white-skinned white-fleshed SPs, and violet variety SPs selling at 1.70-1.80 euro/kg.

Yam

Ghanaian yam sales were steady in Q1 2015, with prices dropping slightly in March. There was little price difference between white and Puna yams from this source, with supplies of one supplementing the other. French yams had a good campaign, selling steadily at around 3.00 euros/kg, up from the same time last year. 2015 seems to have been a more abundant campaign for French yams, lasting one month longer than in 2014. Supplementary shipments arrived

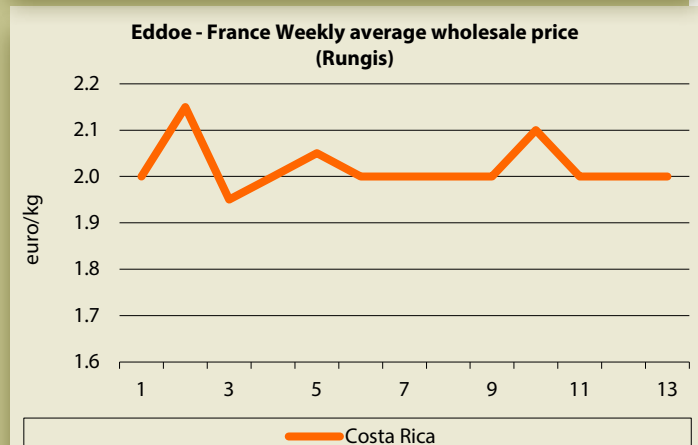
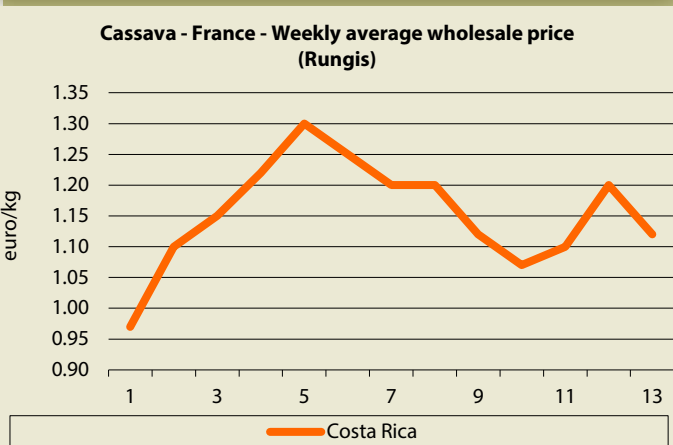
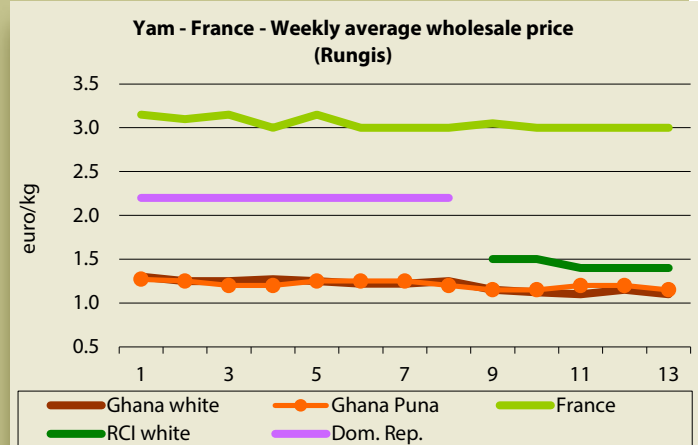
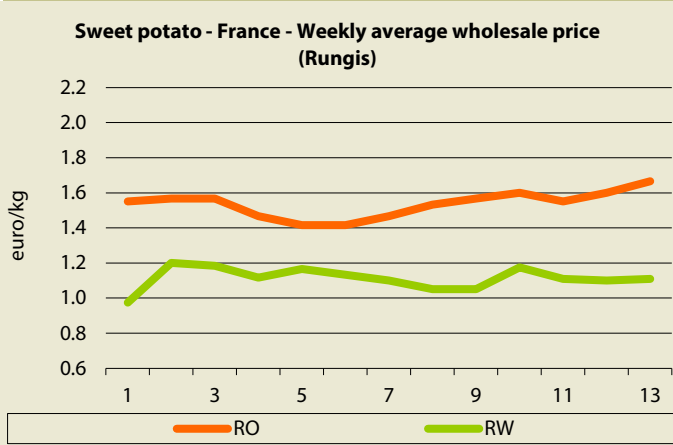
in January and February from the Dominican Republic and in March from Côte d'Ivoire, generally more discreet sources on the French market.

Cassava

Costa Rican cassava rates strengthened in the context of moderate supply and good demand until the first half of February. Sale prices dropped thereafter until early March. They took another upturn before stabilising at the end of the month at around 1.10 euro/kg.

Eddoe

Costa Rican eddoo prices, which dominated the European supply, were steady and practically constant. Rates were around 2.00 euros/kg on average, with peaks of up to 2.50 euros/kg marking a distinct price re-evaluation from last year. Demand picked up particularly in weeks 8 and 9, coinciding with the Chinese New Year.



Sweet potato: RO: red-skinned orange-fleshed / RW: red-skinned white-fleshed / Source: Pierre Gerbaud

Other exotics

Q1 2015

Plantain banana

Q1 2015 saw a highly disrupted plantain market. The rate of produce from Colombia, the main supplier along with Ecuador, did not stop falling until mid-March; as it was open for most of the time it remained very low. Shipments of large volumes at the beginning of the year rapidly swelled the market, especially since demand proved very moderate. The accumulation of tonnages in storage led to a qualitative deterioration of fruits, choking the market, since the further the quality deteriorated the further prices fell. With demand remaining flat, the crisis came to an end only very slowly, with surpluses sold off at clearance prices. The dominant Colombian volumes brought Ecuadorian volumes in their wake. The situation was clearing up only gradually in mid-March, with stocks selling off and fruit of deteriorating quality being discarded.

Chayote and christophine

The christophine and chayote market

was fairly stable in Q1 2015, with actually a slight upturn in March. French production remained present until practically the end of March, a fortnight later than in 2014. Shipped in small quantities, this produce devalued at the end of the period, as its quality deteriorated. The end of the campaign helped strengthen rates of Costa Rican produce, at this stage the only supply source to the market.

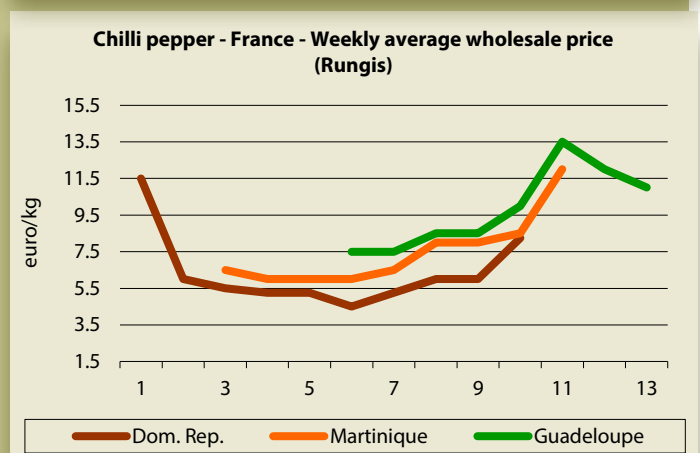
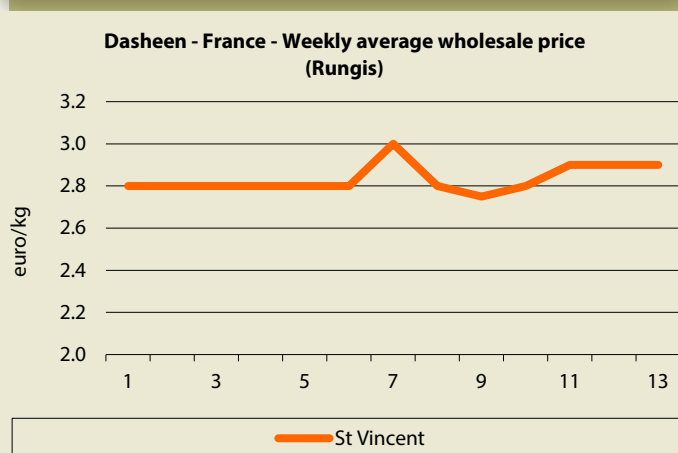
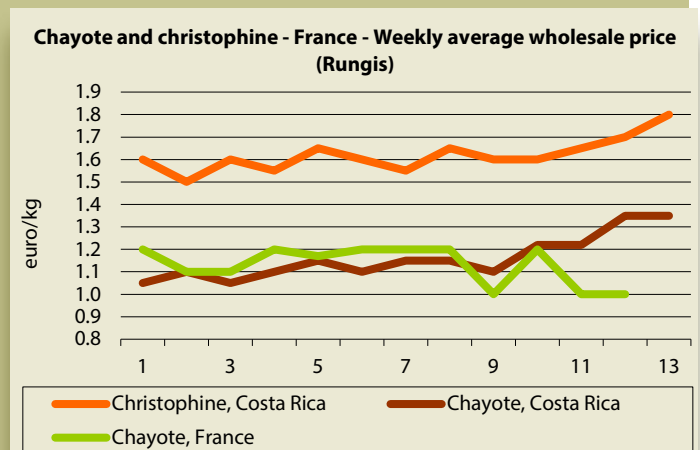
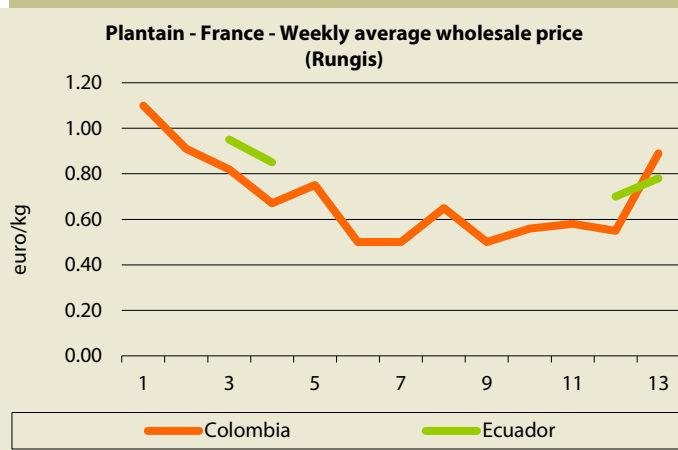
Dasheen

The rate of St. Vincent dasheens was very stable until mid-February, at around 2.80 euros/kg, and then fluctuated with the incoming volumes. The less abundant production was unable to provide whole container loads, leading to periods of under-supply and price variations, especially in the 2nd and 3rd weeks of February. The rate then returned to more modest levels, though still stronger than at the beginning of the period. Some air-freight shipments from Martinique supplemented the supply, selling on a footing of 3.90 euros/kg. The source sus-

pending its shipments in the second half of March, due to a temporary production shortage.

Chilli pepper

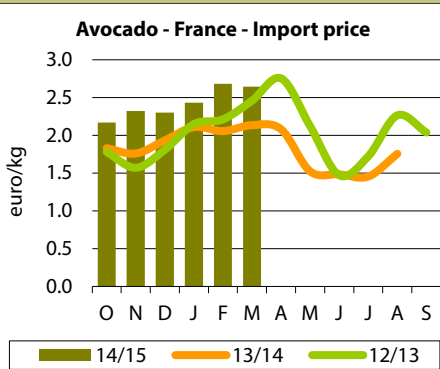
Prices for Chilli peppers remained static until week 7, with large shipments from the Dominican Republic, which provided the bulk of the supply. Produce from Martinique and Guadeloupe followed the same trend, though at higher prices given the higher cost price. The weight of Dominican volumes on commercial transactions altered greatly from week 8. The seizure of several batches for phytosanitary reasons considerably lightened the quantities on the market, and drove prices to unusual levels for this time of year, until mid-March. They dropped thereafter, with opportunistic shipments from Guadeloupe. The upcoming resumption of Dominican shipments should restore rates to a more normal level in April. Small supplementary batches came from Uganda in mid-January, given the temporary fall in Dominican shipments.



Avocado

March 2015

Demand proved quiet in early March because of the high price levels at the import and retail stages. In addition, incoming Hass shipments rose, though they remained less than in 2014. Imports from Chile started to fall, though the incoming shipments peak from Spain and Israel continued, with normal levels for the season. The supply was supplemented by Mexican shipments, back to a higher level, as well as Kenyan and Colombian shipments. Hence supply and demand were in step. However, demand was livelier from week 13 due to the launch of promotions for Easter, creating an impression of shortfall. Volumes of green varieties continued to wane because of the run-up to the end of the campaign for the winter sources (Israel, Spain). Prices remained stable and strong.



■ **Colombian Hass avocado: US market to open in 2015?** This is the ambition of the Colombian government, which has elevated the matter of access by Colombian avocados to the world's biggest market to the level of a Project of National and Strategic Interest (PINES). This issue is now a priority for all the State services concerned.

Source: radiopopayan.com

on agriculture, an activity denigrated by some for its misuse of an increasingly rare resource (80 % of consumption for 2 % of the production of State wealth). The time has also come for an emergency plan in Chile, after a seventh winter of water shortage. President Bachelet has announced the allocation of a budget of approximately 170 million USD to renovate and build new dams (19 by 2024), build new reservoirs and desalination units.

Source: Freshfruitportal

■ **New water restrictions in California and emergency plan in Chile.** Drought is now well established in California. For the fourth year running, winter has not brought the anticipated rains, after a historically dry January. Reserves are so low that a NASA scientist has declared that the State would be without water by the end of the year. The reinforced water saving measures set to be decided could well weigh down even more



PRICE	Varieties	Average monthly price euro/box	Comparison with the last 2 years
	Green	7.95	+ 8 %
Hass	10.75	+ 11 %	

VOLUMES	Varieties	Comparison	
		previous month	average for last 2 years
Green	= ↘	+ 15 %	
Hass	↗	+ 5 %	

VOLUMES	Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Chile	↘	- 34 %	Campaign evidently winding down, with supply once again in shortfall.	- 10 %
	Israel	↘	0 %	Fall in volumes of green varieties ongoing. Incoming Hass shipments stable. Average levels for the season.	+ 7 %
	Mexico	↗	- 6 %	Mexican supply rising, though levels still below the seasonal average.	+ 60 %
	Spain	↗	+ 14 %	Shipments picking up, with bigger volumes than in previous years.	+ 9 %

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Mango

March 2015

Peru remained the main supply source to the EU in March. However, its shipments gradually dwindled, partially offset by the slight increase in Brazilian shipments. Comprising above all Tommy Atkins, less in demand by purchasers, Brazilian batches were sold mainly in Northern Europe, with their prices dropping bit by bit from 6.00 euros/box to 4.50 euros/box at the end of the month. Conversely, the Peruvian mango rate strengthened as incoming shipments fell and in the run-up to Easter, a period of more intense demand. Meanwhile, the price ranges widened, manifesting the supply imbalance. Indeed, the proportion of large sizes increased, while the medium sizes saw stronger demand. Furthermore, the more fragile quality of the Peruvian fruits also contributed to these widening price ranges.

The air-freight market was more mixed. Larger incoming shipments temporarily swelled the market, especially since the high prices saw some purchasers switch to the cheaper sea-freight fruits. The provision of highly mature batches also contributed to the fall in prices, to levels well below those stated here. Sea-freight fruits of air-freight quality also blurred the market data, with intermediate prices between the two grades. Finally, the fall of the euro intensified certain market distortions, with the re-evaluation of cost prices of the fruit, already sold at high prices. Meanwhile, the West African campaign saw a hesitant start, with the first Amélie batches from Burkina Faso and then Mali. This produce, aimed at the retail trade, provided a varietal diversification from the Peruvian supply. At the end of the month, the first Valencias came in from Mali.

■ Mango: prices of juices and purees in Europe in March 2015.

Type	Price (USD/t)	Source	Comments
Aseptic puree, 17°Brix, Alphonso variety	1 550-1 650 cfr Rotterdam	India	Strong market for Alphonso, despite low stocks availability, in some cases not comprising real Alphonso fruits, which might explain the discounts agreed. Small harvest for Tommy Atkins in South America. Mexican production sold out, and the Peruvian harvest should be 30 to 40 % smaller than the previous one. Consequently, prices for the Indian Totapuri strengthened.
Aseptic concentrate, 28°Brix, Totapuri variety	1 300-1 400 cfr Rotterdam		
Aseptic concentrate, 28°Brix, Tommy Atkins variety	1 350-1 450 fca Netherlands	Mexico	

Note: cfr: cost and freight / fca: free carrier / Source: MNS-ITC Geneva

■ Other fruits: juice and pulp prices in Europe in March 2015.

Type	Price (USD/t)	Source	Comments
Acerola	Frozen ss, 6-8°Brix	Brazil	Market well supplied and balanced.
	Frozen concentrate, 20-22°Brix, clear		
Passion fruit	Frozen concentrate, 52°Brix	Ecuador	More limited supply from Ecuador and Peru, which stopped the headlong fall in prices, which had practically halved in recent months. The next production peak from Ecuador is set for April.
Guava	Concentrated puree, 19°Brix, pink	South Africa	Demand is still very strong, while the supply is small. However, the recent harvest peak in India helped improve the situation. South Africa should return to the market in April, at the price levels indicated opposite.
	Concentrated puree, 20°Brix, pink	Egypt	
Pomegranate	Clarified aseptic concentrate, 65°Brix	Turkey Iran	The large quantities available have driven prices downward. However, demand remains strong and the market is fairly well balanced.

Note: cfr: cost and freight / fob: free on board / fca: free carrier / Source: MNS-ITC Geneva

MANGO - INCOMING SHIPMENTS (estimates in tonnes)

Weeks 2015	10	11	12	13
Air-freight				
Peru	120	80	70	100
Burkina Faso	10	10	15	40
Mali	-	-	-	5
Sea-freight				
Brazil	1 200	1 470	1 740	1 560
Peru	4 730	3 830	3 450	2 860

MANGO - IMPORT PRICE ON THE FRENCH MARKET

Weeks 2015	10	11	12	13	March 2015 average	March 2014 average	
Air-freight (euro/kg)							
Peru	Kent	5.00-5.50	4.50-5.30	4.50-5.20	4.50-5.00	4.60-5.25	3.55-4.15
Burkina	Amélie	3.50-4.00	3.50-3.80	3.20-3.50	3.50-3.80	3.40-3.75	2.75-3.10
Mali	Amélie				3.50-3.80	3.50-3.80	3.00-3.20
Mali	Valencia				3.80	3.80	3.10-3.55
Sea-freight (euro/box)							
Peru	Kent	5.00-6.00	6.00-7.00	6.00-7.50	6.00-8.00	5.75-7.10	5.10-6.25

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Pineapple

March 2015

In March, the overall Sweet supply remained well below demand. This weakness in the supply can be explained by several factors. First of all, the exceptional rains which struck Costa Rica reduced the export volumes. Furthermore, the euro/dollar parity made the North American markets more appealing. The supply levels were also disrupted by shipping delays, which generated a temporary increase in volumes in the second half of the month. Overall, however, the market remained mainly stable. And although the operators had to be more flexible on prices at the end of the month, the rates charged over the month as a whole remained advantageous in more than one sense.

The air-freight market saw two changes in March. Over the first three weeks, sales were fluid, since the supply was well below demand. Prices were stable, though on occasion there were quality concerns (lack of coloration, fruits developing quickly), which most of all affected the slightly more abundant fruits from Cameroon. The steep increase in the supply (especially Benin and Cameroon) in the last week of the month resulted in a slowdown in sales, and prices slumping. The ongoing quality problems complicated sales a bit more, and operators had to resort in certain cases to after-sales price transactions.

Sugarloafs sold more or less well throughout the month, from 1.80 to 2.05 euros/kg.

The Victoria supply was fairly limited throughout the month, enabling fluid sales and high rates. The imbalance of the Reunion supply, with an overabundance of small fruits, led to the rates range for this source widening.

■ Pineapple: juice prices in Europe in March 2015.

Type	Price (USD/t)	Source	Comments
Frozen concentrate, 60°Brix, Smooth Cayenne variety	2 050-2 150 fca Netherlands	Thailand	Demand still strong, yet harvests in Thailand and the Philippines were lean in terms of volume. Hence prices increased. No improvement on the market forecast before mid-2015, for any of the sources.
Aseptic concentrate, 60°Brix, Smooth Cayenne variety	2 050-2 150 cfr Rotterdam		
NFC, aseptic ss, 12°Brix, MD-2 variety	650-680 ddp London	Costa Rica	

Note: fca: free carrier / cfr: cost and freight / ddp: delivered duty paid / Source: MNS-ITC Geneva

■ **Pineapple increasingly Sweet in Malaysia.** The Sweet pineapple is continuing to see rapid growth in Malaysia. According to the Minister for Agriculture, surface areas should grow by more than 2 000 ha by the end of the year. The stated objective of the Malaysian Pineapple Industry Board to have a 5 000 ha planted area of this variety by 2020 could be realised more rapidly than expected. Thanks to this varietal change, Malaysian professionals are hoping to be able to increase the export proportion of fruits from 60 % at present to 80 % in 2020.

Sources: Reefertrends, FoodNews



Pineapple — Malaysia — Exports

tonnes	2006	2007	2008	2009	2010	2011	2012	2013	2014
World, incl.	24 139	18 073	18 522	20 313	21 904	18 160	18 634	10 478	23 585
Singapore	12 712	12 627	12 930	11 689	11 384	12 147	13 576	6 580	17 266
Un. Arab Em.	2 346	2 927	2 796	4 085	4 481	3 431	2 813	2 438	4 017
Egypt	120	314	439	690	1 371	645	1 043	684	1 091

Source: Trade Map

PINEAPPLE — IMPORT PRICE

Weeks 10 to 13	Min	Max
Air-freight (euro/kg)		
Smooth Cayenne	1.80	2.00
Victoria	2.50	4.00
Sea-freight (euro/box)		
Smooth Cayenne	-	-
Sweet	9.00	13.00

PINEAPPLE - IMPORT PRICE IN FRANCE - MAIN SOURCES

Weeks 2015	10	11	12	13	
Air-freight (euro/kg)					
Smooth Cayenne	Benin	1.80-1.90	1.90-2.00	1.90-2.00	1.80-1.90
	Cameroon	1.80-1.90	1.90-2.00	1.90-2.00	1.80-1.90
	Ghana	1.85-2.00	1.90-2.00	1.90-2.00	1.90-2.00
	Côte d'Ivoire	1.90-1.95	1.90-1.95	1.90-1.95	1.85-1.95
Victoria	Reunion	3.00-4.00	2.50-4.00	2.50-4.00	2.50-4.00
	Mauritius	3.20-3.50	3.50-3.80	3.50-3.80	3.50-3.60
Sea-freight (euro/box)					
Smooth Cayenne	Côte d'Ivoire	-	-	-	-
Sweet	Côte d'Ivoire	9.00-13.00	9.00-13.00	9.00-12.00	9.00-12.00
	Ghana	9.00-13.00	9.00-13.00	9.00-12.00	9.00-12.00
	Costa Rica	10.00-12.00	10.00-12.00	10.00-12.00	9.50-12.00

Sea freight

March 2015

With the majority of variables on the demand side of the equation aligning in favour of reefer operators, and with bunker prices at their lowest level for six years, the charter market recorded the strongest first quarter (highest TCE average) since 2011.

While it is tempting to acclaim a reefer resurgence on the strength of the Q1 performance, one peak season does not a renaissance make - particularly as there are some significant developments taking place over the next 12-24 months that have the potential to rain torrentially on the reefer parade. Nevertheless, there were some encouraging signs that the reefer can still fight and win the modal battle despite the aggressive pricing of its competitors. There were also clues to the question of which niches the reefer will continue to occupy in the short term.

Unlike in previous years when an increase in Ecuadorian bananas has resulted in greater demand for reefer capacity, the platform for a seasonal peak this year was created in the United States and the South Atlantic. An escalation of the ILWU/PMA dispute caused delays for outbound as well as inbound reefer cargo, disrupting all shipping schedules on the one hand and forcing reefer cargo interests to look for alternatives to third party containership services on the other. Although the specialized reefer wasn't immune to the fracas, the impact was so much less severe.

Cool Carriers, Global Reefers and even CSAV chartered in more tonnage, and some units were diverted to the US east coast to avoid the congestion around LA/Long Beach. The strong US\$ relative to the Chilean Peso coupled with the weak € and Ruble encouraged more

fruit to be shipped northbound than across the Atlantic, where the market was anyway under pressure from record volumes of South African table grapes.

However, perhaps more significantly, Californian citrus exporters increasingly desperate to ship their fruit to the Far East found a willing partner in Cool Carriers. A total of 7 charters were undertaken, which not only took these vessels off the market, but also enabled Cool to a) take advantage of extra banana demand from the Philippines, and b) position units in the Pacific ahead of the kiwi season in New Zealand.

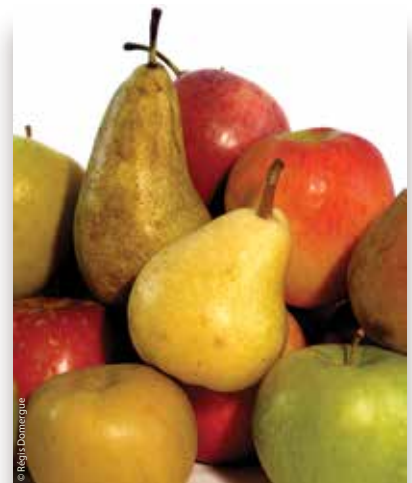
A second successive successful squid catch was the other market driver. It was also arguably the real reason behind the relatively high TCE averages. A squid charter pays top dollar and also keeps vessels off market for three times the length of a typical banana charter.

Hidden among the positives for reefer owners and operators this year must be a concern over the reduction in influence of the banana trade on the charter market. There were no spot banana cargoes fixed in March for the first time in living memory. This is partly down to the traders fixing COAs, partly because more fruit is now shipped on liner-type business, but mostly because a large percentage of the Ecuadorian trade today travels on boxship services.



■ **39th edition of Prognosfruit to be held from 5 to 7 August 2015 in Merano (Italy).** This conference will bring together more than 250 European and world leaders from the apple and pear sector. The European production forecasts for the coming season will as usual be presented at this event. Other topics will of course be addressed, such as fresh and processed market trends, research and innovation, with in particular a visit to the Laimburg Research Centre. Registration is now open on the site www.prognosfruit.eu

Source: WAPA



EUROPE

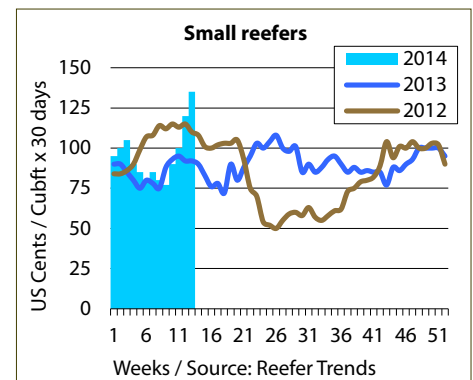
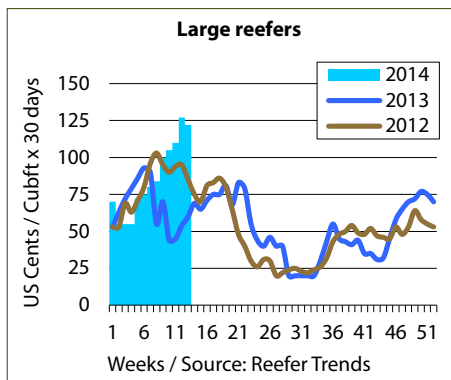
MONTHLY SPOT AVERAGE

USD cents/cubic foot x 30 days	Large reefers	Small reefers
March 2015	106	101
March 2014	53	90
March 2013	88	113

Web: www.reefer-trends.com
 Tel: +44 (0) 1494 875550
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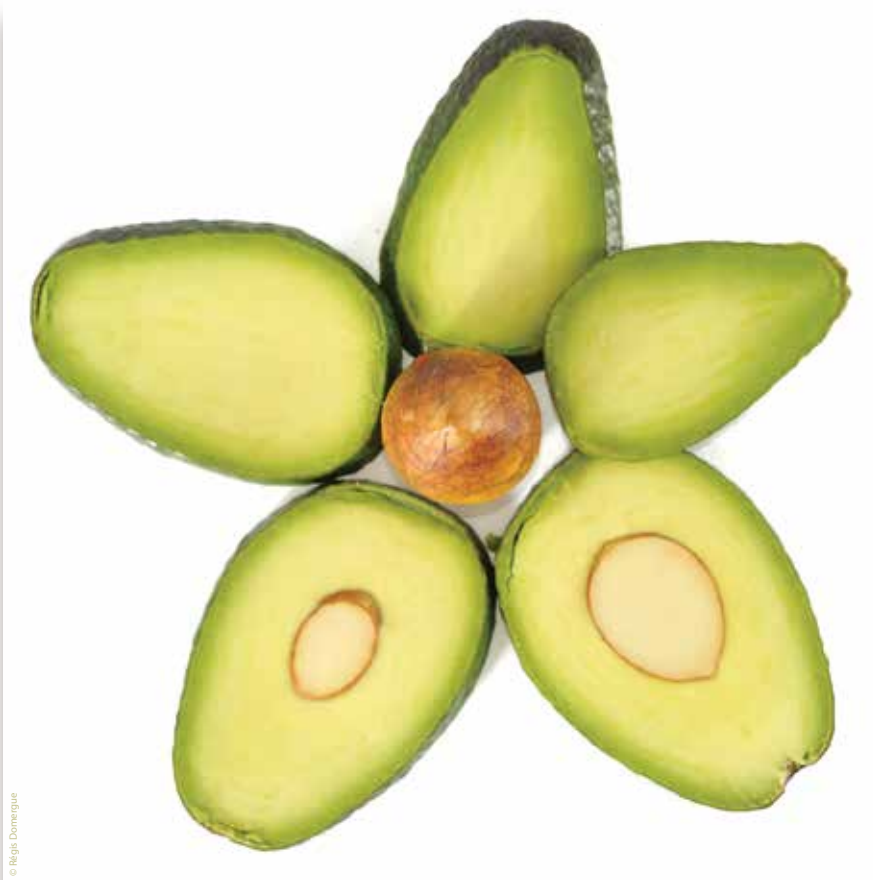
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European counter-season avocado market

2015 forecasts:
definitely capable of better than in 2014!



Over the past few years, there has been a string of supply records on the European counter-season avocado market, with 2014 actually registering a considerable acceleration in the rate of consumption growth. Will the 2015 campaign reach a new height? This can be open to doubt. The growth dynamic in production is set to be much less explosive than in 2014, whereas the US market and its strong dollar could attract volumes like a magnet, to the detriment of Europe.



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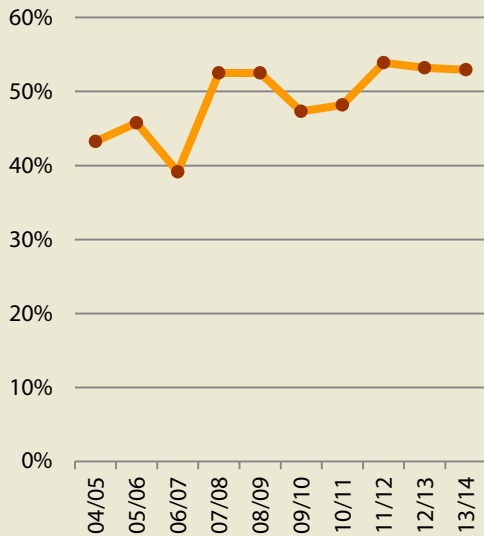
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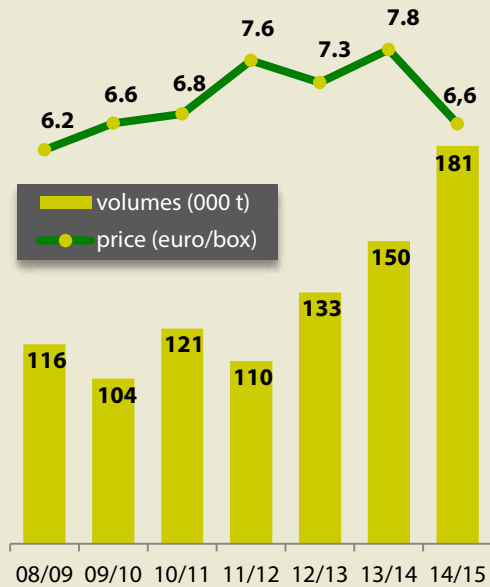
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Avocado - EU-28
Summer season market share
out of total supply



Source: Eurostat

Avocado - EU-28
Summer season market share



Source: CIRAD

A record 2014 summer campaign by volumes

2014 saw a great leap, which is what stands out when we analyse the development of the supply to the European market. The surge in volumes sold by more than 30 000 t in one season is the greatest ever recorded, taking consumption during the summer season to more than 180 000 t. In seven years, the European counter-season avocado market has more than doubled in volume. However, this record has also been accompanied by a poor performance. This 2014 season brought to an end a superb series of five campaigns where growth in volumes was systematically accompanied by price increases (barring the 2012 season). A scenario which defies the laws of economics and which speaks volumes about the appetite — not to say greed — of European consumers for the avocado. With an average campaign price estimated by our Market News service at 6.60 euros/box of Hass in 2014, there has been a clear and substantial downturn from 7.80 euros in 2013.





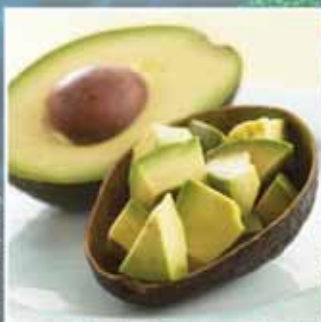
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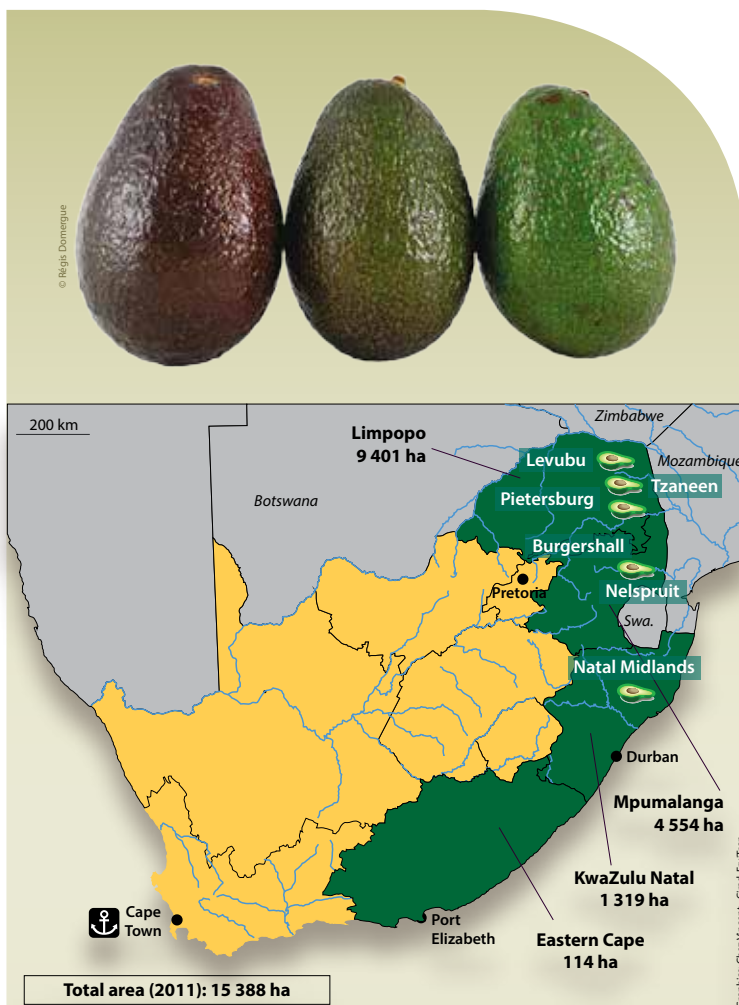
Visual: Getty Images

Another fine harvest in South Africa, confirming the industry boom

Another big campaign is taking shape in South Africa for 2015, despite a year of negative pendulum effect on production. The predicted 14 million boxes for export is down slightly from the historic record of 14.7 million set in 2014, though still above the 10.0 to 12.5 million boxes seen in normal production years until 2013. Hass volumes should be practically the same as in 2014, and represent approximately 60 % of the supply. The ongoing drought will have a negative impact on the size range of fruits originating from the far north of the country.

The very good harvest level from the past two years illustrates the boom of the South African avocado industry. On the one hand, a busier planting activity was confirmed: just as in 2013, 500 hectares of new orchards were set up in 2014 (as opposed to approximately 350 ha in previous years). On the other hand, productivity is continuing to increase thanks to the improvement in cultivation practices (irrigation, fertilisation, etc.) and plant stock (rootstocks and fruit-bearing varieties, via the development of cultivars such as Maluma for instance). This quest for better competitiveness is a priority for the South African industry, faced with above-inflation increases in the cost of production factors such as energy and labour, and with growing competition from Peru on its main outlet, Europe. The SAAGA is supporting these efforts by dedicating a good part of its budget to financing research actions.

Just as in previous seasons, nearly all exports will again be aimed at the EU. Reducing this dependence by opening up new markets is a major area of work. Negotiations with the United States saw good progress in 2015 (creation of an ad hoc committee between the two countries, the US-South Africa Avocado Committee). Talks are also well underway with China and most of all Japan. Nor should we forget the local market, where major promotion efforts are underway, and which absorbed approximately 25 000 t; which are minor volumes, though 5 000 t up from the previous season.

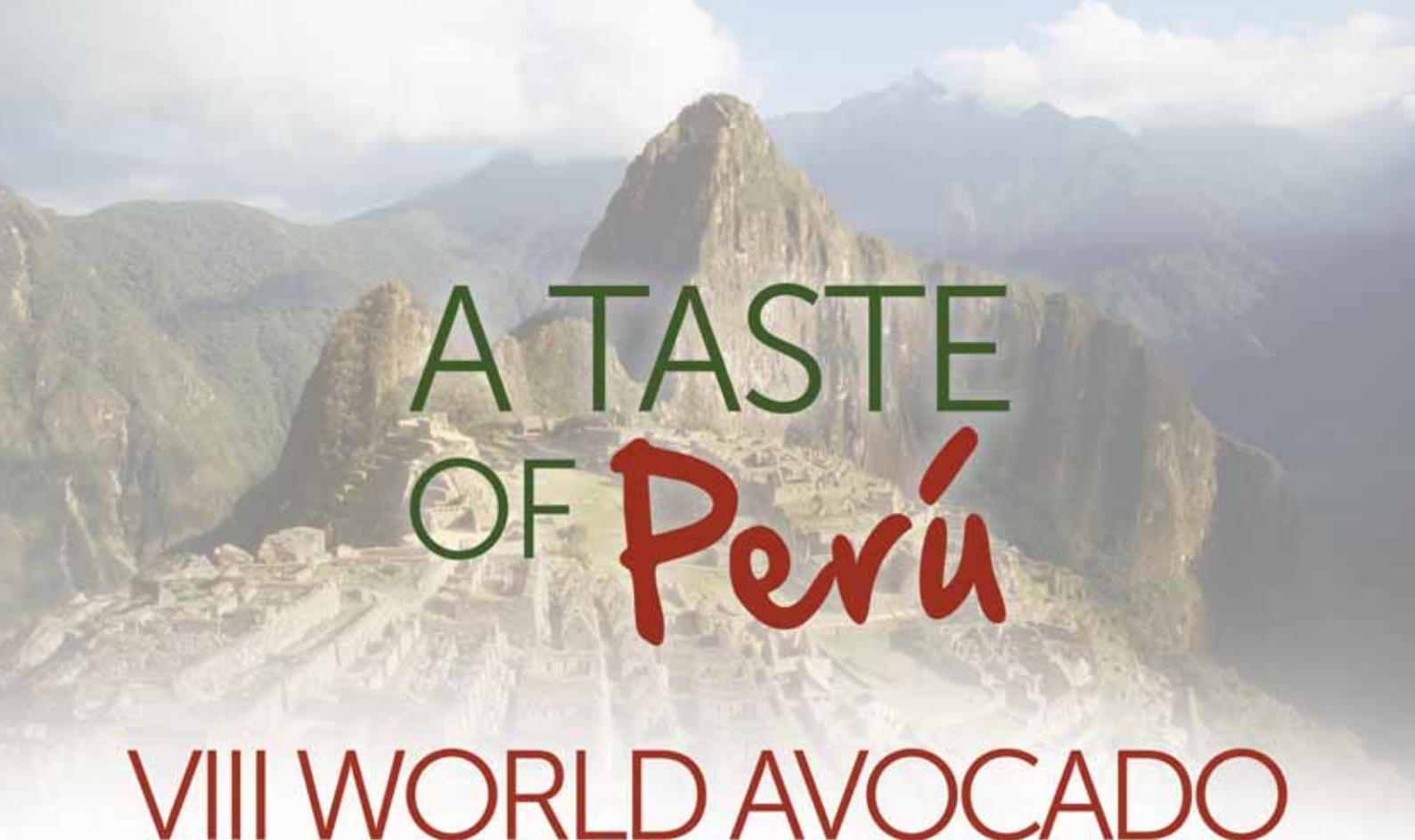


Avocado — South Africa — Exports						
tonnes	2009	2010	2011	2012	2013	2014
Total	46 146	50 563	30 128	54 498	50 203	65 771
EU	45 581	49 447	29 230	53 177	48 588	62 380
Asia	214	430	498	594	509	548
Africa	49	60	70	186	740	738
Middle East	289	503	261	312	362	610
Mediterranean	13	124	69	230	4	
Eastern Europe					534	1 344

Source: COMTRADE

Avocado — EU-28 — Summer season supply												
tonnes	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total	70 197	63 115	83 541	83 913	89 485	115 745	104 460	120 990	110 282	132 890	149 793	181 216
Southern Africa*	37 664	30 601	47 832	36 518	38 473	51 250	38 819	47 836	27 407	49 149	45 165	56 713
Peru	11 266	14 590	18 096	30 508	35 857	49 894	45 818	56 345	65 217	62 480	86 260	101 948
Kenya	19 828	16 236	15 458	13 641	11 999	11 841	15 038	14 123	14 273	17 078	13 313	15 604
Brazil	979	979	931	1 442	1 447	1 790	2 797	2 665	3 006	3 937	3 928	5 265
Tanzania							6	21	6	133	968	1 643
Argentina	460	709	1 224	1 804	1 709	970	1 983	0	372	114	158	43

*South Africa, Swaziland, Zimbabwe / Source: Eurostat



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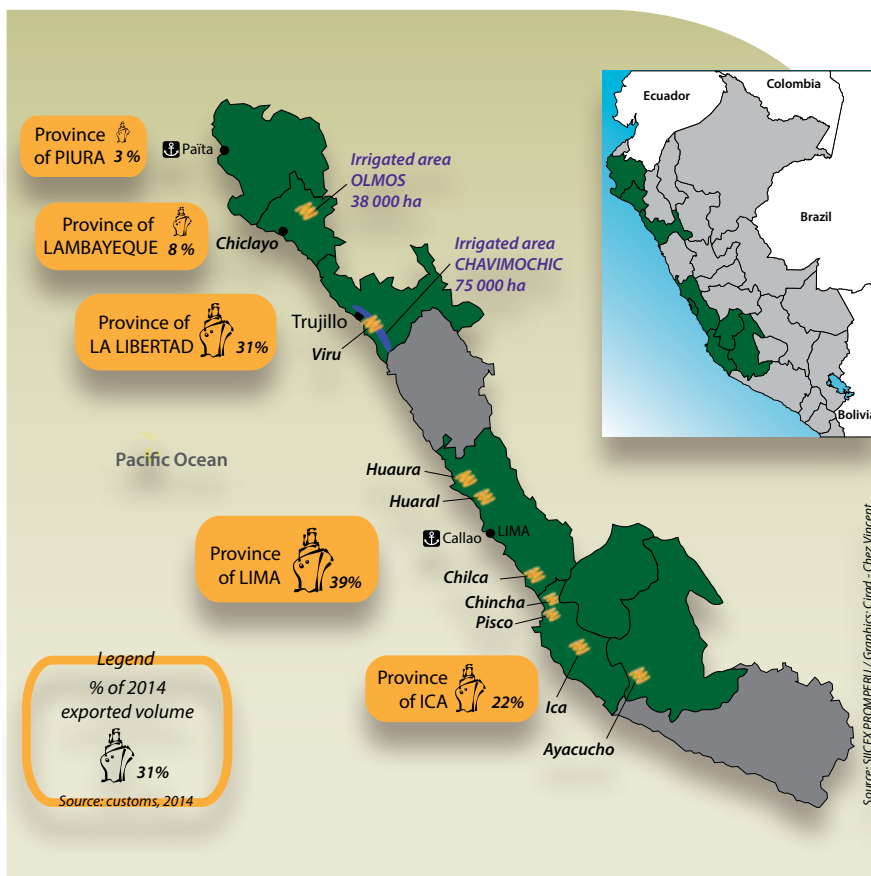
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A growth dynamic temporarily reined back by adverse weather in Peru

With an expected 185 000 to 190 000 t, the Peruvian export potential will be very high, though it will be up by only approximately 10 % from last season; which is a surprise. The enormous surface areas which are continuing to enter production (of around 1 500 to 2 000 ha/year) and the young orchards reaching their prime had heralded a major new increase in 2015, of a magnitude comparable to the one in 2014 (65 000 t increase in shipments from 2013). However, physiological droppage has been very high, due to the stress caused by spring heatwaves in 2014 and 2015. Furthermore, diluvian rains which affected certain zones of the country in March have also taken their toll. According to the Peruvian meteorological services, these climate imbalances are probably a forerunner to the El Niño phenomenon (set to be low intensity according to experts) over the coming months. In this highly uncertain climate context, the forward production estimate should be considered as a maximum. This capricious weather also caused a slowdown in the accumulation of dry matter, resulting in maturity being delayed by at least a fortnight.



Avocado — Peru — Export market share by operator in 2014

CAMPOSOL S.A.	21 %
Soc. Agri. DROKASA	9 %
CPF (Conсор. Prod. Frutas)	8 %
Agricola Cerro Prieto S.A.C.	7 %
Corp. Fruticola de Chinchа	5 %
Agro. Las Lomas de Chilca	4 %
AVO PERU SAC	3 %
Mission Peru SAC	3 %
Eurofresh Peru	3 %

Source: SUNAT

Avocado — Peru — Exports

tonnes	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28, of which	18 380	30 521	36 129	49 832	46 312	56 750	67 050	64 208	87 609	104 650
Netherlands	5 601	8 011	14 430	23 106	24 160	26 570	38 124	35 209	49 995	58 280
Spain	6 111	12 291	12 362	17 669	13 612	20 224	20 708	21 313	28 334	34 800
United Kingdom	3 378	4 757	5 899	4 953	4 097	4 412	6 030	5 428	6 216	10 399
France	2 934	4 962	3 058	3 957	4 170	5 025	1 828	1 902	2 229	303
North America	224	891	807	1 013	1 426	1 700	11 481	17 530	23 759	69 289
United States			54	563	84	434	8 998	15 729	21 151	65 146
Canada	224	891	753	450	1 342	1 266	2 483	1 801	2 608	4 164
Chile		102	400	453	479	281	400	678	719	2 717
Others	66	224	270	0	129	790	2 500	931	1 046	2 388
Total	18 670	31 738	37 606	51 298	48 346	59 521	81 431	83 347	113 133	179 044

Source: SUNAT

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Kenya: too dry!

The Kenyan harvest should be rather modest in 2015, unlike the harvest for major suppliers. The effects of an intense drought have combined with a negative pendulum effect on production. Even irrigated orchards should see their production fall, as agricultural water has been rationed. Furthermore, unlike the two leaders, the mitigating phenomenon of young orchards coming into their prime is virtually non-existent, as no large-scale planting schemes have been undertaken in recent years (lack of plant material, desire to invest still held back by brakes such as logistics, etc.). Another effect of the drought is that small fruits seem to represent a more substantial part of the supply than usual. Although shipments to diversification markets such as Saudi Arabia or the Arab Emirates are tending to grow, the bulk will still be aimed at the Community market. However, we should expect volumes closer to the 12 000 or 13 000 t from 2012 than to the 15 500 t from 2014.

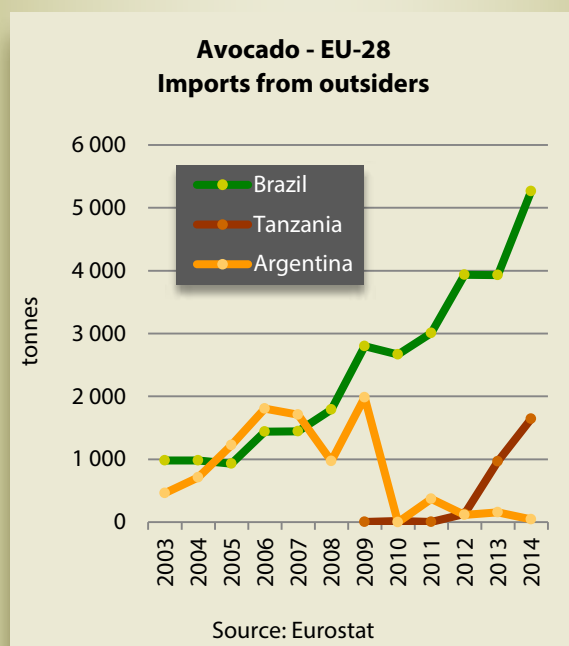


Avocado — Kenya — Exports									
tonnes	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	11 832	13 229	13 371	15 964	15 743	14 273*	17 078*	13 313*	15 604*
Arabian Peninsula	1 243	2 107	2 196	2 972	4 280				
Others	172	366	121	147	160				
Total	13 246	15 702	15 688	19 083	20 183				

Sources: COMTRADE, *Eurostat

10 000 t expected from the outsiders

The summer market outsiders will prove more than ever in 2015 that their importance can no longer be neglected. Their rise to prominence will be confirmed, and together they should represent volumes approaching 10 000 t. Brazil will remain the leader of this rear pack, and should export approximately 6 000 t to the EU this season. The rise of approximately 1 000 t from the previous season illustrates the steady though fairly modest dynamic of Hass surface areas in the country. The cultivation area, comprising a hotbed in Sao Paulo State (Jaguacy and its associated producers near Bauru) and some additional plantations in the States of Minas Gerais (Tsugue in Pratinha) and Parana, is expanding by approximately 100 ha/year, and amounts to approximately 1 000 ha. Practically all of the volumes will be aimed at the EU. The issue of opening up the US market is on the agenda, though approaches to the US sanitary authorities have not yet begun.



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Tanzania: Tom Thumb about to play with the big boys

Tanzania is the other outsider in the making on the European market. The rise to prominence of its young avocado industry will continue in 2015. Hass exports, which were close to 2 000 t in 2014, should see considerable growth this season, to approach 3 000 t. The campaign calendar will be later. The vast majority of imports are expected between late June and late September, with dry matter requirements having been stepped up in the earliest production centre (south of the country). Tanzania should be able to play with the big boys by the end of the decade, with an export potential of close to 10 000 t. In the north of the country, the cultivation area of Africado and its associated producers now covers 400 ha, and should expand by around fifty hectares in 2015-16. This dynamic is also applicable to the other major production centre, in the south of the country, where Rungwe Farm and its "outgrowers" are planting around a hundred hectares per year, and should achieve their target of 1 000 ha planted within two or three years' time.

US market: the magnet effect of a strong dollar

Therefore overall, the exportable potential of suppliers to the world counter-season market seems to be slightly lower than in 2014. Nonetheless, should we expect a parallel increase in shipments to Europe? Probably not. Very understandably, the 27 % rise of the dollar against the euro in one year shines like a beacon for the less regular among the Peruvian exporters. A simple calculation can illustrate this bonanza effect of the exchange rate: if we imagine import stage prices remaining the same as in 2014, and apply the exchange rate in force in April, Peruvian exporters could expect returns in local currency 12 % greater than last year from the United States, and 11 % smaller in Europe. Hence the ProHass forecast is reckoning on near-stability in shipments to the Old Continent compared to 2014 (i.e. approximately 90 000 t) and on a considerable rise of 10 000 to 15 000 t in shipments to the United States and the diversification markets. Are such developments realistic?



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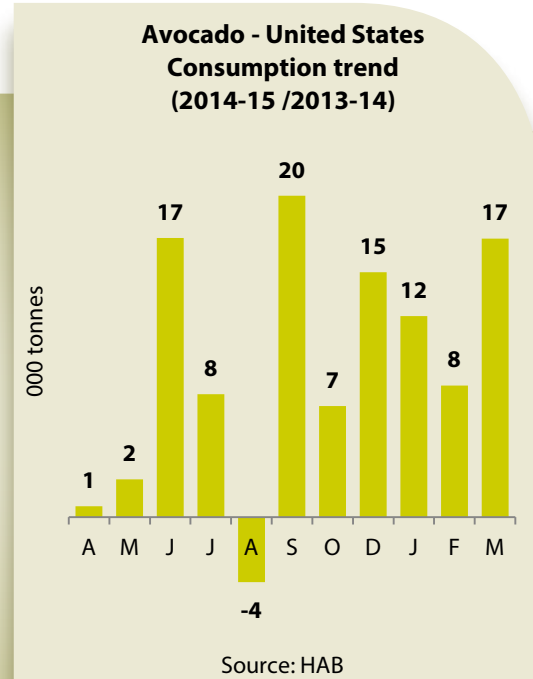
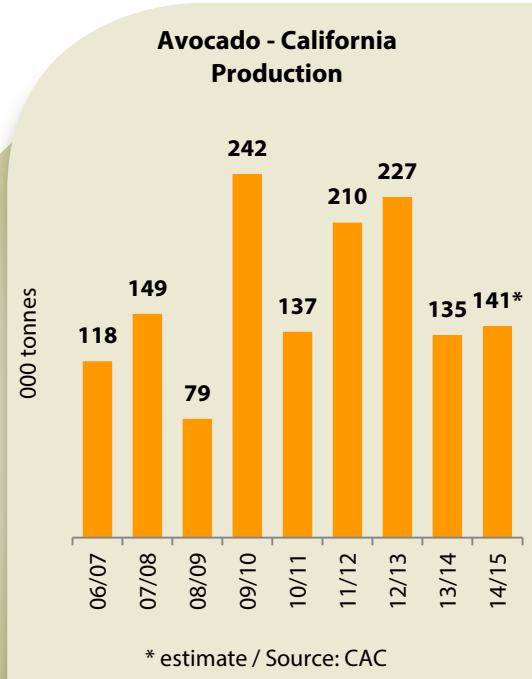
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US market once again very much open to Peru

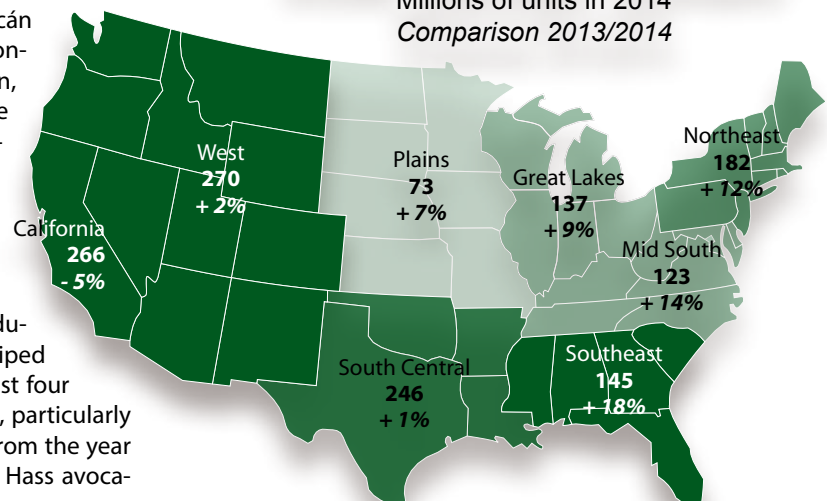
The 2014 season was a learning experience, both for Peruvian exporters and for their US import partners. Contrary to what the surge in volumes would lead us to believe, the economic performance was lukewarm, or even poor for certain operators because of issues of volume management, which need to be reviewed. Nonetheless, Peruvian exporters are set on continuing to work this market, and the credit of the Peruvian Hass remains good. Furthermore, the context should be favourable for sending a good level of volumes again this season, as predicted by ProHass. True, Mexico should be more present than in 2014. On the one hand, incoming shipments from Michoacán should retain their momentum of previous months, and maintain a higher level than last season, at least until mid-May. On the other hand, the export approval to the United States just obtained by Jalisco should also reinforce the Mexican supply from June (see inset). However, the Californian harvest seems to be almost as lean as in 2014 (approximately 140 000 t as opposed to 210 000 to 240 000 t in the past few seasons of full production). The positive pendulum effects on production were completely wiped out by the drought which has set in for the past four seasons, and which seems to be getting worse, particularly in the central valley. In addition, the statistics from the year 2014 show that the American appetite for the Hass avoca-

do is continuing to grow: according to the HAB, the United States consumed 10 % more than in 2013, i.e. an additional 80 000 t. By way of comparison, these volumes represent double the annual consumption of Canada, the world number four market. The stabilisation of the leading markets (California, other Western States) is being confirmed, though the still under-consuming zones of the East Coast and the Mid-South remain just as dynamic. Note that the import ban measure taken against avocados from the Dominican Republic will have only a minor positive effect (only approximately 2 500 t of Hass out of the 15 000 t exported over a calendar running mainly from September to February).

Avocado - United States - Consumption

Millions of units in 2014

Comparison 2013/2014



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Chilean, Japanese and Chinese markets now within the reach of Peruvian exporters

The hypothesis of bigger Peruvian Hass shipments to diversification markets is particularly plausible. The new export approvals obtained in the past few months have helped expand the customer portfolio to high-potential countries. This is obviously the case with neighbouring Chile, whose 18 million inhabitants consume nearly 100 000 t of locally produced Hass, yet hitherto did not have access to a counter-season supply. It is also probably the case with Japan, the world number three market in terms of consumption. It remains to be seen whether the logistical hurdle can be overcome, since there is a long transport time in the absence of a direct sea link, with the obligatory transshipment in Mexico very costly in terms of time. The prospects on the small Chinese market appear limited, at least for the moment.

Avocado - Estimated volumes placed on various markets (local production + import)



Mexico on the move!

The news from the world's leading avocado producer has been particularly action-packed in recent months. On the good news side, Jalisco will finally open the export door to the United States. The official announcement should arrive toward the end of April. Although the 100 000 t harvested annually is a long way from equalling the one million tonnes from neighbouring Michoacán, this State is nonetheless among the big global Hass producers, and major developments should be expected over the coming years. On the one hand, the majority of the 15 000 ha cultivation area comprises young trees. On the other hand, the productivity is considerably above the Mexican average thanks to the use of highly advanced cultivation techniques (very widespread use of irrigation, etc.), which also very positively affect the quality standards of the fruits. The relative earliness of production is another asset for export. The cultivation area largely comprises the Mendez selection, the harvest of which can start from June in the warm valley zones. The investments made by big names in the world avocado industry such as Calavo, which is building a packing station, are showing the strong strategic interest of this State. Another good piece of news: Mexico should probably record its biggest ever export season in 2014-15. Though there are still four months of the campaign remaining, shipment figures



established in late March already exceeded 500 000 t, registering a rise of more than 30 % from last season. At this tempo, total Mexican exports could very well reach or even exceed 700 000 t this season. Yet there is also bad news, which seems to herald a less bright campaign in 2015-16: 10 000 ha were affected by heavy hail storms in West Mexico, with 3 000 ha in the Tancitaro region severely affected. Production losses for the season to come are estimated at between 70 000 and 100 000 t. It is above all "flor aventajada" fruits, the harvest of which runs from September to October, which were affected (few losses among the 2014-15 campaign fruits still to be harvested, or among the 2015-16 season "flor loca" fruits).



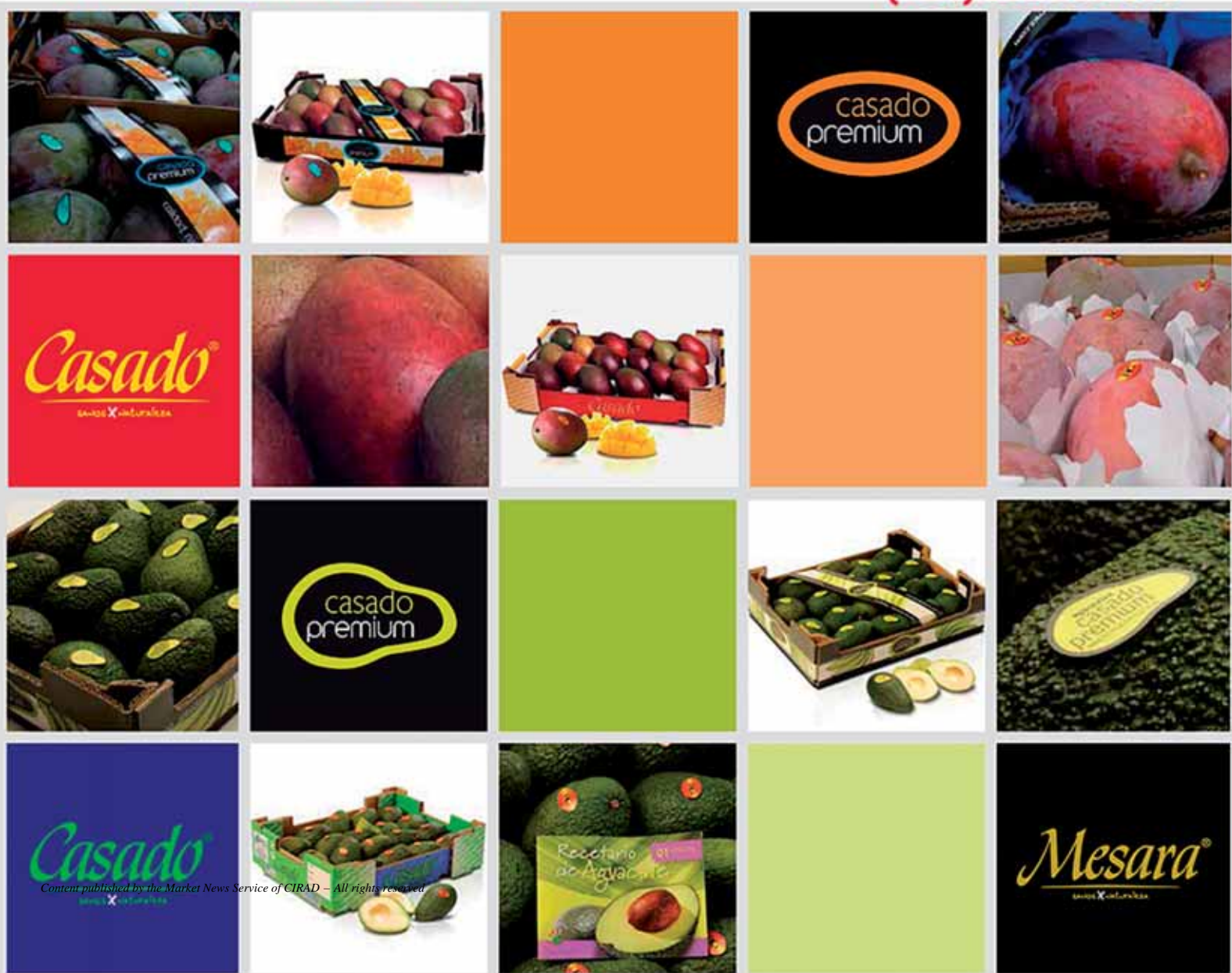
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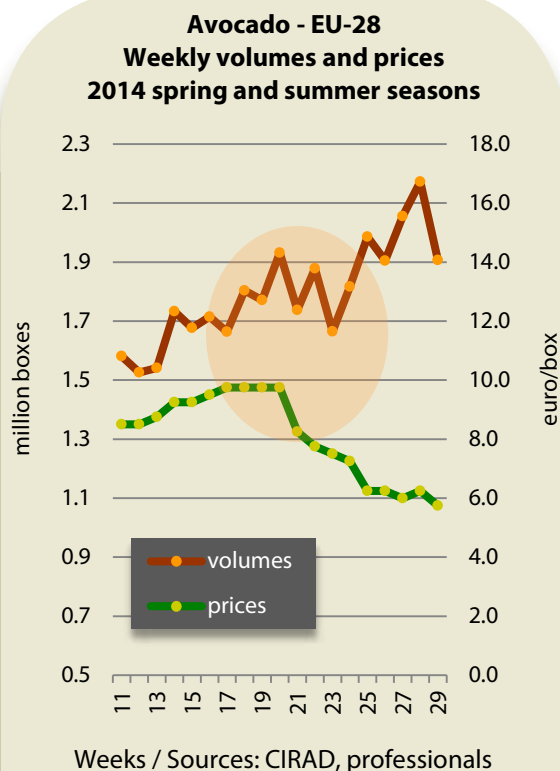


Getting off on the right foot...

If we summarise the information collected from this overview of the supplier countries and the world's big markets, it appears that the supply level to the European market should not be much different from the 180 000 t in 2014. There are big volumes, but they are manageable in view of the European consumption dynamic, which is ready to show itself.

However, some pitfalls are still to be avoided to ensure that the average campaign price is not as disappointing as in 2014. On the one hand, the season get off to a good start. To this end, the import sector must get the product back into consumption after a long market lull, due to the scarcity of supply throughout the latter part of the winter season. Prices, which should maintain very high or even historic levels throughout April, must be progressively adjusted before the influx of the first big Peruvian volumes (probably toward mid-May this season).

Yet above all it is the export sector which needs to ensure that the season starts on the right foot, in a particularly perilous context of highly attractive prices at the beginning of the season. Compliance with the minimum maturity criteria needs to be more stringent. It still posed problems for an increasingly small though still significant proportion of Peruvian exporters last season. This problem was lamented by certain European importers last year; and rightly so, since it is nothing less than the product's credit with the consumer which is in play, in a campaign when the expected volumes mean that a high sales tempo is a must from mid-May.



...and not going too quickly

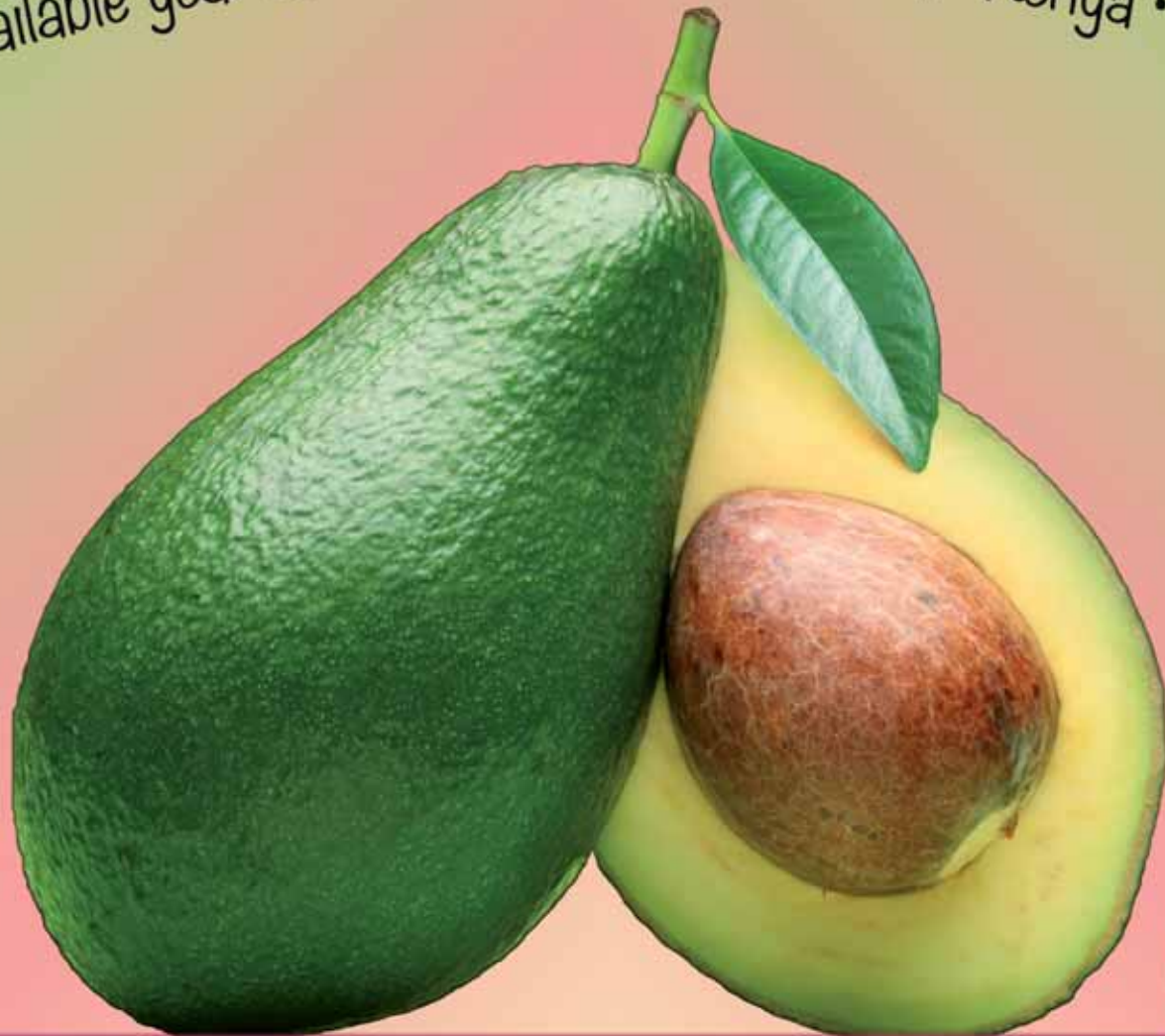
While the 2014 campaign demonstrated the growth capacity of the European market, it also clearly showed its limits. A crash-test season to some extent, providing certain lessons, which should not be overestimated because of the importance of the context (economic, meteorological or competition). The supply level of around 1.7 million boxes per week from early April to mid-May in 2014 had no negative impact on our price barometer, which registered in excess of 9 euros per box throughout the period. Conversely, the shift to a tempo of between 1.8 and 2.0 million boxes caused an abrupt and long-lived depression, with rates plummeting to a level of 5.25 to 6.25 euros/box for a long period of three months from early June to early September. To summarise, the additional volumes sold (barely more than one million boxes!) during the short 5 to 6-week period when the supply exceeded 1.7 million boxes, appears to have resulted in a shortfall of 3.25 euros per box for twelve weeks of sales (i.e. nearly 70 million euros). This big miscalculation demonstrates the need not to exceed the absorption capacities of the market, making optimum use of the market management information available.



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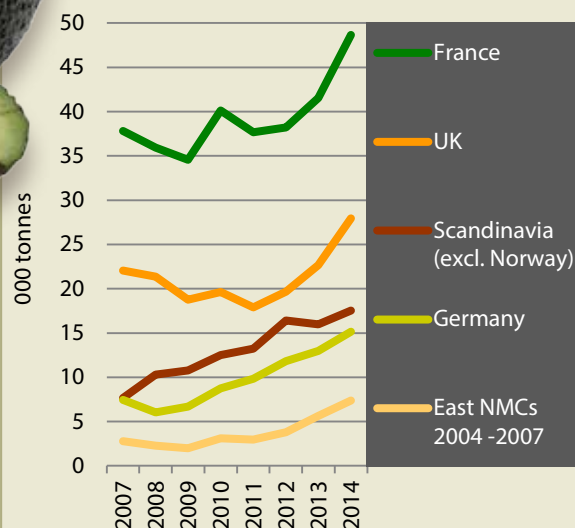


A safety net against over-supply this season?

While the overall supply level should be as high as last season, the risks of oversupply should be perhaps a bit more limited. On the one hand, the tension around the Peruvian volumes this season is a safeguard. A communicating vessels effect to the US market will be sure to come into play in the case of price failure in Europe. Nonetheless, given the transport times and floating volumes, it could take a few costly weeks to raise prices. On the other hand, the period from early July is probably less risky than in 2014. In its supply projections to the US market, the HAB is currently reckoning on an early and abrupt fall in Californian volumes, which are nearly one month ahead of where they were in 2014. In this context, Peruvian exporters could focus more heavily on the United States from mid-June, which could herald smaller volumes in Europe in early July.



Avocado - Europe
Apparent consumption
(from May to October)



Source: Eurostat

Winning over new consumers in Europe: a medium-term priority

It is a shame that the budgets allocated to avocado promotion in Europe have been so restricted again this year. No promotion actions will be undertaken by South Africa. As for Peru, ProHass will reduce sail, concentrating on Germany and the United Kingdom and rejecting France, a fine

Avocado — Europe
Consumption estimate

	Population (millions)	Summer 2014 (g/capita)	2014 (g/capita)
Scandinavia	24.5	929	1 910
Denmark	5.4	1 005	1 980
Sweden	9.1	1 008	2 127
Norway	4.7	1 115	2 233
Finland	5.3	553	1 181
France	63.4	767	1 585
United Kingdom	60.8	460	832
Germany	82.3	184	377
Eastern Europe	102.2	72	154

Source: Eurostat

Avocado — Apparent consumption on main European markets (from May to October*)

tonnes	2007	2008	2009	2010	2011	2012	2013	2014	2014/2013	2014/2007-08 average
Germany	7 446	6 029	6 689	8 748	9 816	11 819	12 989	15 129	+ 16 %	+ 125 %
Scandinavia*	7 649	10 285	10 768	12 520	13 241	16 421	15 971	17 527	+ 10 %	+ 95 %
France	37 803	35 942	34 545	40 131	37 659	38 205	41 525	48 639	+ 17 %	+ 32 %
United Kingdom	22 033	21 377	18 771	19 631	17 889	19 654	22 647	27 940	+ 23 %	+ 29 %
Eastern NMCs 2004-2007	2 801	2 289	1 984	3 097	2 965	3 808	5 644	7 358	+ 30 %	+ 189 %
Total	77 732	75 922	72 757	84 128	81 570	89 906	98 776	116 593	+ 18 %	+ 52 %

* including most of the Customs declarations for the South African, Peruvian and Kenyan volumes / ** excluding Norway / Source: Eurostat

European consumption during the 2014 summer season: big players getting ever bigger!

The big European markets are a long way from sated, according to the analysis of avocado consumption trends in Europe during the summer period. France, the leading consumption centre on the continent, once again in 2014 showed its ability to absorb big additional volumes. The quantities sold in the country from early May to late September went up by more than 7 000 tonnes; which was by far the finest performance in Europe! Thanks to this rise and a good dynamic too during the winter period, the French market exceeded the symbolic 100 000-t consumption threshold during the year 2014, i.e. one third of the total quantities on the Community market.

The United Kingdom, which is the second biggest market in the EU-28, recorded the second best performance of this 2014 summer season, up by more than 5 000 t.

Conversely, the performance of Scandinavia, which is next in the rankings, was a bit disappointing. The loss of the growth dynamic sensed between 2012 and 2013 was confirmed. The blame lies with Sweden, where consumption went down during the 2014 summer season, with the record for this country for the year 2014 ending in the same state as in 2013. Does the 2.1 kg consumed per year per capita mark the maximum that we might expect on the Community market? All the other countries in this northern part of the continent (including Norway) continued to rise.

Germany confirmed its growing interest in the avocado. The number four Community market recorded the 4th strongest rise during the summer period, growing by more than 2 000 t. Volumes of green varieties, freed up by the growing appetite of the West European countries for Hass, enabled a fine new rise in consumption in the East of the Community (+ 2 500 t during the 2014 summer season). The combined annual consumption of the eight countries in this zone which joined the EU in 2004 neared the 16 000-t mark, a far from negligible volume.

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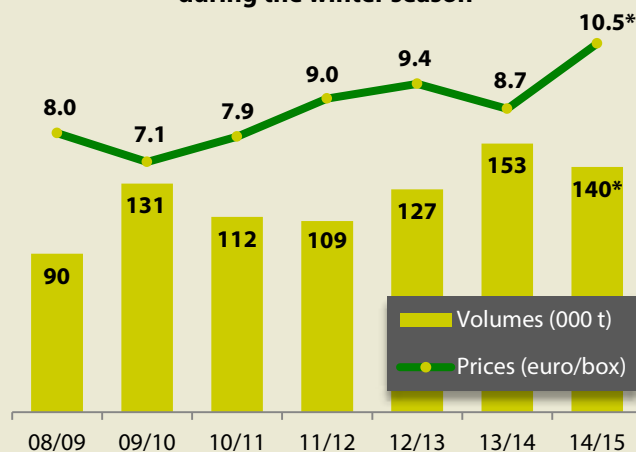
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casting error if we go by the consumption dynamic in France for the past few campaigns. By way of comparison, the parafiscal tax system in place in the United States has enabled 43 million USD to be redistributed for promotion of the product in 2014. However, it is important to expand the avocado consumer base in Europe, since the supply to the European market should be much greater from 2016. Not to mention the steady rise in South African volumes, the boom in Peruvian volumes expected over the coming years will be greater than predicted. According to the latest statistics available, the Hass cultivation area has expanded by at least 10 000 ha over the past five years, and should now reach between 22 500 and 24 000 ha, depending on the sources. So even bigger additional surface areas than over the past few campaigns will come into production in the medium term, while the young orchards are a long way from reaching their prime. This might change the structure of the market, and not only during the counter-season campaign! The rise in Peruvian volumes should be particularly perceptible at the start of the season, a significant proportion of these additional surface areas having been set up in the irrigated area of Olmos, where the harvest can begin from March ■

Eric Imbert, CIRAD
eric.imbert@cirad.fr

Avocado - European market during the winter season



* estimate / Sources: CIRAD, Customs

Initial review of the 2014-15 winter campaign: Fabergé eggs in 4-kg boxes!

The professional figures enable us to draw an initial provisional review of the 2014-15 winter campaign. As predicted, the supply saw a considerable downturn, estimated at approximately 10 % from the record 2013-14 season. Nonetheless it was certainly not light, with the 140 000 t received from the four main suppliers to the market earning its second place in the ranking. Israel and Spain shipped very similar volumes to last season to the Old Continent. Conversely, Chile saw a major shortfall, although the trade-offs made by exporters from this country were more favourable to Europe than predicted, to the detriment of the United States. The fall in shipments to the Old Continent appears to be approximately 10 000 t, as opposed to 50 000 t for the United States! Mexico returned in a bigger way to the Community market, with shipments exceeding for the first time since 2008-09 the symbolic 10 000-t mark, volumes which nonetheless represent no more than a drop in the ocean of total national Hass exports, which should beat a new record this season, probably approaching 700 000 t. The economic result is particularly satisfactory. Our estimate of the average campaign price exceeded the symbolic 10 euros/box mark for the first time. The rise, probably of more than 20 % from last season, is much greater than the magnitude of the shortfall. This says a lot about the growing appetite of European consumers for the avocado!

Avocado — EU-28 — Main supplier countries during the winter season

tonnes	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15*
Total	101 050	108 383	97 508	136 739	99 623	90 480	130 651	111 587	109 264	127 334	153 405	140 000
Chile	4 046	11 532	17 801	40 379	25 692	15 832	51 383	25 244	32 637	41 074	62 968	45 000
Israel	25 299	50 481	26 538	55 931	25 936	30 071	38 522	38 512	40 448	35 175	42 844	42 500
Spain	53 000	29 854	32 400	30 140	35 300	32 930	31 420	44 460	33 270	42 000	41 300	42 000
Mexico	18 705	16 516	20 769	10 289	12 695	11 647	9 326	3 371	2 909	9 085	6 293	10 500

* estimate / Sources: Customs, professionals

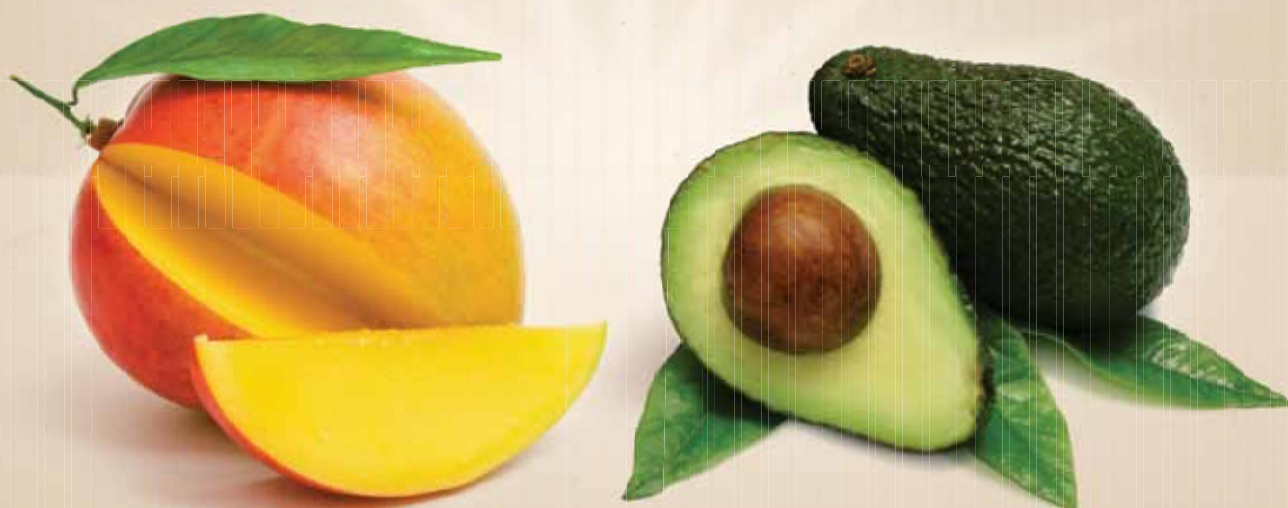
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A report by
Denis Loeillet

Banana

Banana

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the banana**

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World banana market

Currency parity having an effect

The phenomenon has been wished into becoming a major force. Unsurprisingly, it is the subject of discussions at both bar counters and bank counters. There are the believers who think that it will change things, there are the sceptics who see it as nothing more than a fleeting trend, and there are the cautious who are analysing and devising plans... The event does not leave anyone indifferent. As you will all have recognised, this subject on everyone's lips is the drastic and ongoing fall in euro/dollar parity.



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First, let's reiterate the facts. The euro has come undone against the US dollar, losing a quarter of its value between May 2014 (high point 1.3923 on 8 May) and March 2015 (low point 1.0493 on 16 March). This of course has caused a massive shockwave in the banana sector (18 million tonnes), focused entirely as it is on the international market. For a country like Ecuador, the world's number one banana supplier, whose economy has been dollarized since 2000, there has been a clear and massive impact. Potentially, the revenue from its sales on the euro markets has been devalued in proportion to the fall in the European currency against the dollar. For each euro sold, an operator now receives just 1.08 USD (mid-April), as opposed to nearly 1.40 USD one year previously. Conversely, invoicing in dollars, e.g. when they sell to the United States, enables them to automatically increase their purchasing power in terms of goods invoiced in euros. That is the theory anyway; now let's look at the practice, since transactions on the international market are not as simple as that.



A little lesson in complexity...

As we can clearly see in the Ecuadorian example, talking about the exchange rate is never easy. Yet in the case of Ecuador, we might assume it is relatively simple, at least on the surface. As we remarked, its economy is dollarized. The analysis becomes much more complex if we take into account the situation of the other world suppliers, whether they are in the economic sphere of the dollar (Colombia, Costa Rica, Panama, Guatemala, etc.) or the euro (Cameroon, Côte d'Ivoire, etc.). At this point we add an element to the equation, already difficult enough to understand, which is the national currency of the exporting country, and of course its relative variation against the euro and US dollar; since we must refrain from taking shortcuts in this type of matter. The proof of this is that while the fall in the euro is not to the liking of Costa Rica (or Ecuador), it is a godsend for Colombia, and even more so for Ghana. For these countries, the revenue drawn from sales of their bananas in the Eurozone has increased automatically thanks to the fall in the euro.

Confused enough as it is, the situation is further muddled if go into detail, wherein the devil lies hidden. Since the demonstration above only applies if the cost structure of the industry in question is 100 % dependent on the local currency (the peso for Colombia), and if the Colombian operators invoice in euros for all their merchandise sold in Europe.

Taking into account that these two conditions are practically never met, we gain a better understanding that this type of approximation distorts the reading of the effects of exchange rate variation. Since to put it simplistically, a box of bananas ultimately represents just a few kilograms of carbohydrates and a few hundred grams of cardboard and plastic produced from oil. Producing a kilo of bananas, and transporting to the other side of the globe, is just a matter of transporting a few litres of processed oil



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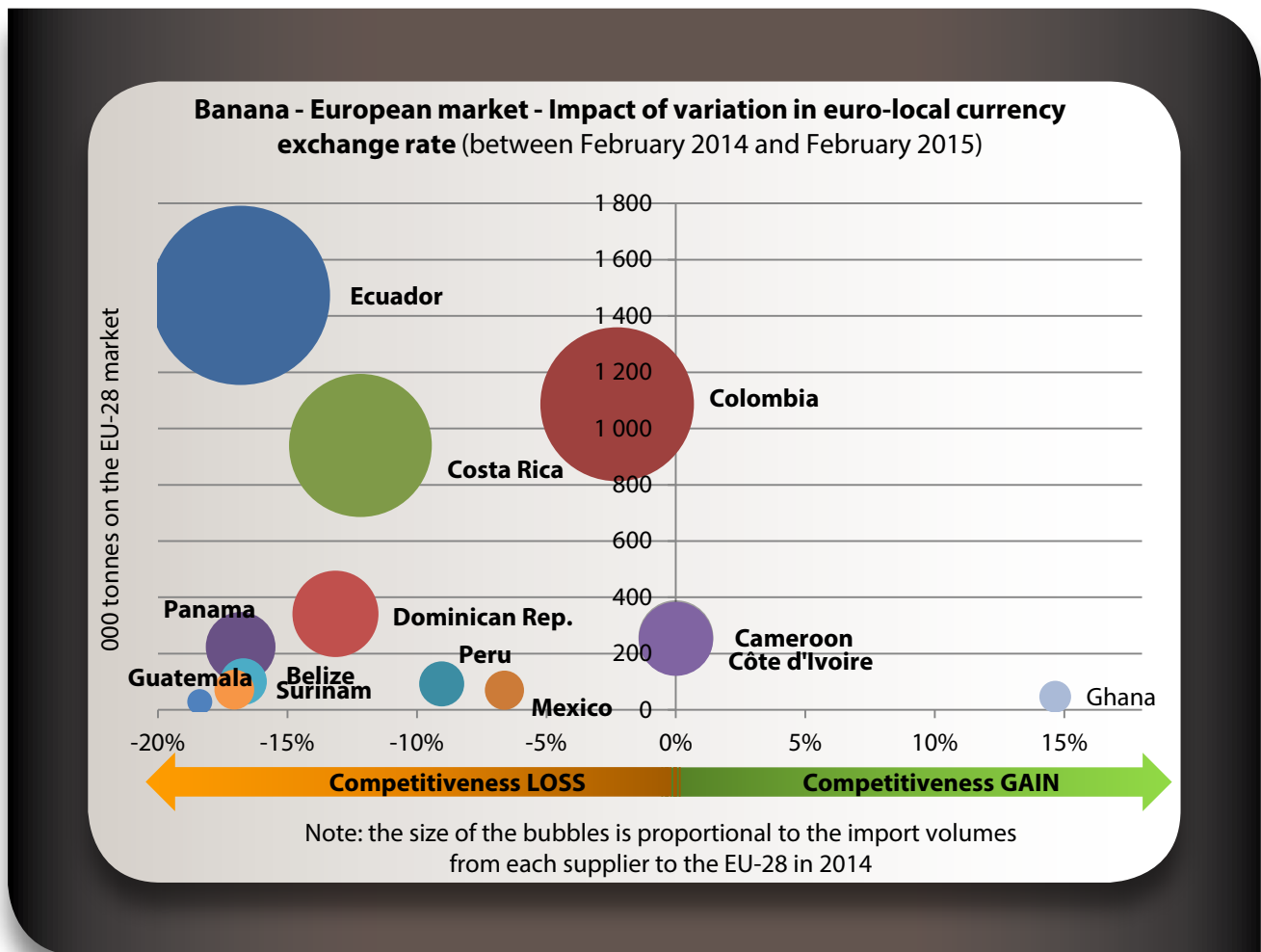
and water. By which we mean that in the cost structure of a kilo of Colombian or Ghanaian bananas, a very small proportion is dependent on the peso or cedi, and a much larger proportion is dependent on the US dollar. Ditto for Côte d'Ivoire or Cameroon, although these two economies are under the influence of the euro, via use of the CFA franc. Since most of their costs are actually dollarized, primarily energy, transport, amendments or supplies of all kinds.

This takes us to the core of globalisation, indeed the banana is one of its most effective indicators. What we can say is that at least industry employee wage and welfare costs in the country (agricultural labourers, road hauliers, dockers, etc.) are expenses expressed in the national currency. Yet this is not the case with all wages - a large part of the top-level management are most often paid in dollars or euros. The status of agricultural inputs or supplies (cardboard or plastic, for example) varies between countries and their level of development. We might imagine, for example, that a prosperous and highly diversified economy, such as Colombia, would create

more added value locally than an economy which imports a large part of its intermediate consumption. Yet outsourcing certain costs abroad through tax optimisation avoids taxation in the country of origin, a practice that the general public is now discovering, but which is the norm worldwide in many sectors, and has been for decades.

Beware the reversibility of the phenomena

So it is hard to have a clear view of the gains or losses in competitiveness associated with the abrupt variation in exchange rates. The graph below is an attempt to clarify the debate. It illustrates the variation of the exchange rate of the US dollar in national currency, between February 2014 and February 2015, for the main suppliers to the US and EU markets. The size of the bubbles is proportional to the import market share of each source in 2014 (excluding Community production). We are working on the condition



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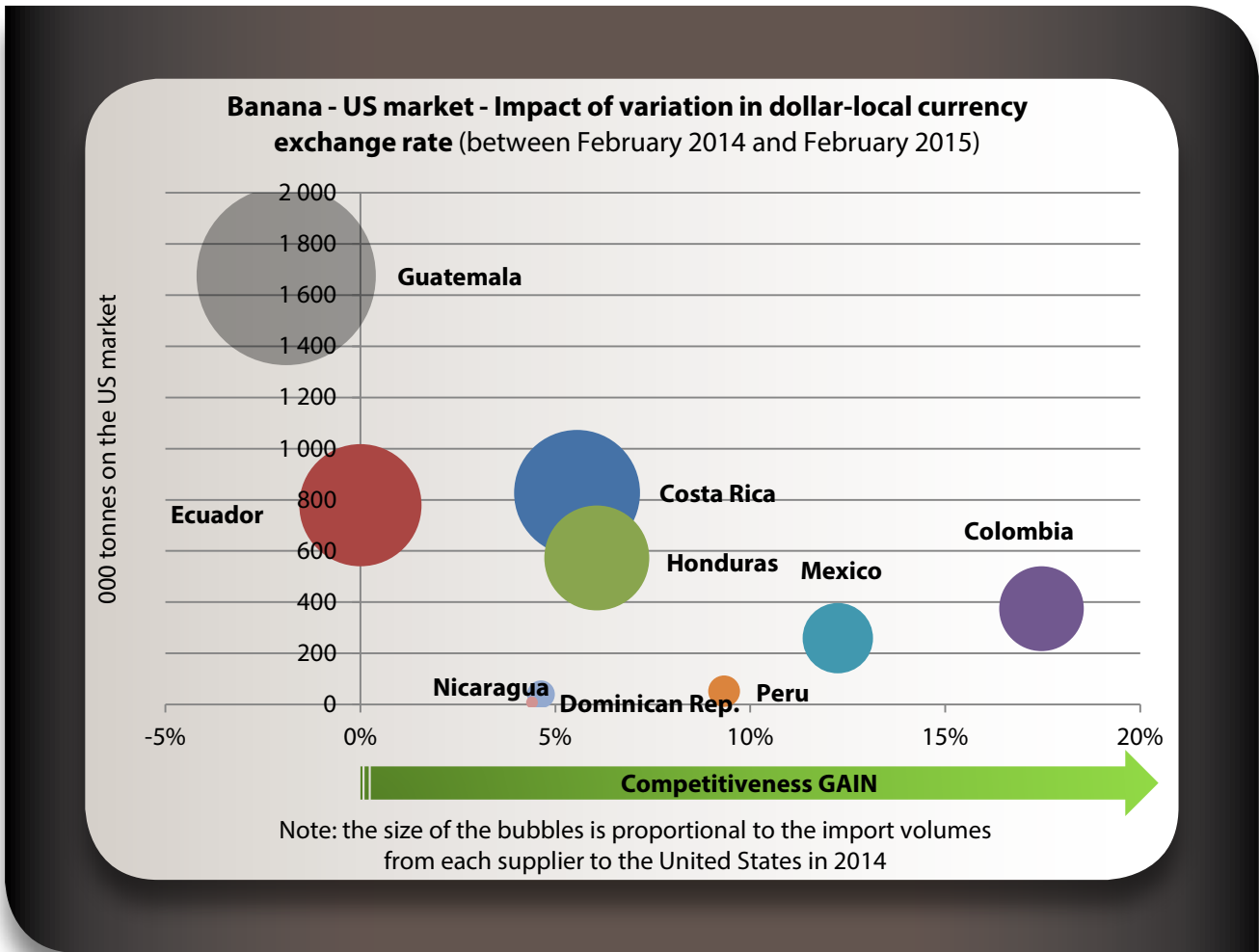


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of “all other things being equal”, assuming that the sale price and production cost were stable between these two dates. This is clearly not the case, but this condition enables us to isolate for analysis purposes the effect of certain variables, while fixing others. In this case currency parity is isolated from the other variations. Finally, for simplification purposes and for the EU alone, only the euro will be factored into our analyses, which is simplistic because other currencies, particularly the pound sterling, are behaving differently against the dollar.

For the United States, we can clearly see Colombia emerging as the big winning source from the changes in currency parity. At constant scope in terms of volume, its revenue increased by 17 % in one year. On the other side of the board, Guatemala (market share 36 %) saw its revenue slump by 2 %. Its currency, the quetzal, appreciated against the US dollar. Besides Guatemala, which lost out, and Ecuador which stabilised its revenue due to the dollarization of its economy, all the other sources benefitted from the depreciation of their currencies against the dollar.



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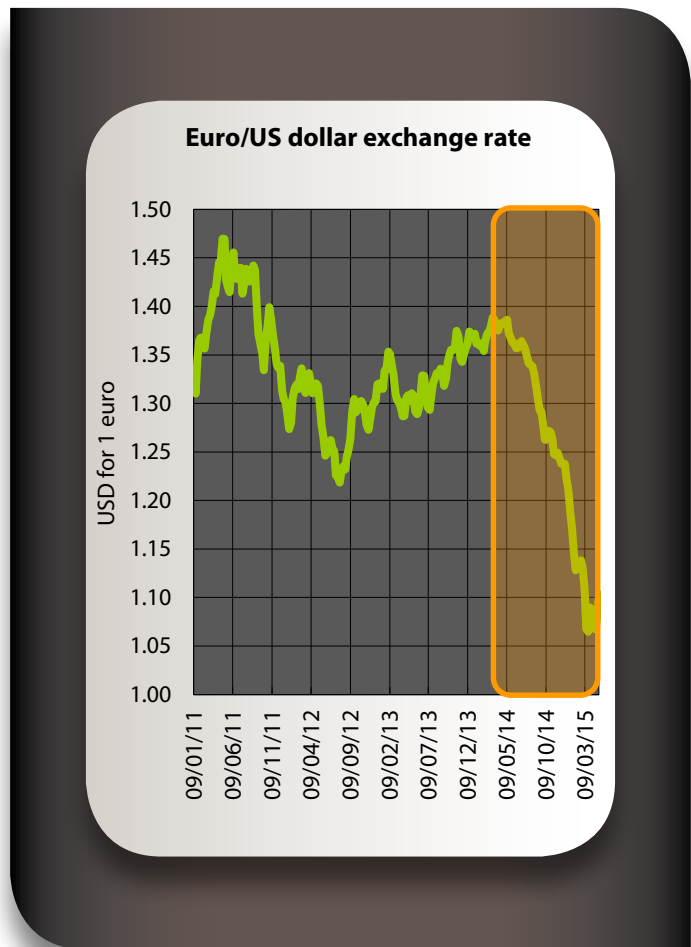
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Côte d'Ivoire

The situation is exactly the reverse for Eurozone suppliers. If we assume that the merchandise arriving in the EU-28 is invoiced entirely in euros (a rough hypothesis to say the least, as explained above), practically all the sources saw their revenue in national currency fall, sometimes even in severe proportions. The most affected were Ecuador, Guatemala, Panama, Belize and Surinam, with a 13 to 18 % loss in competitiveness due to the exchange rate. The Dominican Republic or Costa Rica are not much better off, with a potential loss of 13 and 12 % respectively. The West African sources (Cameroon and Côte d'Ivoire), whose national currency is the CFA franc, in parity with the euro, of course did not see any variation in revenue. Conversely, Ghana earned 15 % more in local currency, the new cedi. Once again, these are potential gains and losses, and are very heavily dependent on the dollar content of their exports and on the currency in which the sale contracts are expressed.

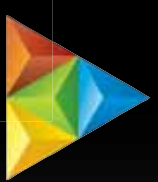
The fact remains that this analysis demonstrates the powerful effects of the changes in exchange rate on the relative competitiveness of sources, in the knowledge that these changes may be sudden, within a matter of only months. Hence we must bear in mind that the phenomenon is reversible. And finally, on a serious note, the analysis must focus closely on the cost structures, and not be conducted on a case-by-case basis. In short, the law is a long way from holding that when the euro weakens, all the sources see their costs increase proportionately.



Price increases: obscuring the big picture

This period of great variation in euro/dollar parity had a major consequence on the market price level, especially in Europe. Since the start of the year, the price has increased steeply, even accelerating in early April. The CIRAD barometer, which evaluates the green banana price in the EU-28, exceeded the 16 euros/box mark in week 13. We need to go back to 2012 to see rates reach such levels at this time of year. The other highlight that sticks in the memory is the rise in the notorious Aldi contracts, one of the biggest German discount supermarkets. These contracts set the tempo for the European green banana market. After weeks of conjecture, they have reportedly been increased by at least 1.5 euro per box, thereby raising the contract price to between 15.25 and 15.75 euros/box, i.e. an average increase of 13 %. Yet, and this is doubtless the outstanding point in the matter, Aldi apparently fixed its prices until the end of 2015, instead of the usual 3 to 4 months! This is unprecedented since the German discounter became the market benchmark. It sends a loud and clear signal: a big distributor has made a 9-month advance commitment, and what is more, to a steeply rising price. Now that we are past the surprise, let's go back to the basics and check that the increase, though substantial, does at least cover the increased costs due

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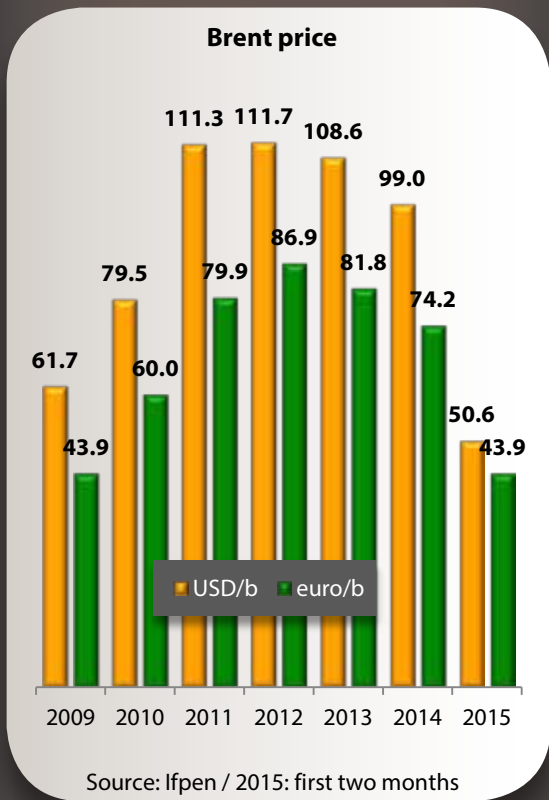
to the collapse of the euro on the exchange market. Well, after the wonderful surprise comes a great depression! Since the inescapable conclusion is that between April 2014 and April 2015, the "Aldi" price did increase by around 7 % in euros, but dropped 15 % in dollars.

We would expect the cost price to decrease proportionately, thanks in particular to the falling energy prices. Yet once more we fall into the inextricable tangle of the exchange markets and commodities markets such as oil, and of the time required for a fall in oil price to be passed onto the price of inputs manufactured from oil. What we can be sure of is that the oil price is falling more rapidly in US dollars than in euros, and much quicker than the euro against the dollar. According to IFPEN, in early 2015 (16 February), the price of oil (Brent) was 50.6 USD/b and 43.9 euros/b, i.e. down 49 and 41 % respectively from 2014. Over the same period, the euro (at 1.15 USD) lost only 13 %. So we should logically see a steep fall in the cost price of the banana. Unless we consider that the transporters and manufacturers of fertilisers, plastics, boxes, phytopharmaceutical products, etc. are taking their time in revising the sale price of their products and services downward. Indeed, many of them could be taking advantage of their oligopolistic, or even monopolistic, position to slow down or eliminate the effect of this major competitiveness lever.



A very convenient expiatory victim: customs duty

So the equation, though complex, is set up: is the value gain in import prices into Europe sufficient to offset the fall in revenue of the intermediate links? Does the big decrease in energy prices affect the cost price of the product, and if so, which link benefits from this redistribution? We are eagerly awaiting the revision of the minimum price in Ecuador, to see which way the coin will fall. If the minimum price falls, the authorities will have to make their arguments properly, and avoid taking refuge behind the detail obscuring the big picture: the tumbling euro. Since although the fall in the euro is having some effect, it is also driving spot import prices into the USA upward, which will eventually have positive effects on the contract prices. The more value there is downstream and the further energy costs fall, the more wealth there is to redistribute at the production stage. Especially since the EU customs duty cost expressed in euros is falling in dollars. This argument, always put forward by Ecuadorian exporters, no longer has any foundation. Furthermore, the planned decreases in customs duty, plus in the case of Ecuador becoming part of a much more favourable customs regime (by the end of 2016?), are reinforcing the current benefits of the exchange rate.



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Very limited exchange rate coverage

It is stating the obvious to say that the exchange rate volatility for the past year has had a huge effect on the commercial positioning of companies, and ultimately on their profits. None of them can neglect a financial parameter which has varied by 10, 15 or 25 % in a matter of months. For decades, there have been tools to guard against exchange rate risks. FOREX, the platform on which long-term currency market operations are performed, is a tool able to very largely eliminate these exchange rate effects. Currencies are bought and sold long term, depending on the commercial requirements. Big companies are able to manage their risks via these tools. Small or medium-sized companies do not make much routine use these instruments, and if they do it is often for one-off purposes. According to the information gathered, while many reduced their risks in the first months of the US dollar's rise, very few now have sufficient exchange coverage. So the parity effect could be challenging for many companies in the sector.



**Banana - EU
Estimated supply
over a 12-month period**



Forecasts: betting now open

As Pierre Dac the famous French humourist said, forecasting is a difficult game, especially when it relates to the future. This applies to some extent to the changes in exchange rates or the price of a barrel of oil. However, we can offer the reader the consensus emerging from all the analysts. Most think that the currencies will continue to lose ground against the US dollar. The FED is further postponing the rise in US interest rates, though this is to give itself a bigger run-up. And even a modest increase in rates will push the dollar to new heights. The quantitative easing policy conducted by the ECB is also having the effect of keeping the euro under pressure. Remember that there is still some margin on its fall: the euro fell to 0.83 in October 2000. On the oil side, the forecast is a bit more uncertain due to the possible effect of the regional conflicts. Nonetheless, we can say that the consensus is settling around a Brent price of 65 USD/b for 2015, and of 70 USD/b for 2016 and 2017.



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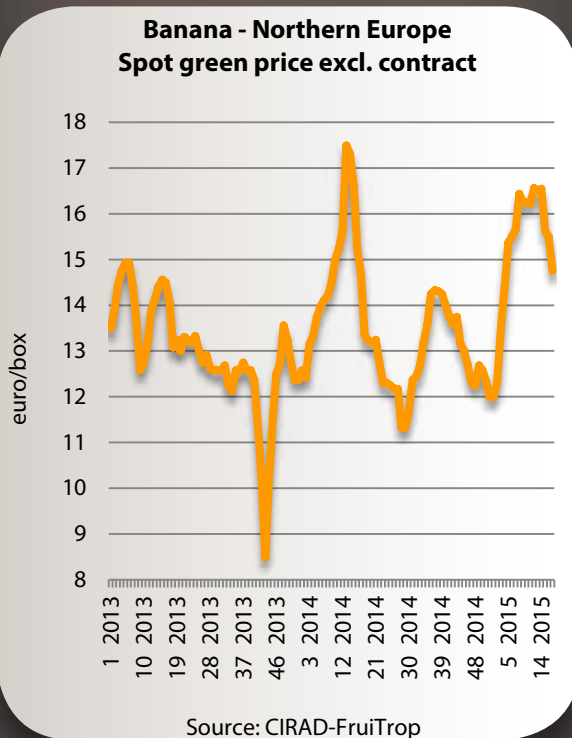
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Distribution: a victim of its own policy

On the distribution side, although different, the situation is just as exciting. Here, the euro/dollar parity, energy prices, US/EU trade-offs and customs duty no longer apply, since in-store, Eurozone customers pay in euros and are not covered on the long-term markets. They are purchasing bananas as never before (+ 546 000 tonnes in two years), in a movement which could well be a major trend. The crisis, which reduced the household purchasing power, and the European distribution sector, which offers highly attractive prices in absolute value, but also relative value in comparison to other fruits on the shelves, created this virtuous bubble of consumption. The consumers became hooked, and in turn they have hooked the distributors, sending non-contract market prices soaring (non-contract graphs).

Large volumes are required. Prices take off as soon as the supply takes on any significance, for classic reasons to do with climate vagaries or for extra-market factors, such as abrupt changes in currency parity. In 2015 (January and February), the very first supply figures for the European market (- 2 %) and US market (- 4 %) confirm that these markets are shrinking slightly, not due to dwindling demand, but to a slightly smaller supply. If we add to this a hesitant start



to the seasonal fruit campaigns, it becomes clear that the supermarket sector is in some way a victim of its aggressive positioning policy for the banana supply on its shelves. Has the European supermarket sector become the junkie of the banana dealers? Not really, since the trade is neither fair nor honest, despite what the labels tend to make us believe. Importers and the furthest upstream links in the industry often define themselves as hostages, and they are a long way from developing a Stockholm syndrome toward their kidnapper, the supermarket sector, whose negotiating power is increasingly concentrated and powerful.

A contract only counts if it is adhered to

While the upstream end for now holds all the cards, we cannot rule out turnarounds in the situation; indeed they are certain to come! It remains to be seen how much time it will take. Power has, in part, changed hands.

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However, the situations are fluid and the balances precarious. A little more fruit, a slightly less intense El Niño, two fewer tornadoes, a persistent, nearly incongruous Harmattan in West Africa, an abundance of competing fruits, etc., and control of the market will switch sides. The distribution sector is setting slightly lower margins and certain upstream links in the industry are setting them much higher (distribution margin graph). That is the law of the market, and particularly the perishable products market. And that is fine! Supporters of a fully contractualised market, where prices and volumes would be determined in a single annual negotiation, definitely need to question their strategy. Spot or contract: both options are on the table. Choosing one or the other is a wager on the future, but one which depends just as heavily on the procurement and cost structure of each company. An operator with high fixed costs, plantations and ships to run, will prefer to manage their own business sensibly. They will not maximise their gains, but will seek to ensure a sufficient and comfortable margin.



Banana — Europe — Import and retail prices				
euro/box	2013	2014	Diff.	Diff. %
United Kingdom (£/box)				
Retail price Loose bananas	13.2	13.3	+ 0.08	+ 1 %
Retail price Prepacked bananas	21.8	20.7	- 1.10	- 5 %
Spain				
Retail price Canaries bananas	36.8	36.1	- 0.70	- 2 %
Retail price Other sources	24.6	23.5	- 1.13	- 5 %
Import price Super Extra Canaries bananas	18.1	17.1	- 0.95	- 5 %
Germany				
Retail price Traditional retail distribution	23.8	23.5	- 0.28	- 1 %
Retail price Discount stores	21.8	21.3	- 0.54	- 2 %
Import price	13.7	13.5	- 0.24	- 2 %
France				
Retail price	28.8	28.3	- 0.45	- 2 %
Retail price Special offer	25.6	24.1	- 1.46	- 6 %
Import price	12.6	12.5	- 0.12	- 1 %
Italy				
Retail price	34.3	32.2	- 2.06	- 6 %
Import price	12.9	13.5	- 0.63	+ 5 %
Czech Republic (CZK/box)				
Retail price	576.7	574.1	- 2.54	0 %
Reference EU Barometer (CIRAD)				
Import price	13.2	13.3	- 0.10	+ 1 %

Sources: TWMC, RNM, CIRAD

An intermediate, lighter in terms of capital and more focused on the downstream part of the sector, will have a natural tendency to take risks, because that is their job, even if it means losing sometimes. They will wager that the gains will always be greater than the losses. They will also observe that contracts are not always adhered to. Indeed, the imbalance in negotiating powers, always in favour of the downstream segment, in many cases weakens the terms of trade. This is not universally true, but it is something to take into account. In certain countries, entering into a contract appears to equate to setting an unbreakable glass ceiling in the event of a buoyant market. In fact, the renegotiating power of a supplier is virtually zero against a big distribution chain. Conversely, if the market came undone, a downward revision would potentially be within the distributor's power, by adjusting the guaranteed prices or volumes. The debate is not settled, but remains open, especially during these periods of great price variations. Furthermore, we may be shocked at seeing Aldi commit to a relatively high price and over such a long period. The ability to adhere to commitments when the market doubtless comes undone in spring 2015 will turn the contractualisation growth trend one way or another. Fruitrop will of course come back to this subject in the coming months.



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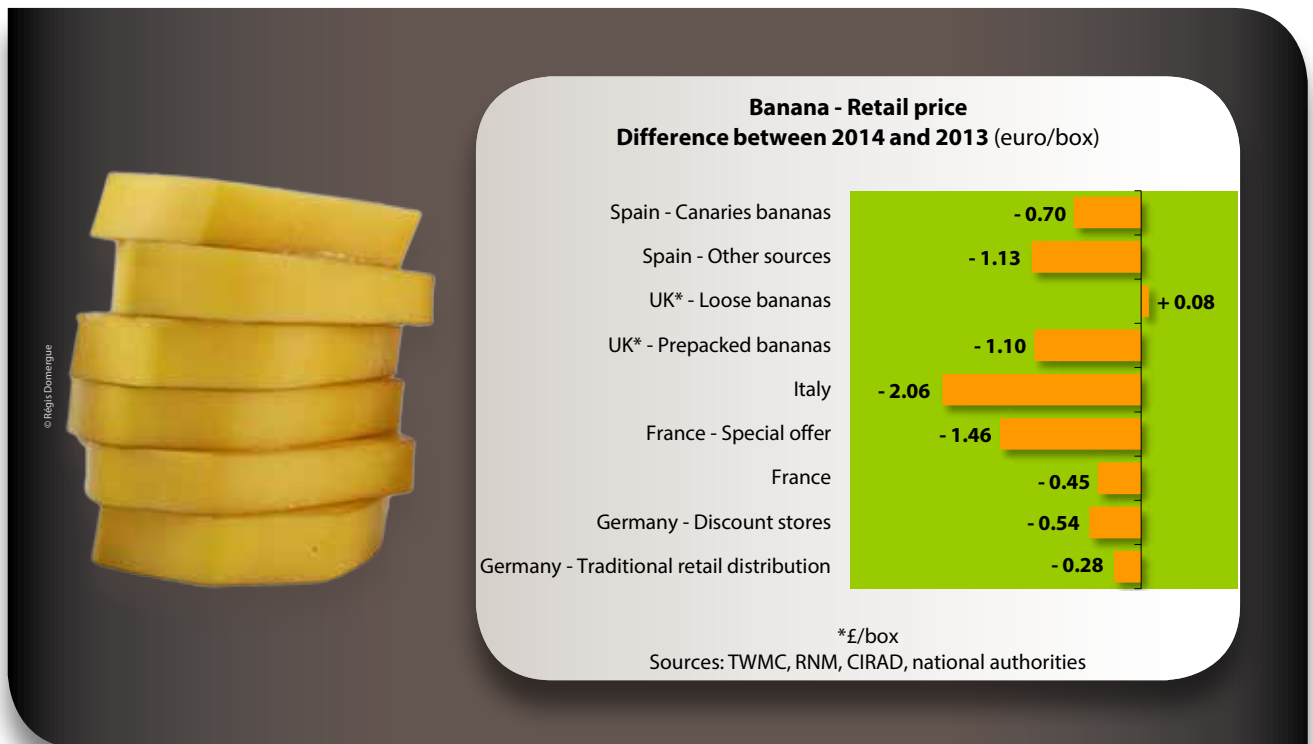
A permanent imbalance to whose benefit?

How should we conclude this article, having set out in search of the devil in the details and to show that things are much more complex than appearances would have us believe? Inveterate optimists might retain only the good news: consumption is increasing strongly, in a background trend, and retail prices remain appealing despite steeply rising import prices, etc. They might also believe that the situation is inalterable, that the market has reached a near-perfect equilibrium. In gambling theory, this type of perfect equilibrium, known as a Nash equilibrium, means that none of the players (in this case the distributors and their suppliers) has an interest in going it alone in deviating from the equilibrium achieved, which in the case of the banana, might seem optimum for all at the time. In other words, there is a perfect equilibrium if an economic player does not regret the choice they have made, after seeing the choices made by the others. Anticipation is self-fulfilling, and each player holds their position, favouring a sort of common good.

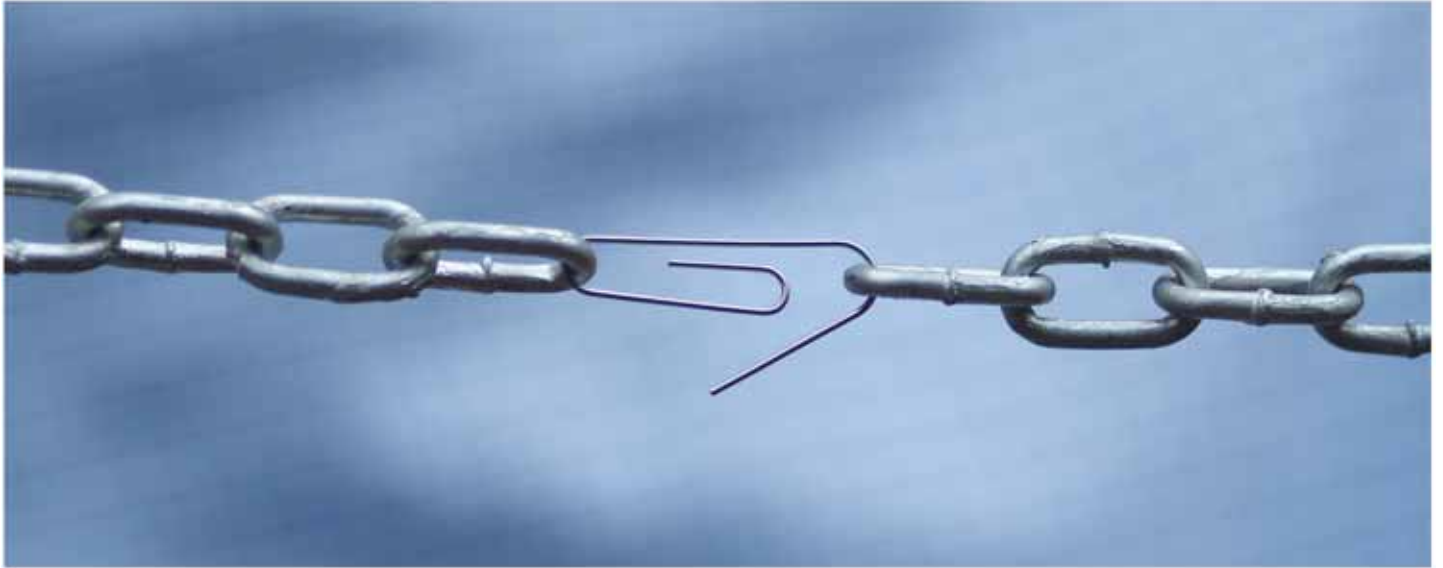
And this is the chink in the armour. The world banana market is being shaken by countless shocks, both internal and external, which are completely unforeseeable. In short, the information is incomplete since it is necessarily asymmetric between

the players, and above all the future is uncertain both in terms of supply and demand. Finally, we know only one thing about the certainties of today: they are highly fleeting. The players constantly regret their choices, and are continually seeking to fine-tune or change their strategy. And we need to recognise that not all commercial strategies are designed under the seal of strict rationality, or in any case that they do not all contribute to an ideal at a given time. In addition to no-one knowing what the banana ideal is, irrationality is in any case part of the DNA of commercial operators. Furthermore, they are not all there, to put it mildly, to manage an income, but to do better, much better, or vastly better than their competitor, no matter whether that is on the back of their supplier or their customer. They know that the wheel turns, and that at one time or another the joke will be on them. So the strategy of the players on this market is in permanent imbalance. The banana economy, just like any other sector, tilts around an equilibrium point. There are forces tending to move the system from its equilibrium point (crudely speaking the vagaries) and forces which tend to restore the system to equilibrium. In this model, contractualisation is one of these forces which ultimately seeks to reduce the uncertainty. The big question is, to whose benefit? ■

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Information... your weak link?



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

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

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

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

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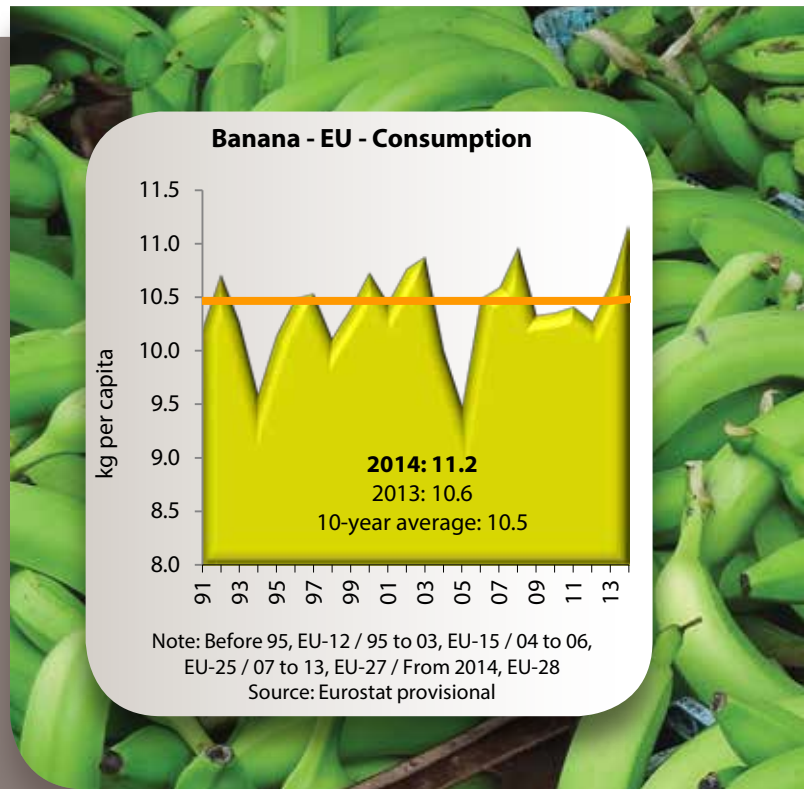
reefer trends

Consumption in the EU-28

An absolute record!

For an ageing market, without any energy or prospects, the corpse is doing rather well; it is still moving. As proof, European consumption just beat its absolute record in 2014: 11.2 kg per capita per year. And this is not just a symbolic annual increase, it is a clear and massive one. The average European actually consumed nearly 600 g more bananas between 2013 and 2014, and over 900 g more between 2012 and 2014. This is well outside the scope of statistical errors or unidentified banana flows. And because the EU has a population of more than 500 million, the volume concerned by this annual increase is 353 000 tonnes, and 546 000 t over two years, i.e. the equivalent of one year's worth of French consumption! The size of the European market is now 5.7 million tonnes, by far the world's number one market.

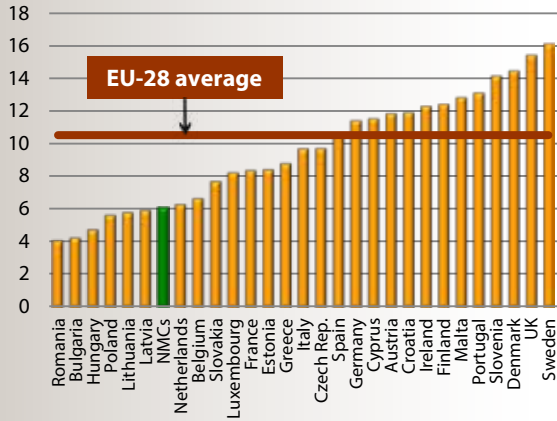
Taking a slightly more detailed look, let's try to identify where growth has been strongest, and where things have gone against this trend. But first, let's take a few terminological precautions. In fact, evaluating consumption for each Member State via customs data only (i.e. without surveys) is highly complex and very risky. While the figure for the EU-28 as a whole can be taken seriously, the same task for the various EU Member States is a trickier matter. There are two notorious biases. Transactions between Member States, once the imported merchandise is in free circulation, are sometimes not identified, or conversely lead to double counts. Furthermore, certain EU countries are not necessarily sticklers for customs procedures, especially since certain EU borders are less leaktight than others. Finally, Belgium provides a worrying case. Its inhabitants apparently consume just 3 kg of bananas per year, though from experience we know that it is definitely one of the highest-consuming countries. This is the main entry point



and hub effect of the European market greatly distorting the figures. That said, the analysis is interesting, particularly in terms of evolution. In an attempt to mitigate these difficulties, we have as every year provided the 2014 figures (bearing in mind all the stated difficulties) and a presentation of the data over the longer term, medium term and short term.

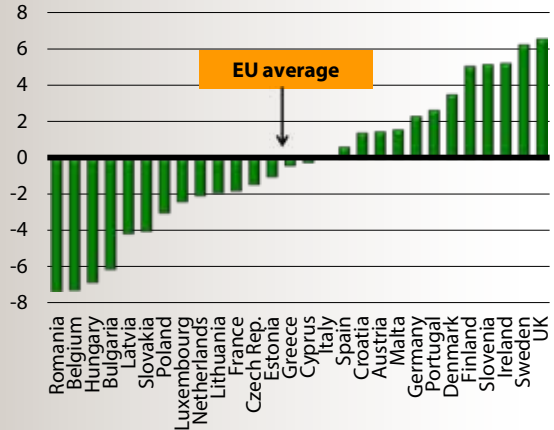
As for 2014, we can be very satisfied to see that consumption is growing practically across the board, especially in the most recent Member States, i.e. the East European countries, plus Malta. Only two of the five European producer countries went with the upward trend: Spain and Greece. France (see inset), Portugal and Cyprus dropped by 2 to 6 %. Finally, to end with the under-performances, we can mention the two European heavyweights, i.e. Germany, which saw its level stabilise, and the United Kingdom which dropped by 200 grams. These are the two most contractualised markets in Europe. Yet we should be aware that this is doubtless just a coincidence. Correlation does not imply a reason.

Banana - EU-28 - Consumption
 Estimate using a reduced average (40%)
 for the period 2005-2014 (kg/capita/year)



Note: the results are uncertain for some member countries
 Source: CIRAD-Fruitrop, experimental work

Banana - EU-28 - Consumption in 2014
 over and under-consuming member countries
 (kg/capita/year)



Note: the results are uncertain for some member countries
 Source: CIRAD-Fruitrop, experimental work



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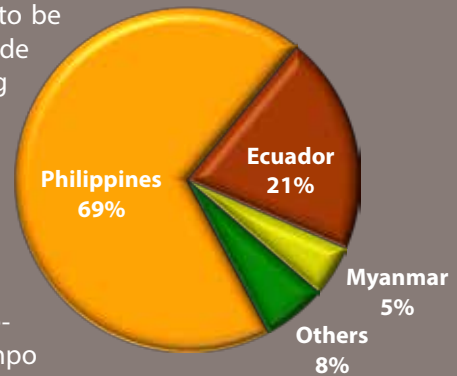


China An awakening giant?

The statistics have spoken. In 2014 for the first time, China exceed one million tonnes of imports; and by a wide margin, with 1.13 million tonnes. This involved a phenomenal rise, of + 119 %. Until this year, the Philippines was the sole source supplying the vast Chinese market. Ecuador broke the monopoly, multiplying its exports by a factor of more than eight, and thereby seizing a 21 % market share. The Philippines, practically doubling its volumes, remained the number one source with a 69 % market share, thereby beating its previous best level from 2011. With the full potential of the Philippines and Ecuador bursting onto the scene, the Chinese market seems to have woken up for good. In any event, Ecuador has found in China a new outlet. Since early 2015, it has exported on average 400 000 boxes per week. The very long transport time, of 35 to 43 days, does not seem to be slowing the dynamic for the moment. Furthermore, in light of trade agreements signed, the customs duty should fall in the coming years. It is currently at 10 %. However, we should beware of a turnaround, in which China is a specialist. Imports are at a high due to struggling local production. What will become of the Chinese banana miracle for Ecuador if "home-grown" fruit recovers?

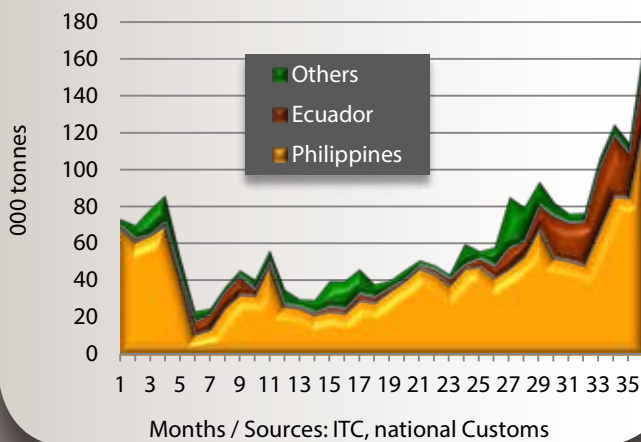
The monthly supply calendar shows how staggering the leap made in 2014 was. Whereas from May-June 2012, imports had remained relatively stable at around 40 000 tonnes/month, the tempo stepped up to 60 000 tonnes from January 2014, before ending up in December at 170 000 tonnes, i.e. four times more than an "ordinary" December, if such a word exists for this type of market.

**Banana - China
2014 imports**

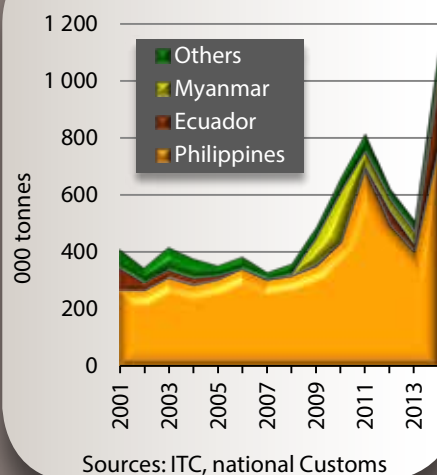


Sources: ITC, national Customs

**Banana - China - Monthly supply
from 2012 to 2014**



Banana - China - Imports





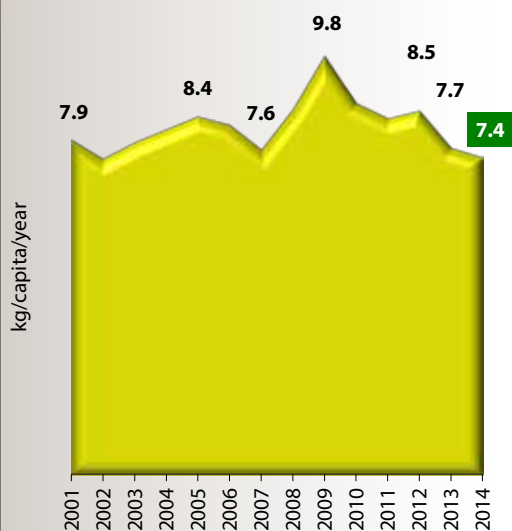
Japan

In the land of the setting sun

Japan is getting on better. In macroeconomic terms, the world's third biggest economy is getting back on track with an economic stimulation programme. The weakness of the yen is favouring exports. Internal consumption however is at half-mast. Household consumption dropped by 0.9 % in 2014, and the steep increase in VAT is not unrelated to this phenomenon. Like the economy, the Japanese banana market is also becalmed. Im-

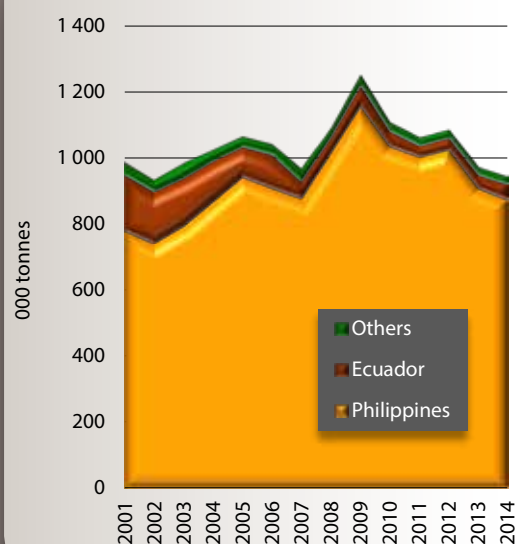
ports slumped by 3 %, back below the one million-tonne mark to 947 000 tonnes. The Philippines, which provides 90 % of Japanese consumption, scaled back its contribution by 4 %. Ecuador returned to this market with a vengeance, with just over 48 000 tonnes. Consumption per capita fell to 7.4 kg/year. We need to go back to 2002 to find such a low level.

Banana - Japan - Consumption



Sources: ITC, national Customs

Banana - Japan - Imports



Sources: ITC, national Customs



Russia

A market on a bad stretch

The Russian market is subject to a pendulum effect, of a year of shrinkage following a year of growth: and 2014 is an off year. Imports fell by 8 %, i.e. down by 106 000 tonnes. So the consumption reached in 2013 was not matched in 2014, and doubtless will not be in 2015 either. In Q1 2015, imports were down again, by around 6 %. This weakness reflects a crisis in demand affecting Russian consumption as a whole.

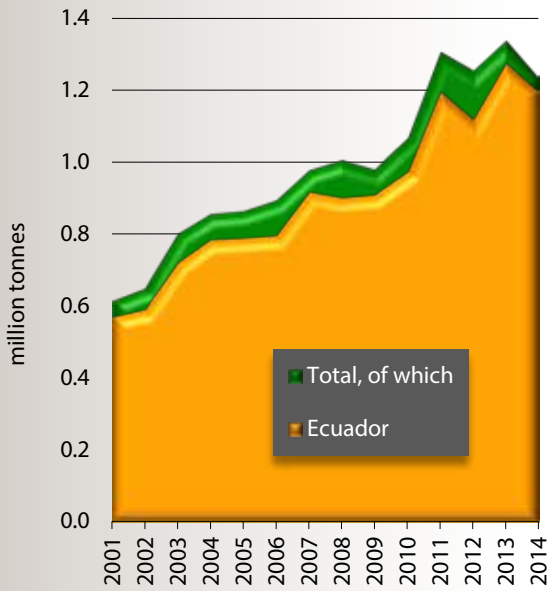
The collapse of the rouble against the US dollar has made the import prices of products such as the banana much more expensive. This currency crisis has been aggravated by a very serious economic crisis due to the fall in prices of energy, the country's main revenue, and to the trade isolation process implemented by Europe and the United States in light of the Russo-Ukrainian conflict. Since August 2014, Russia has decreed an embargo on European fruits and vegetables, leaving fears of stocks of apples piling up in the EU-28, and especially in Poland. This should have left the road wide open for alternative (non-European) apple and pear suppliers, and of course for banana suppliers such as Ecuador. Yet things did not turn out like that. In the end, consumption took a downward trend, which was mainly down to the rouble crisis. Between 2014 and 2015, the value per box of bananas imported into Russia (CIF St. Petersburg) went from 400 to 537 roubles! More recently, in February and March 2015, prices entered the danger zone, under the effects of a further deteriorating rouble

and an increasing global price: from 630 roubles per box in December 2014, they reached 1 136 roubles in March 2015.

It was impossible for this inflation not to affect the retail sector. However, until recently, retail prices of the main fruits consumed (banana, apple and orange) remained very reasonable (Fruitrop no.229, page 69). They even fell in 2014, in constant rouble terms, with the banana remaining the anti-crisis product par excellence at less than 55 roubles/kg, as opposed to 67 for the apple (2014 annual average). The situation changed from December 2014. Retail prices of fruits, and more particularly of the banana, increased suddenly, going from 52 to 96 roubles/kg in four months, simply passing on down the chain the unbridled increases in the green price expressed in roubles.

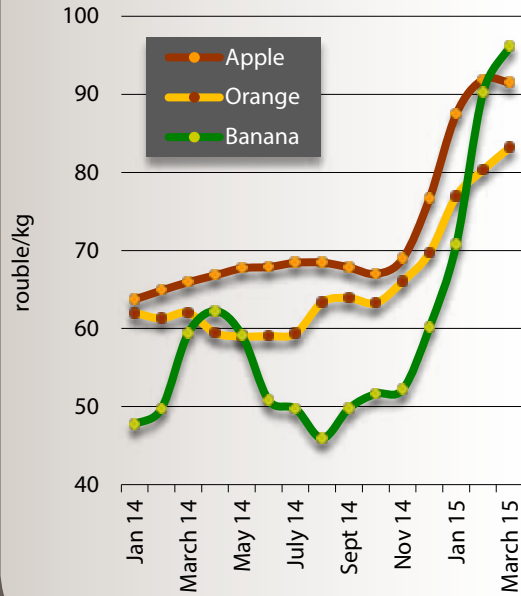
Will the inflationist effects have more repercussions on Russian demand than they do at present? Since while demand is falling, it seems for the moment to be if not under control at least contained. Now prices need to fall to maintain a consumption dynamic, at a time when there is going to be a change of season and therefore of the supply of competing products. This poses a sizeable challenge to Russia, but also for the whole European continent, which has previous experience of the havoc that can be wrought by a Russian market which has lost its supply-demand balance.

Banana - Russia - Imports



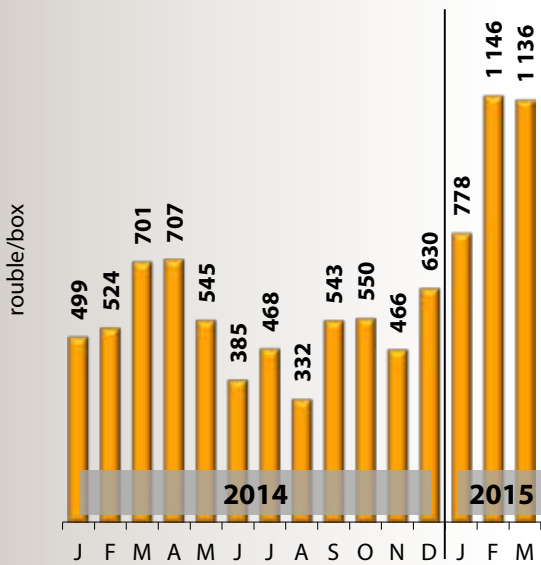
Sources: ITC, national Customs

Fruits - Russia - Retail prices



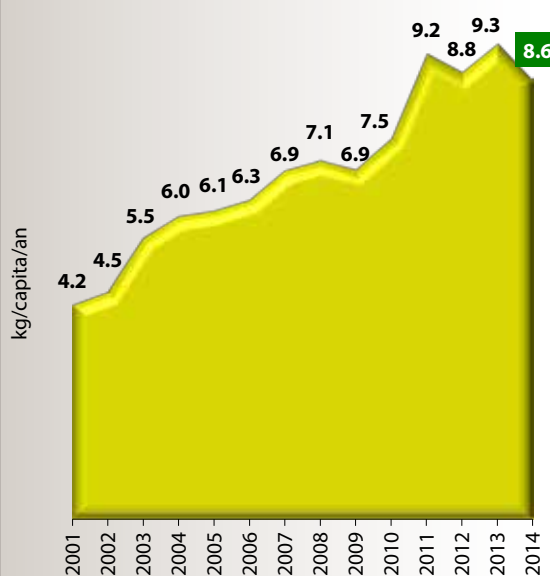
Source: official statistics

**Banana - Russia
Monthly import price - CIF St Petersburg**



Source: CIRAD-Fruitrop

Banana - Russia - Consumption



Sources: ITC, national Customs

United States

A normal year

Has normality struck the US market? In our January edition, when we set out our price review, we made the same observation of hopeless constancy! For the past four years, the quayside spot price has fluctuated between 16 and 16.6 USD/box, and the retail price has been stuck at 1.32 USD/kg. The analyst, who must admit to being rather put out, waited for the supply statistics to put things right, though without too much belief. Indeed, month after month, the stabilisation of volumes consumed meant that the annual review could be nothing other than just as regular. Import volumes edged forward a paltry one percent, but re-exports (almost exclusively to Canada) dropped by 2 %. So consumption was up by 145 000 tonnes to 4 044 000 tonnes, i.e. a small gain of 1 %. Let's give in to optimism, and simply observe that this mini performance confirms, for the third consecutive year, the sound market dynamic. The main, and only, hitch was Colombia scaling back its shipments by 18 % from 2013, due to the terrible winds which hit part of its planted area. The other sources, in the midst of a growth dynamic

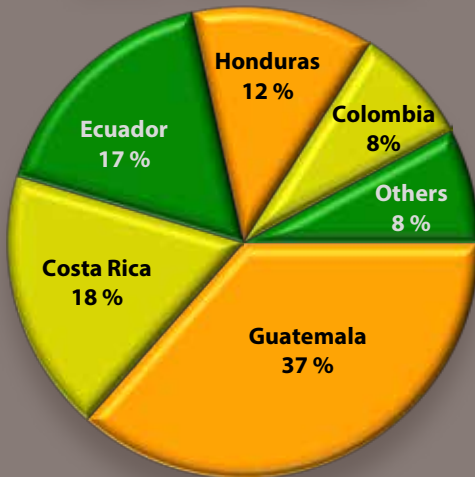
and/or taking advantage of the weakness of the number 4 supplier to the United States, filled their ships, and ultimately achieved excellent performances: + 4 % for Guatemala or + 5 % for Costa Rica. Even the modest Nicaragua did 50 % better. Ecuador took second place on the suppliers' podium, but roughly followed the market trend with a gain of 2 %. After a record 2013, Honduras took a breather with a fall of 5 %. Finally, a special mention should go to Mexico, which had never exported so many bananas (259 000 tonnes) to its neighbour since 1993.

After a few foul-ups in 2013, the US Customs are now able to tell us the quantities of organic bananas actually received in the United States. In 2014, the volume was 208 000 tonnes, i.e. 5 % of the net US consumption. Ecuador, Peru, Colombia and Mexico were the suppliers on this segment.

Given the upward demographic trend, the small increase in net supply was absorbed by the increase in the number of consumers. Consumption was stable at 12.5 kg per capita per year, a level which remains below the 2000 record of 12.8 kg, but mostly 2 kg above consumption in the EU-28 (see inset herein).

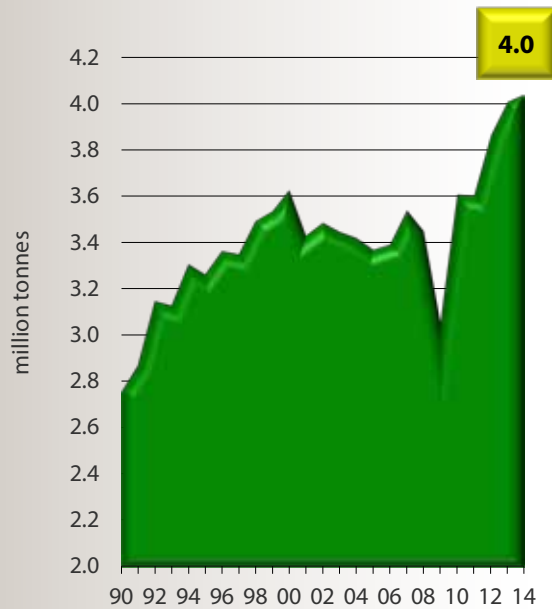


Banana - USA - 2014 imports



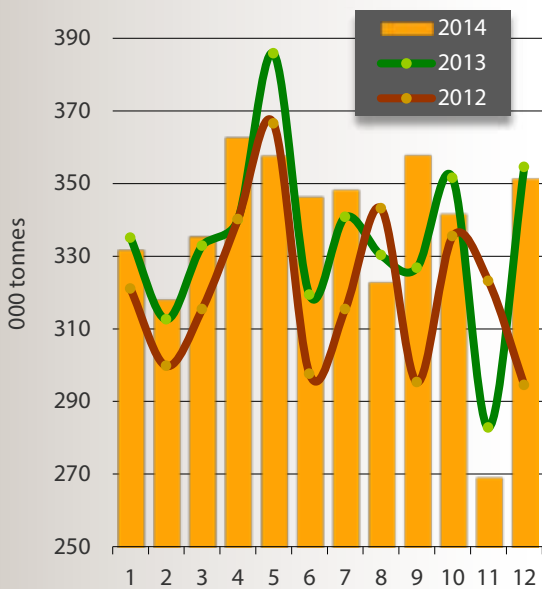
Source: national Customs

Banana - United States
Net supply



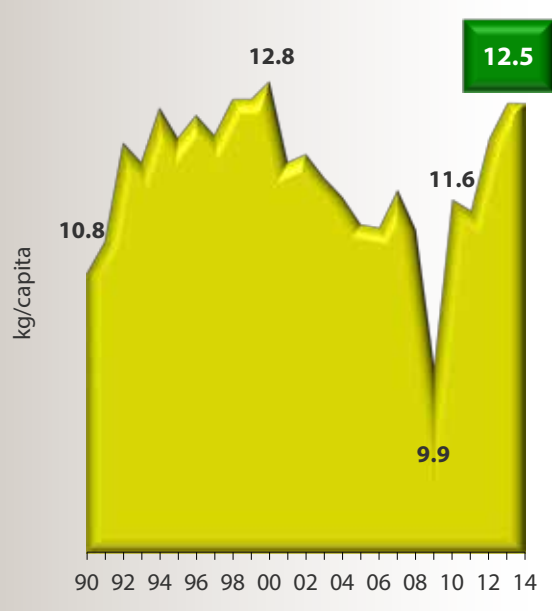
Source: Customs

Banana - United States
Monthly supply



Source: national Customs

Banana - United States
Consumption



Source: Customs

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Concerns over the geographic spread of tropical race 4 (TR4) of Panama disease

The banana world is rightly worried at the advance of tropical race 4 (TR4) of Panama disease in the major Cavendish banana group. Detected in the 90s in Asia (Taiwan, Indonesia, Malaysia, South China, Australia, and the Philippines) and very recently (2014) in Pakistan, it has returned to the headlines since its discovery in 2012-2013 in the Middle East (Oman, Jordan, Lebanon) and above all for the first time on the African continent in Mozambique (2013), in a new Cavendish banana industrial plantation aimed at the export sector. The highly publicised concern relates to the risk of this serious disease spreading to other African countries, which represent more than 27 % of world production (36 million tonnes), across all varieties. Nearly all of their production (98 %) is consumed locally, as the banana is an important staple of African diet. There is equally great concern over the risk of the appearance or introduction of the disease on the American continent, the centre of the international dessert banana trade.

A recent study, conducted by Bioversity International (CGIAR centre) in Asia, was able to test the behaviour of several banana varieties in

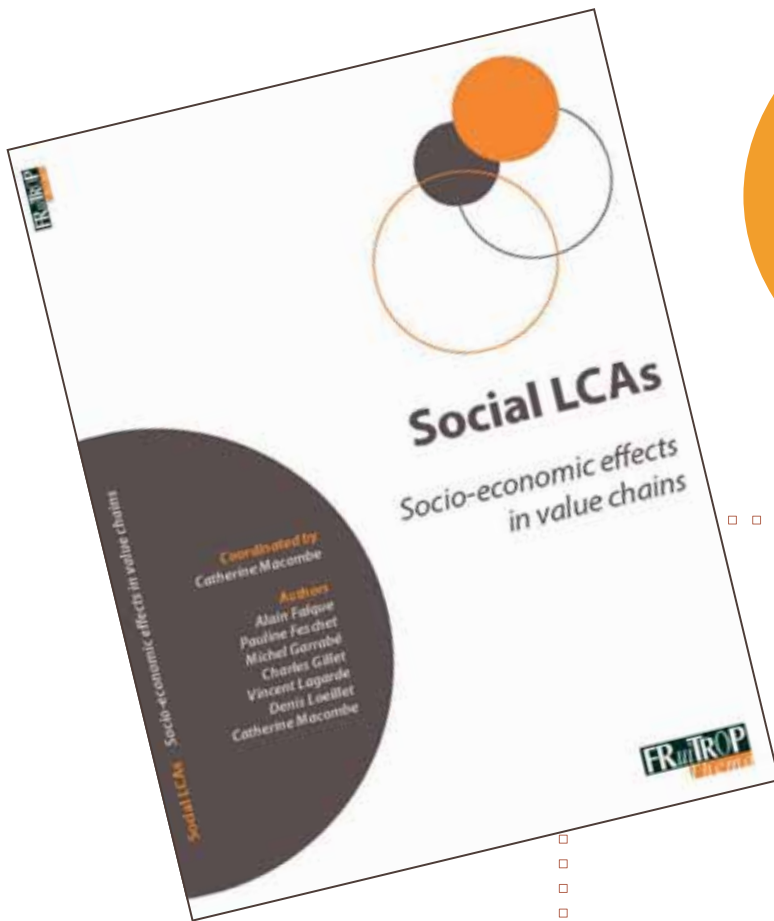
China and in the Philippines in focal outbreaks of the disease (TR4), in particular of plantains and cooking bananas specific to East Africa (high-altitude banana group, with 15 million tonnes produced) and others specific to Asia (15 million tonnes). The initial results indicate a certain tolerance, or even resistance, of these different varieties to TR4, compared to the very high sensitivity of Cavendishes and other dessert bananas such as Silk. These preliminary results provide some hope for the future of African produce and of large-scale plantain production on the American continent (6.5 million tonnes).

Another consequence of this worldwide concern is the recent announcement by the sanitary authorities of Ecuador (the number one Cavendish exporter with 5.4 million tonnes) aimed at prohibiting the introduction of banana vitroplants from Israel, in the knowledge that at present an Israeli company is the main world supplier of vitroplants (nearly 10 million vitroplants per year) ■

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Banana - Panama disease - Distribution of tropical race (TR4)





- ▶ You are making decisions about the future of industrial sectors.
- ▶ You would like to understand the social consequences of these decisions.
- ▶ You belong to one of the following groups: entrepreneurs, public decision-makers, public authorities, consultants, researchers or students.

Social LCAs

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What are the social consequences of changes enacted in the value chains, especially when they involve large international agricultural product industries? How can we anticipate the results of changes in technical procedures, supplier, work organisation, distribution of revenue generated, etc.?

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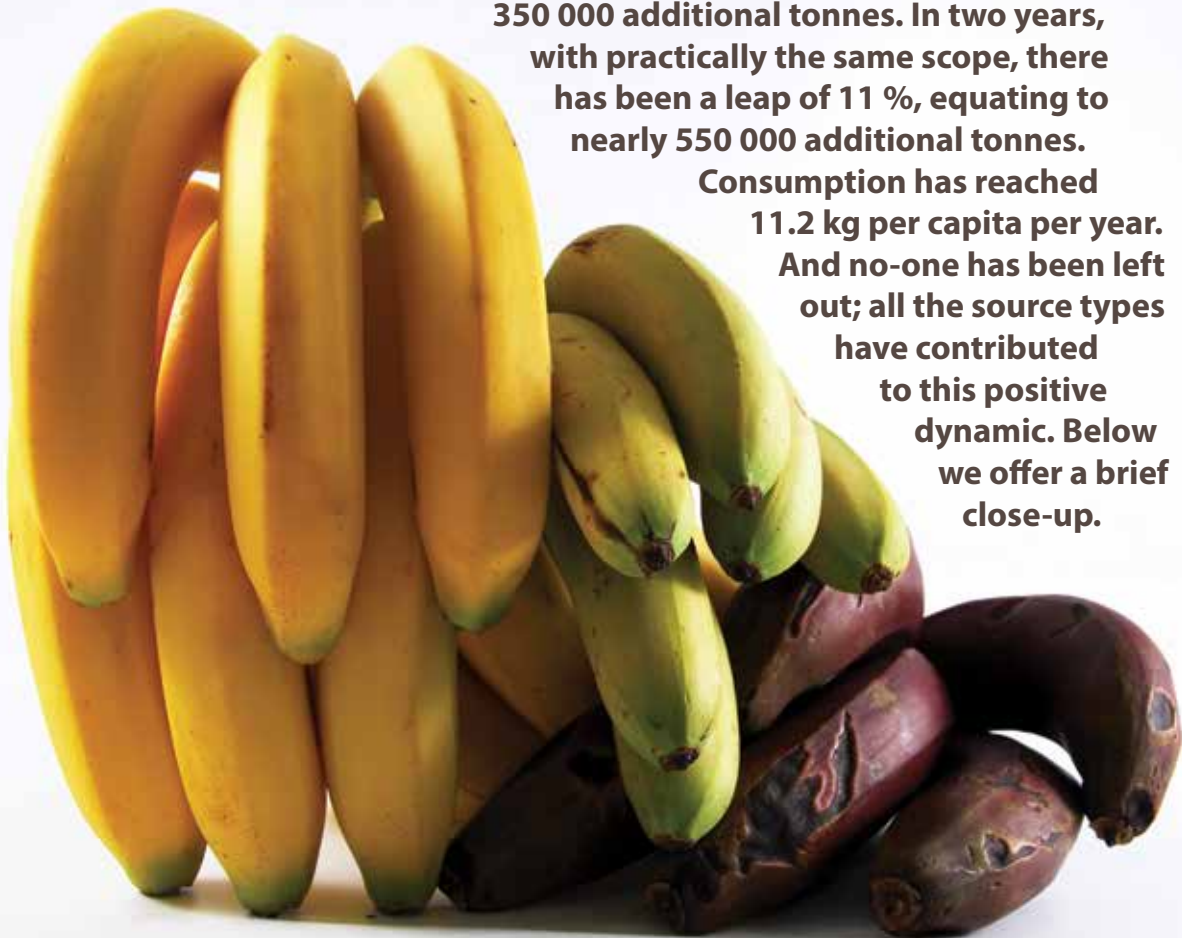
European banana market

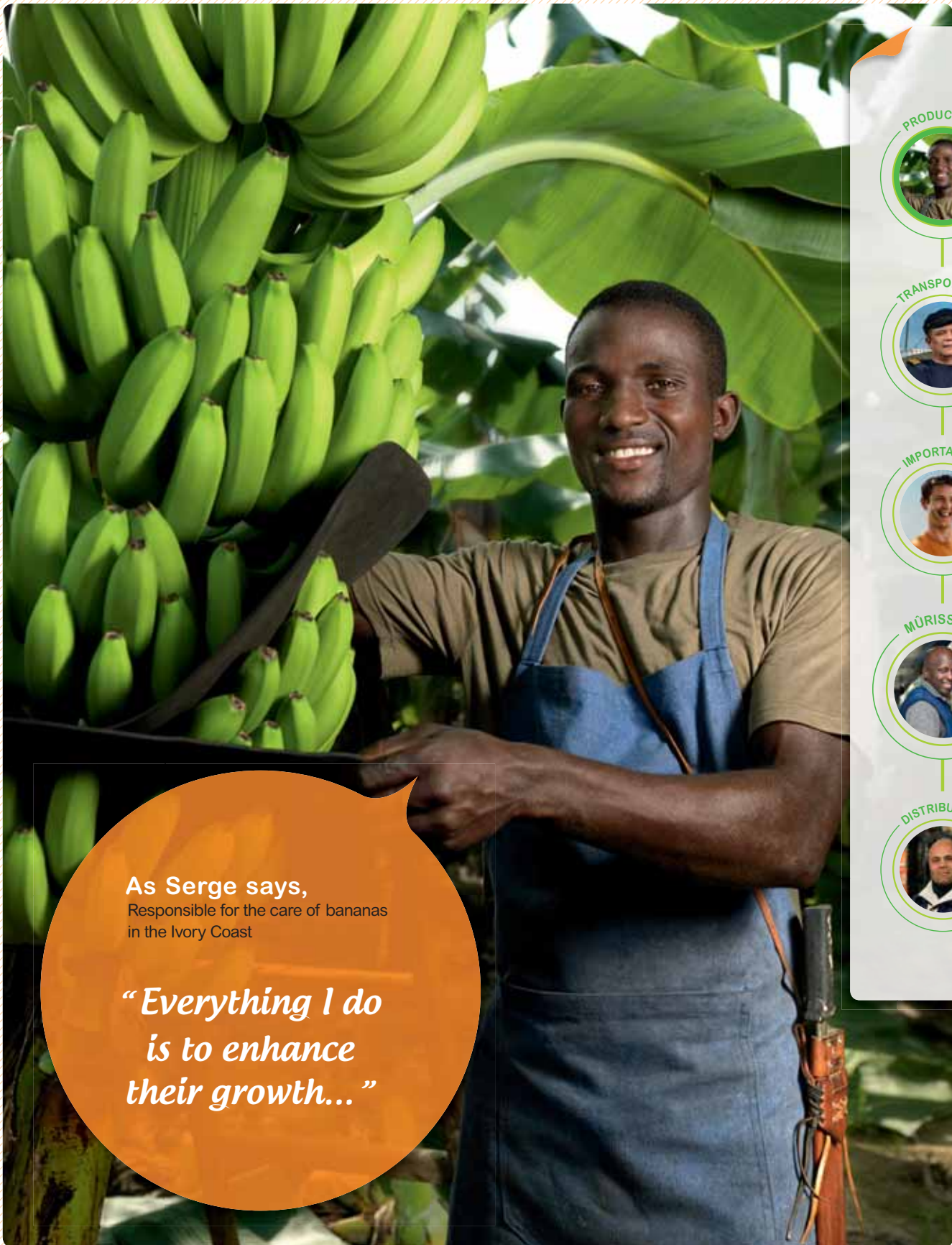
The forces in play

It is always more satisfactory for an analyst to talk about growth in activity than reductions. In 2014, the European banana market obliged, with no cutbacks on its agenda. Both import and consumption volumes have never been as high. The near-finalised figures evaluated by CIRAD indicate a consumption of just under 5.7 million tonnes. This means an increase of nearly 7 % over one year, i.e. more than

350 000 additional tonnes. In two years, with practically the same scope, there has been a leap of 11 %, equating to nearly 550 000 additional tonnes.

Consumption has reached 11.2 kg per capita per year. And no-one has been left out; all the source types have contributed to this positive dynamic. Below we offer a brief close-up.





As Serge says,
Responsible for the care of bananas
in the Ivory Coast

*“Everything I do
is to enhance
their growth...”*



Serge, like all his colleagues in Compagnie Fruitière, provides constant care to the fruit he is responsible for during their nine months of growth. Everything he does counts, like here, where Serge gently positions cushions between the banana hands to avoid damage to their fragile skin. It's with this care and attention that we grow 400,000 tonnes of bananas every year in Western Africa.

Compagnie Fruitière has more than 18,000 people working at various stages every day to bring you the best fruit.
Like Serge, we love fruit.



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We love fruit. *Les fruits, on les aime.*

Community production: holding up

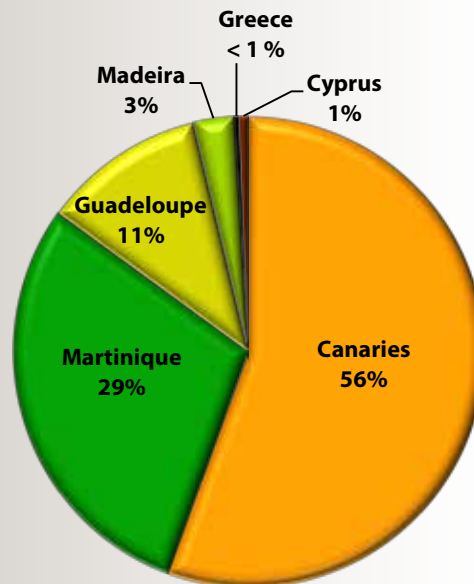
France, with Guadeloupe and Martinique, Spain with the Canaries, Portugal with Madeira, Greece with Crete and finally Cyprus provided a European banana production volume in 2014 of 656 000 tonnes (+ 7 % from 2013). The four Member States involved in this production had mixed fortunes. The Canaries, the heavyweight of the sector with 364 000 tonnes in 2014, was up by a paltry one percent. At the other end of the scale, the Tom Thumbs of Cyprus and Greece came in with 4 000 tonnes for the former and 2 200 tonnes for the latter, down by 22 and 2 % respectively.

Madeira, the modest Portuguese producer off the African coast, was up 18 % to 19 000 tonnes, putting an end to ten years of continuous falls. While still a long way from the 45 000 tonnes of the late 80s, this is a performance to be hailed nonetheless.

The two French Departments in the Americas, Martinique and Guadeloupe, also recorded a very good year. Martinique with 193 000 tonnes (+ 21 %) finally banished its apparent destiny of being subjected to repeated climate vagaries. The record from the late 90s, when the 270 000-tonne mark was exceeded twice (1997 and 2000), is still a long way off, yet the dynamic in place should at least help consolidate the level of 200 000 tonnes. Guadeloupe is also on the rise, though more steadily. In the end, it reached 74 000 tonnes (+ 3 %). We need to go back to 2003 to find similar levels. The stated ambition is to forge further ahead.

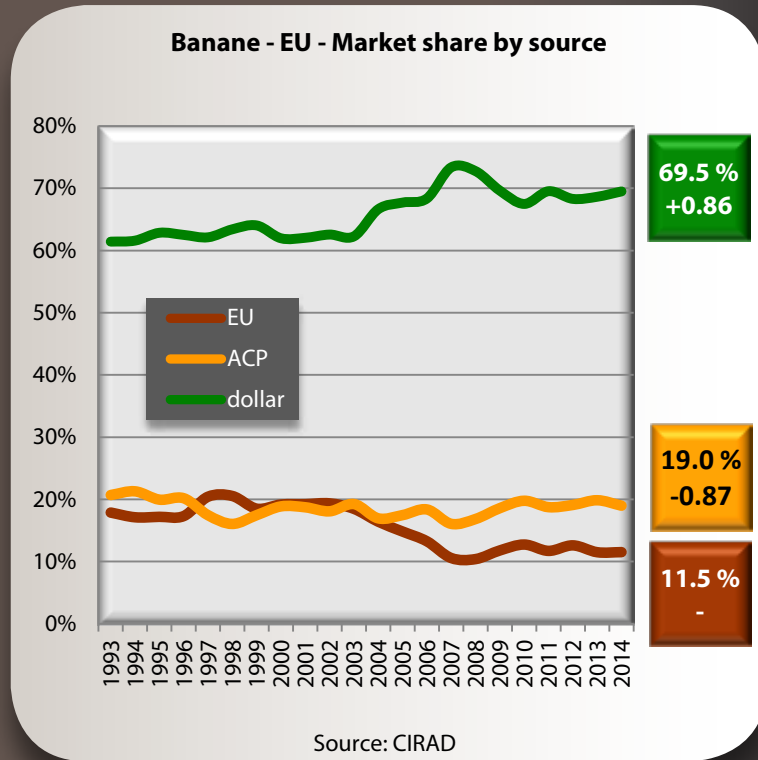
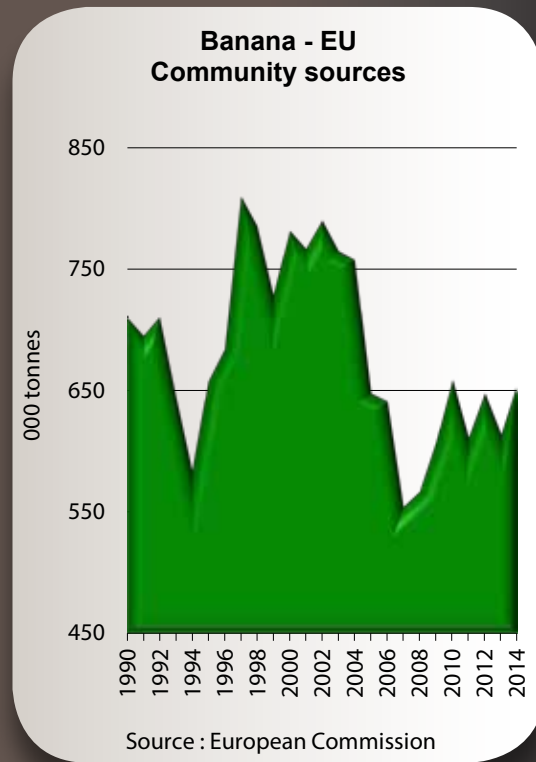
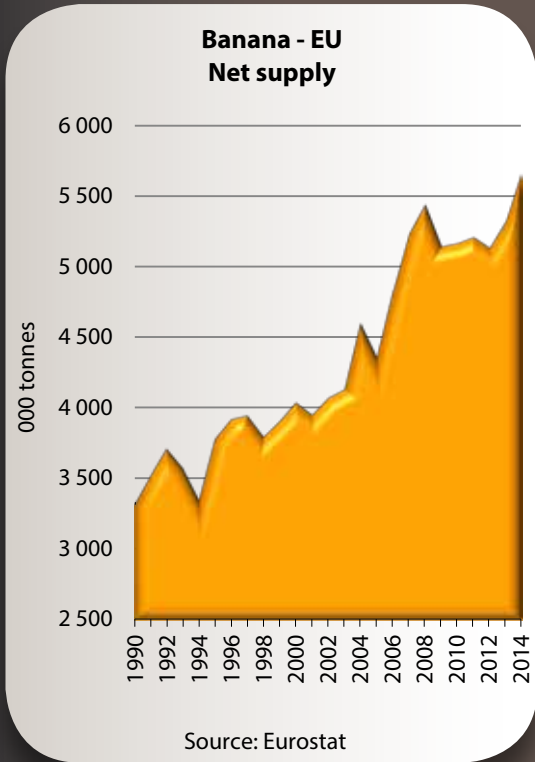
Finally, despite good performances, European production did no more than maintain its market share at 11.6 %. That is 1 % less than in 2012, though that year European production was at a high point (for the last ten years), and dollar sources at a low point. What seems to be a poor performance actually signifies promising robustness.

Banana - EU - Community sources
2014 total = 655 980 tonnes



Source: Eurostat





ACP group: a sure-fire one million tonnes

The ACP group, with a 19 % market share in the EU, consolidated its position in 2014. It remained above the one million-tonne mark, at 1 081 000 tonnes, up 2 %; though it was outperformed by the market, which gained 7 %. However, talking about the ACP group as a whole is tricky, so different are the zones, dynamics, industry structures, etc. It is preferable to talk about three main types of supplier, covering three geographic zones: Africa, the Caribbean and Central & South America.

Three African countries export their fruits: Cameroon, Côte d'Ivoire and Ghana. The former two are the biggest, and in 2014 they were evenly matched, each exporting some 250 000 tonnes. Cameroon was up 3 %, while Côte d'Ivoire was static. The observation may appear harsh if we do not go beyond the figures, since they pass over the 1 000 hectares swallowed up by flood waters in July 2014, cutting Ivorian production by tens of thousands of tonnes; it would have reached, if not exceeded, the 300 000-tonne mark. In any case, there is no shortage of projects under development or in the pipeline, which should see this supplier rise a very long way in the coming years.

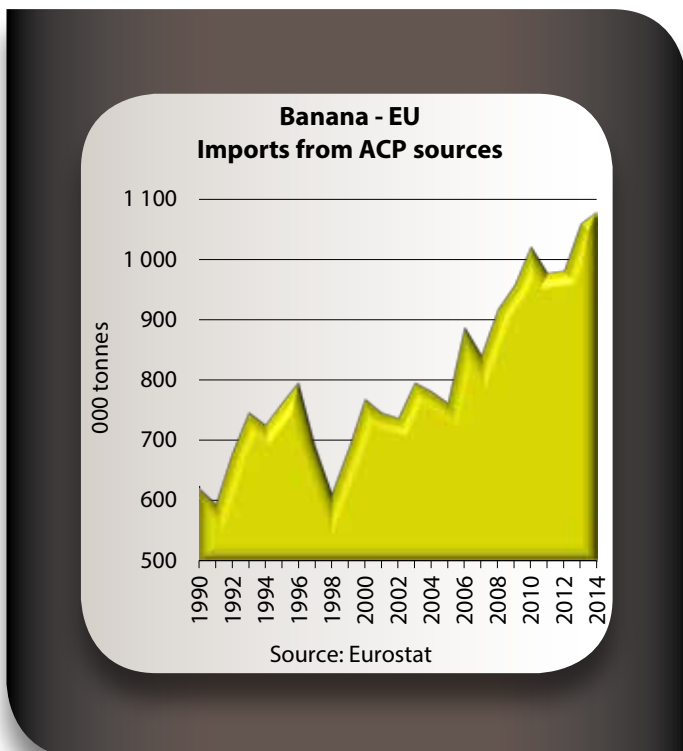
Cameroon too has export ambitions, although it is less visible for the moment. High points were reached in 2008 at 280 000 tonnes, and in 2003 at 298 000 tonnes (not including extra-EU exports). New plantations, privatisation and revitalisation are frequently heard terms from Cameroon in recent times.



Ghana is not on the same upward dynamic. True, volumes rose significantly over one year (46 000 tonnes and + 9 % growth), but did not take off. Labour and agronomy seem to be the main concerns for the local industry. This is not preventing rumours here too of an operator setting up to supply the EU peripheral markets. So the African banana supply is limited to these three West African countries.

As a reminder, we can mention the tens of tonnes, at most, shipped from Uganda, South Africa, Burundi and Mozambique. The latter led the way with a paltry 21 tonnes exported to the EU in 2014. We should remind readers that its recovery project is still ongoing. Yet Mozambique has gained most attention recently as the first entry point in Africa of Tropical Race 4 of Panama disease, or banana wilt. Doubtless accidentally introduced from Asia, where it represents a very large and threatening presence for the banana stock, it recently appeared in two focal outbreaks in Australia, but also in Lebanon, Pakistan, etc. The Central and Southern American countries are very concerned by this variant of this highly aggressive soil fungus. Ecuador and Costa Rica are considering measures to prevent the arrival of this scourge. The authorities have traded in plant material in their sights.

The ACP countries of the Caribbean have no reason to be concerned about this plague, at least for the moment. Like all the exporter countries elsewhere, they are suffering from black sigatoka disease, which is proving to be a major handicap. In any event, this sub-group is being massacred. Dominica and St Vincent have sunk, doubtless for good. Jamaica ceased all export activity before its Caribbean neighbours. Which leads us to the spearhead of the ACP group, the Dominican Republic, and its 16 000 hectares in production. Thanks to highly favourable pedoclimatic conditions, immigrant Haitian labour which is exploited at will, big export groups and a positioning on the organic and fair trade markets, this source has been on the



Banana — European Union — Evaluation of supply – Tonnes

Year	Banana type or source			Sub-total	Exports	Net supply
	Community	ACP	Others (3)			
1988	719 270	514 061	1 644 100	2 877 431	17 265	2 860 166
1989	698 925	544 441	1 716 175	2 959 541	13 415	2 946 126
1990	710 635	621 875	2 024 248	3 356 758	36 219	3 320 539
1991	695 402	596 416	2 286 019	3 577 837	53 468	3 524 369
1992	711 191	680 191	2 365 883	3 757 265	39 689	3 717 576
1993	646 242	748 120	2 219 721	3 614 083	36 138	3 577 945
1994	584 622	726 927	2 102 303	3 413 852	58 044	3 355 808
1995	658 206	763 886	2 405 180	3 827 272	43 082	3 784 190
1996	684 605	798 109	2 471 263	3 953 977	30 598	3 923 379
1997	810 537	692 731	2 464 412	3 967 680	16 571	3 951 109
1998	786 232	614 459	2 426 419	3 827 110	26 448	3 800 662
1999	729 303	688 170	2 522 455	3 939 928	27 359	3 912 569
2000	782 176	770 095	2 528 170	4 080 441	35 327	4 045 114
2001	767 268	747 131	2 474 665	3 989 064	34 284	3 954 780
2002	790 622	738 439	2 554 508	4 083 569	8 011	4 075 558
2003	765 416	797 269	2 578 827	4 141 512	6 020	4 135 492
2004	758 206	782 979	3 077 361	4 618 546	11 029	4 607 517
2005	648 375	763 974	2 959 463	4 371 812	4 970	4 366 842
2006	641 559	889 176	3 306 538	4 837 273	8 386	4 828 887
2007	554 734	842 959	3 848 266	5 245 959	9 270	5 236 689
2008	567 560	918 923	3 968 269	5 454 752	10 002	5 444 750
2009	608 048	958 326	3 587 737	5 154 111	7 840	5 146 271
2010	659 525	1 023 661	3 492 406	5 175 592	7 437	5 168 155
2011	611 841	978 537	3 628 113	5 218 491	8 169	5 210 322
2012	648 459	982 391	3 511 553	5 142 403	5 349	5 137 054
2013	614 564	1 060 467	3 664 261	5 339 292	9 106	5 330 186
2014	655 980	1 080 942	3 955 600	5 692 522	9 106	5 683 416

(1)

(2)

(2)

(3)

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

(2) Eurostat data.

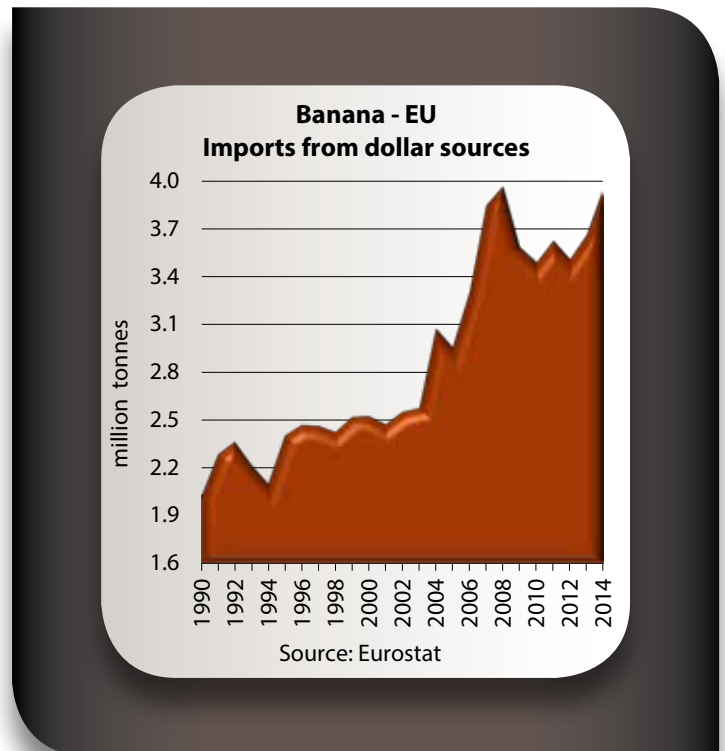
(3) Duty-paid bananas (released for free circulation) in one of the EU-28 member countries and then exported outside EU-28.

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 / From 2007 to 2013: EU-27 / From 2014 onwards: EU-28. The study concerns extra-Community import data for ACP and dollar bananas and re-exports. The rules 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.

rise year after year. In 2014, as practically every year, the Dominican Republic beat its absolute record once again, exporting to the EU a total of 342 000 tonnes. It is not clear what could prevent this source from continuing to grow. The only real danger comes from within, and more specifically the organic and fair trade certification procedures, which many, even locally, believe leave the door open to abuses, which one day will be sanctioned by the market and consumers.

Finally, we are left with the group of the two ACP sources on the American continent itself: Belize in Central America, on the Caribbean coast, and Surinam in South America, on the Atlantic coast. In 2014, Surinam cut its exports back to 73 000 tonnes, a long way from the record of 83 000 tonnes reached in 2012. Since January 2014, the 2 000 hectares have been privatised and taken over by a European operator. Extension projects are in the pipeline. As for Belize, where a big European operator manages the exports, it beat a new record, narrowly exceeding the symbolic 100 000-tonne mark.



Dollar sources: strong tailwind

With a 69.5 % market share in 2014, the dollar source consolidated its place with practically a 1 % gain on a market which, it should be reiterated, grew by 353 000 tonnes to reach 3 956 000 tonnes. This is not a record, since in 2008 this group of sources did better with 3 968 000 tonnes, and a market share of 72.7 %. There are three dollar group countries which matter in the EU: Ecuador, Colombia and Costa Rica. They had mixed fortunes. Ecuador (1 473 000 tonnes) and Costa Rica (940 000 tonnes) each went up by a phenomenal 12 %, i.e. between the two an increase in absolute value of more than 250 000 tonnes. Conversely, Colombia (1 086 000 tonnes) was down 6 %, a poor performance manifesting the tornado of July 2014 which hit nearly 16 000 hectares. If we compare the figures for the United States and the EU, the three heavyweights opted for a trade-off in favour of Europe, with a more rapid rise in this economic zone, or in the case of Colombia, with a more measured decrease.

Other dollar suppliers are present on the market. We can mention Panama (224 000 tonnes), which is recapturing its place in the market year on year, though it exports less than a thousand tonnes to the United States. Next comes Peru (93 000 tonnes), one of the main organic and fair trade specialists. To the best of our knowledge, its situation is stable. In fact a statistical error in 2013, still not corrected, inflated the figures provided by Eurostat. Finally, we can mention Mexico (70 000 tonnes), which has had a big appetite for banana exports since 2012, both to Europe and the United States. While this is still true for the United States in early 2015, it is now less so for the EU, where the source is coming undone. As a reminder, we can mention the several thousands of tonnes which were exported to the EU from Guatemala, Brazil and Honduras ■

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French banana market

In a consolidating phase

Looking at the 2014 record, we might be disappointed. The French market slumped 1.5 % by volume, whereas the EU climbed 7 %. Here, as in other sectors of the economy, the French market is declining while the EU is seeing strong progress. Nonetheless we have to recognise that looking at just one year would not properly reflect reality. In fact, over the last two years, France has made a big contribution to the European banana feast.





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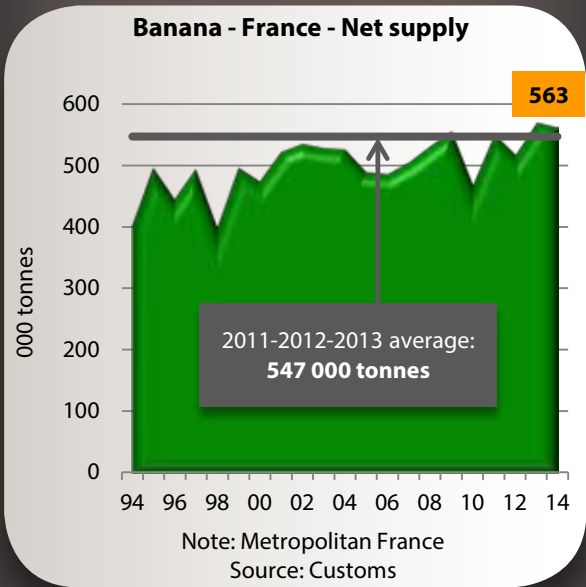
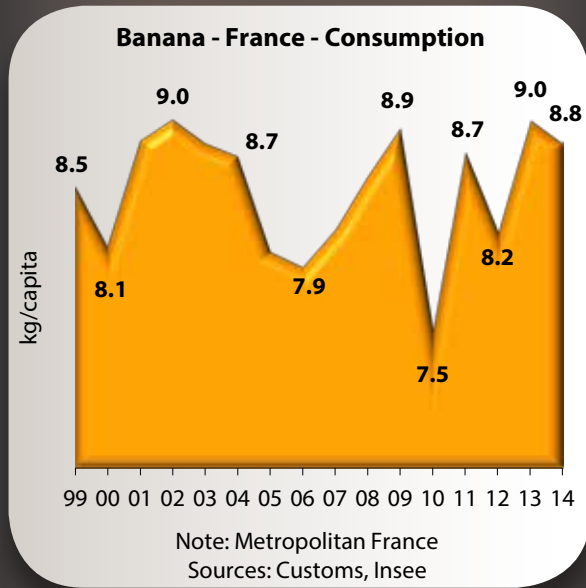
* Vos bananes sur mesure

Since 2012, net French consumption has risen by 8.5 %; quite a feat for a sector which hitherto has not done much to earn a mention... at least, not in a good way. So rather than talk about a fall, we might say that net consumption, evaluated by our Market News service, consolidated in 2014 at a very high level: 563 000 tonnes. Taken with the increase in population, the fall in the supply has naturally resulted in a fall in consumption per capita, which having reached 9 kg in 2013, slipped back to 8.7 kg. France is still a long way from the EU-28 average, which was 10.5 kg in 2014. The other major producer Member State, Spain, is in a radically different situation, since it is doing both better than the market (+ 9 %) and better than the European average, with a consumption of 11.2 kg. Which just shows, you can be a banana producer, and a producer of many other fruits, while still being a big banana consumer.

A long way from the consumption peak

The analysis on a twelve-month sliding scale shows that the consumption peak was reached in March 2014 at 586 000 tonnes. Since this date, consumption has constantly ebbed down to 546 000 tonnes in February 2015 (period from March 2014 to February 2015).

There are a host of sources supplying the market, belonging to a variety of groups. For 2014, we can mention firstly the domestic production in Martinique and Guadeloupe, with 265 000 tonnes. These two French Overseas Departments provide 31 % of the gross supply, i.e. before re-shipments to other Member States. The ACP group (457 000 tonnes), led by Cameroon and Côte d'Ivoire, covers 53 % of the gross supply. Surinam and the Dominican Republic supplement the volumes from the two big West African sources. The dollar group sources are very much in the minority, with a total of 75 000 tonnes in 2014, i.e. 12 000 tonnes less than in 2013 and 8 % of the gross supply. Colombia, Costa Rica and Ecuador make up the dollar supply in France. Finally, 67 000 tonnes (9 % of the supply) come from the other EU-28 Member States, especially from Spain, the United Kingdom and Belgium. Note that this volume slumped by nearly one third between 2013 and 2014. It is difficult to go further with regard to the market shares of the various supply sources, since the data on reshipments to Member States or to third countries do not retain the origin of the exported product. We can say, at least, that dollar bananas or bananas from another Member State do not come into France to be re-exported.



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So the 306 000 tonnes forwarded on by France represents French bananas and ACP bananas.

The net supply tempo in 2014 was in line with previous years. There was very little deviation from the average, between 0.5 and 1.5 % of the monthly supply. The 2014 supply was strictly in line with the average in April, during the summer months (July and August), in September and December; while a consumption peak came in January and March, and a relatively big dip came in May, June and October.



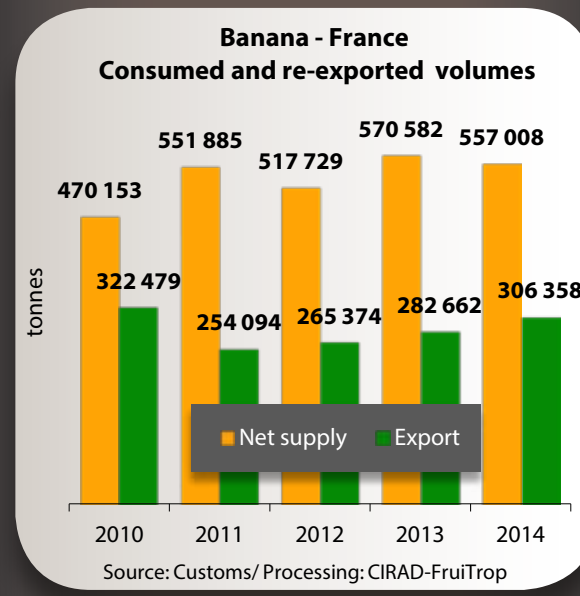
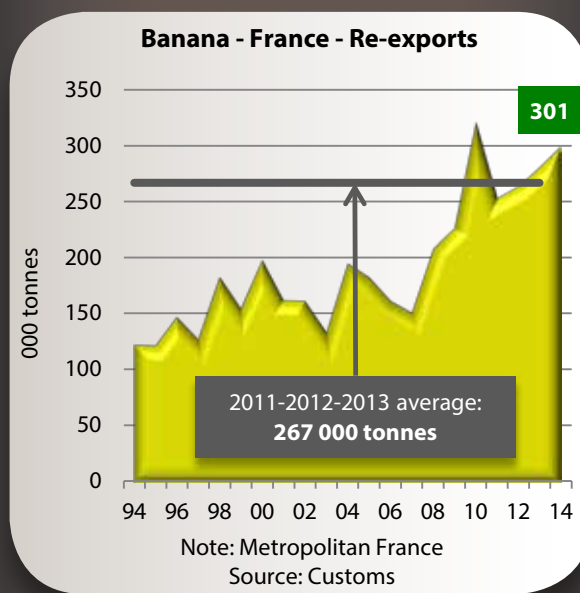
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One third re-exported

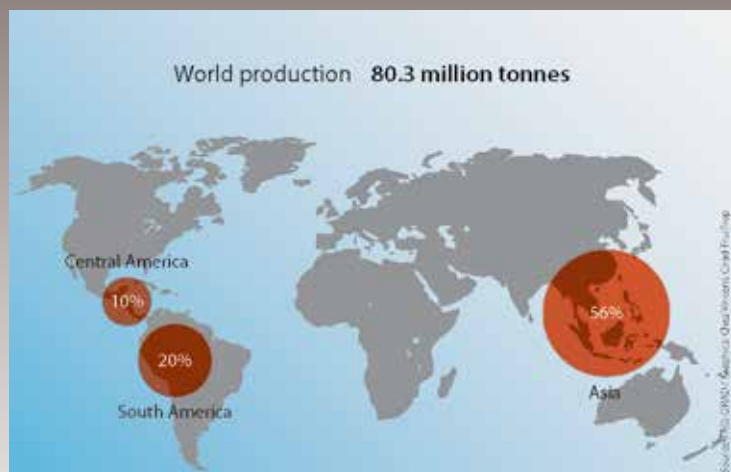
One of the major characteristics of the French market is that it consumes only two thirds of its gross supply. Indeed, 306 000 tonnes were re-exported in 2014, to more than 20 countries, all EU members, except for Switzerland. This is one of the highest levels since the absolute record from 2010 (322 000 tonnes). Spain (86 000 tonnes), the Czech Republic (59 000 tonnes), Italy (56 000 tonnes) and Romania (34 000 tonnes) receive three quarters of French re-exports. They are followed by the United Kingdom, Poland and Belgium. Very steep increases in volumes were observed towards Spain (+ 12 %) and the Czech Republic (+ 16 %). The re-exports tempo is fairly similar from one year to the next, with the peak activity running from April to July, and then October to December.

While the French market has made great progress in recent years, the time has come to consolidate without destroying added value. Since while in this dossier we have only mentioned the consumption volume, the change in price at all stages should also be taken into account. We might say that recent months have been rather reassuring in this respect. The abnormality of the supply of bananas and competing fruits prevented, or at least greatly limited, the predicted catastrophe. Then again, it is strange that one of the main European markets, which moreover is a big producer country, has such a low consumption per capita compared to the European average. The overall market trend is positive in terms of volume and value. Let's hope that the positive trend lasts and that the marketing initiatives by the operators or their collective body ("Association interprofessionnelle de la banane", AIB) help support this dynamic ■

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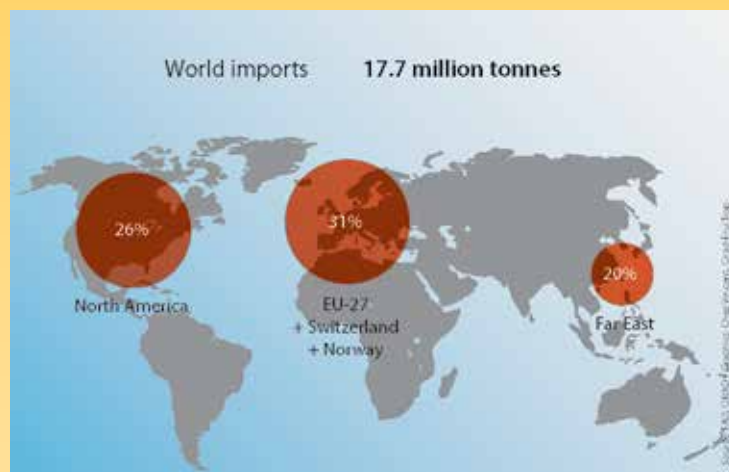
BANANA - Production (2013)



Banana - The 10 leading producer countries	
Tonnes	2013
India	27 575 000
China	12 370 238
Philippines	8 645 749
Brazil	6 892 622
Ecuador	5 995 527
Indonesia	5 359 115
Guatemala	3 188 050
Angola	3 095 013
Tanzania	2 678 680
Burundi	2 235 697

Source: FAO

BANANA - Imports (2013)



Banana - The 10 leading exporting countries	
Tonnes	2013
United States	4 547 932
Russia	1 339 141
Belgium	1 219 968
United Kingdom	1 006 759
Japan	964 813
Germany	680 733
Italy	565 069
China	528 122
France*	558 888
United Arab Emirates	401 004

*Including island production marketed locally or shipped to the continent / Source: national Customs

BANANA - Exports (2013)



Banana - The 10 leading exporting countries	
Tonnes	2013
Ecuador	5 253 081
Philippines*	3 201 905
Costa Rica	1 928 095
Guatemala	1 951 663
Colombia	1 549 267
Honduras	677 778
Canaries	336 615
Dominican Rep.*	354 872
Mexico*	361 822
Panama	252 135

* incl. plantain / Sources: national Customs, professionals

USA - Imports - Main supplier countries						
tonnes	2009	2010	2011	2012	2013	2014
Total	3 599 199	4 093 892	4 122 683	4 353 136	4 547 932	4 592 323
Guatemala	1 112 151	1 151 504	1 333 496	1 458 567	1 607 998	1 675 825
Costa Rica	562 892	835 141	844 527	848 369	790 517	827 614
Ecuador	957 643	979 829	878 970	720 401	763 929	778 857
Honduras	388 688	435 722	445 223	535 699	603 285	572 944
Colombia	421 632	460 941	384 504	440 176	455 465	374 636
Mexico	105 158	145 521	148 607	223 417	256 637	259 434
Nicaragua	24 911	35 997	35 585	36 325	35 499	52 042
Peru	19 677	20 060	23 211	25 937	22 540	40 218
Dom. Rep.	1 048	139	710	2 706	5 829	7 475

Source: US Customs

Canada - Imports - Main supplier countries						
tonnes	2009	2010	2011	2012	2013	2014
Total	482 020	496 133	506 646	512 856	542 516	555 171
Guatemala	93 163	89 705	147 472	157 572	150 994	171 239
Ecuador	164 213	147 229	110 422	103 547	123 959	114 594
Costa Rica	70 977	105 828	117 796	110 186	126 668	113 998
Colombia	128 877	114 523	93 318	87 790	84 726	80 387
Honduras	17 478	29 523	27 447	40 618	39 331	49 657
Mexico	1 579	1 371	1 975	6 755	9 823	17 429
Peru	992	1 567	2 056	2 297	2 803	5 821

Source: Comtrade

Central and South America - Main markets						
tonnes	2008	2009	2010	2011	2012	2013
Total	791 514	835 335	813 421	859 221	652 345	710 951
Argentina	346 775	344 106	351 094	394 881	374 484	392 488
Chile	174 886	179 318	175 678	184 562	134 860	177 135
El Salvador	112 949	95 674	111 907	112 000	49 770	52 110
Uruguay	43 094	41 611	43 500	44 760	39 164	44 499
Trinidad	3 918	4 933	14 538	14 000	14 000	14 000
Guatemala	6 554	5 110	2 201	5 327	6 822	11 369
Nicaragua	3 310	6 068	8 342	6 714	5 429	6 862

Source: Comtrade

European Union - Imports - Main supplier countries						
tonnes	2009	2010	2011	2012	2013	2014
Total	5 121 374	5 181 277	5 220 295	5 142 415	5 421 884	5 692 522
Total EU prod. incl.	608 048	659 525	611 841	648 459	614 564	655 980
Canaries	352 032	396 981	346 461	371 013	360 981	364 419
Martinique	180 195	199 413	180 950	184 810	159 015	193 201
Guadeloupe	55 616	42 551	61 516	66 923	71 511	73 592
Madeira	14 461	13 663	15 267	17 742	15 775	18 649
Cyprus	3 155	5 036	5 619	5 746	5 082	3 952
Greece	2 589	1 881	2 028	2 225	2 200	2 167
Total dollar prod., incl.	3 555 000	3 498 000	3 631 404	3 511 565	3 746 853	3 955 600
Ecuador	1 278 000	1 223 000	1 339 977	1 307 377	1 316 685	1 474 158
Colombia	1 206 000	1 168 000	1 136 538	1 134 306	1 150 980	1 086 096
Costa Rica	753 000	777 000	845 107	770 208	839 804	940 340
Panama	183 000	184 000	159 596	143 591	207 855	224 980
Peru	44 000	51 000	65 678	81 312	93 844	96 136
Mexico	22 000	13 000	9 760	20 439	53 971	70 882
Guatemala	4 000	3 000	2 995	4 561	13 656	29 167
Brazil	56 000	64 000	52 274	41 103	42 712	28 659
Honduras	9 000	15 000	17 459	5 709	6 472	4 495
Total ACP prod., incl.	958 326	1 023 752	977 050	982 391	1 060 467	1 080 942
Dom. Rep.	228 293	303 744	326 766	294 567	322 839	341 736
Cameroon	249 628	242 980	234 342	213 868	250 334	257 139
Côte d'Ivoire	229 194	244 312	223 700	224 943	252 165	252 738
Belize	79 799	78 817	71 064	99 288	96 763	100 707
Surinam	57 615	70 437	62 911	83 126	80 956	72 593
Ghana	36 486	52 357	47 064	50 691	42 729	46 427
St Lucia	33 238	23 154	6 159	12 145	12 367	8 874
Dominica	36 450	3 728	4 064	2 268	1 443	538

Source: EUROSTAT

Other Western European countries - Main markets						
tonnes	2009	2010	2011	2012	2013	2014
Total	167 756	164 123	163 365	157 820	166 329	172 274
Norway	81 239	78 486	78 221	76 803	81 266	84 570
Switzerland	80 772	79 889	79 394	77 531	81 626	84 110
Iceland	5 745	5 749	5 750	3 486	3 437	3 594

Source: Comtrade

Russia - Imports - Main supplier countries						
tonnes	2009	2010	2011	2012	2013	2014
Total	980 896	1 068 571	1 307 600	1 255 608	1 339 141	1 233 356
Ecuador	911 208	976 560	1 199 910	1 121 590	1 279 202	1 197 235
Philippines	24 515	29 831	35 492	37 631	23 790	17 601
Costa Rica	32 617	48 212	38 566	79 930	16 793	13 247
Mexico	2 559	1 140	410	124	2 898	1 575
Brazil	0	166	86	606	438	1 359

Source: Comtrade

Ukraine - Imports - Main supplier countries						
tonnes	2009	2010	2011	2012	2013	2014
Total	227 316	214 838	247 825	242 579	265 648	215 109
Ecuador	201 932	200 335	221 640	203 178	229 881	198 005
Costa Rica	7 842	11 742	12 750	23 720	21 104	15 676

Source: Comtrade

Other Eastern European countries - Main markets						
tonnes	2009	2010	2011	2012	2013	2014
Total	171 005	174 621	186 659	147 918	190 110	180 994
Belarus	36 669	44 463	40 074	58 813	74 459	66 408
Serbia	43 065	41 876	52 435	36 968	48 261	45 652
Bosnia	37 134	36 951	38 014	17 399	24 831	31 156
Albania	17 241	17 535	17 396	17 079	19 886	17 134
Moldova	11 737	10 536	12 193	12 193	11 176	10 800
Montenegro	8 460	6 561	7 460	5 427	8 007	9 844

Source: Comtrade

Oceania - Main markets						
tonnes	2009	2010	2011	2012	2013	2014
Total	83 973	81 314	86 798	63 199	68 889	73 908
New Zealand*	83 973	81 314	86 798	63 199	68 889	73 908

* excl. plantain from 2012 onwards / Source: Comtrade

Japan - Imports - Main supplier countries						
tonnes	2009	2010	2011	2012	2013	2014
Total	1 252 606	1 109 068	1 064 125	1 051 420	964 813	946 204
Philippines	1 159 128	1 035 231	1 004 098	993 218	897 122	873 894
Ecuador	61 677	46 060	34 282	35 637	41 719	48 070
Guatemala			487	769	5 954	7 334
Peru	10 683	7 760	8 758	6 310	5 988	4 117
Taiwan	8 751	9 500	8 430	7 826	6 311	4 053
Mexico	4 810	3 731	3 062	2 869	3 032	3 052
Colombia	4 010	3 096	2 074	2 425	2 682	2 584
Thailand	2 317	2 160	1 989	1 689	1 388	1 429

Source: Japanese Customs

Other Asian countries - Main markets						
tonnes	2008	2009	2010	2011	2012	2013
Total	753 265	881 087	1 130 013	1 311 794	1 134 275	904 548
China	436 894	575 183	740 803	906 971	707 425	528 122
South Korea	258 363	257 024	337 907	352 671	367 673	313 604
Singapore	38 351	39 666	39 348	41 585	44 510	47 567
Thailand	19 657	9 214	11 956	10 568	14 667	15 255
Malaysia	628	679	1 532	2 084	7 812	8 471
Nepal	0	1 872	7 238	16 722	17 000	7 701
Indonesia	56	328	2 779	1 631	1 922	337

Source: Comtrade

Central Asia - Main markets						
tonnes	2008	2009	2010	2011	2012	2013
Total	76 899	128 741	118 320	130 744	117 622	116 869
Kazakhstan	38 044	46 603	45 073	44 832	39 859	41 305
Afghanistan	0	37 566	21 303	27 692	28 000	28 000
Georgia	10 361	10 981	15 257	12 576	12 116	15 190
Kyrgyzstan	5 155	6 823	8 987	11 528	10 859	13 545
Armenia	8 258	8 397	8 458	11 026	12 503	9 875
Azerbaijan	15 081	18 371	19 242	23 090	14 285	8 954

Source: Comtrade

Middle East - Main markets						
tonnes	2008	2009	2010	2011	2012	2013
Total	929 696	763 963	1 167 563	1 121 103	865 814	981 100
Un. Arab Em.	126 713	126 101	124 029	119 762	285 085	401 004
Saudi Arabia	256 657	252 375	307 420	306 173	334 831	306 207
Iran	406 000	301 000	661 389	615 879	107 804	122 391
Kuwait	96 097	35 284	23 587	25 119	83 368	99 876
Qatar	21 543	25 000	27 587	24 779	28 710	25 933
Oman	10 686	9 821	9 716	13 740	18 951	19 060
Bahrain	12 000	14 382	13 835	15 651	7 065	6 629

Source: Comtrade

Africa - Main markets						
tonnes	2008	2009	2010	2011	2012	2013
Total	79 149	81 906	107 099	107 814	122 913	139 891
South Africa	24 316	22 615	36 685	52 510	68 000	96 341
Senegal	16 920	16 752	16 513	14 318	15 569	17 066
Bostwana	6 964	7 565	9 341	6 619	4 634	7 755
Burkina Faso	0	2 968	2 807	2 920	4 243	5 085
Namibia	2 805	2 805	2 805	4 577	4 279	4 676
Niger	1 414	844	3 812	3 700	4 812	4 054
Mauritania	2 855	2 855	2 254	2 543	3 067	3 562
Mali	21 289	21 289	18 518	17 412	16 934	1 334

Source: Comtrade

Mediterranean - Main markets						
tonnes	2008	2009	2010	2011	2012	2013
Total	690 888	673 995	751 602	869 508	812 500	879 584
Algeria	163 894	179 578	207 859	245 285	221 668	273 997
Syria	219 430	219 430	232 316	240 000	240 000	240 000
Turkey	219 076	182 438	200 695	234 633	225 100	235 188
Jordan	32 969	25 644	39 630	48 263	49 788	42 911
Egypt	2 967	2 481	10 145	25 626	28 391	30 000
Morocco	18 715	26 712	28 058	24 617	28 139	22 468
Tunisia	33 513	37 118	18 700	41 338	5 905	17 545
Palestine	323	594	14 199	9 746	13 509	17 475

Source: Comtrade



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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 the soil fungus *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.



Panama disease



Gros Michel

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

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

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

Race 4, identified in the Canary Islands in 1931, affects the Cavendish group sporadically and under certain environmental conditions but only in 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 has just appeared in Mozambique (though also in Jordan). It is a relatively recent form, described in 1990. It afflicts Cavendish group varieties, but hitherto had only been found in the wet tropical zones of Asia, especially Taiwan, Indonesia, Malaysia, South China, Australia and the Philippines. In 2011, **FruiTrop** published a full set of recommendations (see **FruiTrop** no.191, July-August 2011, pages 20 and 21), to be followed very closely in order to apply effective preventive measures. An ad-hoc committee of scientists specialising in this disease was formed in order to investigate the origin of its introduction and analyse the risks of extension. This alarming news has reactivated the world phytosanitary monitoring networks, particularly in Latin America.

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 interna-



tional work is being performed on this disease, study of which is complicated. Control methods are not specific to bananas and are and will remain very limited. Conventional genetic improvement remains an important and as yet little-explored pathway.

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

Sigatoka leaf streak diseases

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

A new fungal species, *Mycosphaerella eumusa*, that may be responsible for a new, even more aggressive form of Black Sigatoka, seems to be spreading in Asia and the Indian Ocean, but this remains to be



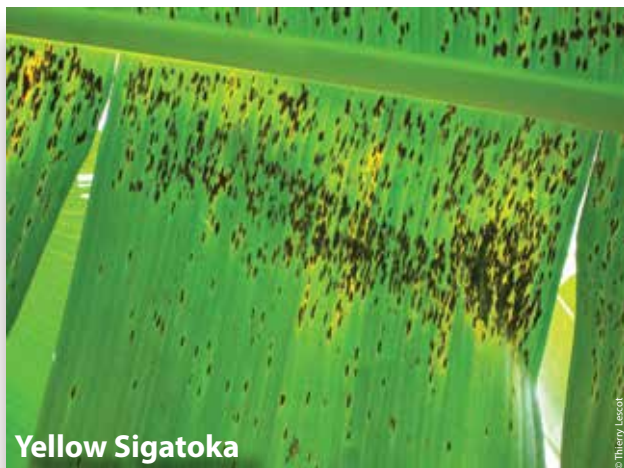
confirmed (it has also been detected in Nigeria in West Africa).

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

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

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

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



Distribution of Black Sigatoka in the Caribbean arc



Indian plantations. These rational control methods can now be applied in the management of Black Sigatoka.

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

Different control strategies

In the main Latin American producer countries, export banana plantations form vast agroindustrial units in alluvial plains. Given the areas of the estates (several hundred or even several thousand hectares), there is little outside contamination. There are no outbreaks of the disease in the immediate neighbourhood of agroindustrial plantations. Agroclimatic homogeneity makes it possible to organise and rationalise the spraying of large units. Low labour costs facilitate the cleansing work required in the form of regular deleafing. In this context, the impact of spraying in terms of nuisance is not always taken into account by the large companies, who do not hesitate to use systematic control strategies leading to more than 50 sprayings per year. In this case, spraying is often performed at less than weekly intervals, and generally involves

contact fungicides (chlorothalonil, dithiocarbamates, etc.) that by definition are not very effective, and so have a small curative effect. Systemic fungicides are sometimes used but usually in 'cocktails' that are mixes of systemic, penetrating and contact substances prepared as emulsions in oil.

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

- improving the effectiveness of control while reducing the number of sprayings per year;
- limiting the risks of the selection of fungal strains that are resistant to the systemic fungicides used;
- reducing pollution and thus achieving greater respect 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, strobilurins) and penetrating fungicides (morpholines, etc.) which are mixed with refinery oils that are also fungistatic and applied at low volume (13 to 15 litres per hectare), prolonging the effectiveness of each spraying and hence reducing the number of sprayings required each year.

The systemic fungicides on the market have a single-site mode of action on the pathogen and the risk of

Black Sigatoka



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

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

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

Black Sigatoka



New essential control methods

Present control strategies cannot be used indefinitely. The European legislation in force in the French West Indies makes it technically impossible to use rational control strategies based on the alternation of several active substances with different modes of action. Only two fungicides in the triazole family can currently be used for aerial spraying.

A strobilurin fungicide and another in the morpholin group received marketing authorisations at the end of 2008, but they are not used to control Sigatoka

diseases as the authorisation is accompanied by a 100-metre unsprayed buffer zone and this is incompatible with aerial spraying.

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

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

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

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

Think of adopting an overall approach combining new hybrids resistant to Black Sigatoka and cropping systems that enable sustainable conservation of 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

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 the planting tools used (machetes, etc.) or by insects that visit male flowers or their scars after abscission. Upward bacterial colonisation results first in chlorosis and the wilting of the three youngest leaves and then the death of the plant. A cross-section of the pseudostem (or corm) reveals reddish-brown colouring of the vascular vessels. The presence of abundant bacterial exudate is a further sign of bacterial infection. If the contaminated plant bears a fruit bunch, the bacterium colonises all the vascular bundles of the fruits via the rachis. Accumulation of ethylene may cause the premature yellowing of the fruits and cross sections display serious browning. When the bacterium is spread by a machete for example after the cutting of the pseudostem, the contaminated suckers blacken and become stunted in 2 to 4 weeks. The disease was described for the first time in Trinidad in 1910 and is still absent from the Lesser Antilles, except in Trinidad and Grenada. In contrast, it spread rapidly in the Amazon basin in Brazil and in eastern Peru, going as far as northern Guatemala and southern Mexico. It covers a large geographic area. Moko disease spread to the Philippines in 1968 via plant material. There are no resistant varieties or chemical control methods. Only eradication and quarantine give results.



Moko disease

Bacterial wilt

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

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



in 2006. The spread has been rapid, with the disease reaching the Democratic Republic of Congo in 2004, Rwanda in 2005 and Burundi, Tanzania and Kenya in 2006.

Viral diseases

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

Banana bunchy top disease (BBTV)

The plants are markedly stunted and rosetted at the top. The narrow, erect, brittle leaves display strongly

chlorotic borders. The characteristic symptom is the appearance of discontinuous dark green streaks along the pseudostem, the main leaf vein and the secondary veins. When the mother plant is infected, so are all the suckers. The most effective vector is the banana aphid *Pentalonia nigronervosa*.

Mosaic diseases

Banana mosaic caused by the Cucumber mosaic cucumovirus (CMV)

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

Banana streak disease (BSV)

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

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



Borer



correlated with the presence in the genome of the *M. balbisiana* parent of endogenous viral sequences of BSV (e-BSV) containing all the information required to synthesise the infectious virus.

Banana bract mosaic (BBrMV)

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

Originating in South-East Asia, the banana borer has spread to all subtropical and tropical banana and plan-

tain 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, digging tunnels. These tunnels disturb water and mineral supply of plants, lengthen the production cycle, cause serious decreases in yield and weaken the anchorage of the plants, making them more sensitive to wind. Strong attacks can lead to the death of the plant. In addition to classic chemical treatment, the use of healthy planting material (tissue culture plants) used in clean soil (after fallows) is a method of borer control. New borer trapping methods using pheromones (sordidin) are available. A control system combining entomophagous nematodes and sordidin traps is being developed.

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

Nematodes

Numerous nematode species parasitise banana roots and corms. Root knot nematodes (*Meloidogyne* spp.) and spiral nematodes (*Helicotylenchus* spp.) are found all over the world in all kinds of crop. However, the most damage is caused by the migrating nematodes



Nematode



Banana borer on a corm

Pratylenchus spp. and *Radopholus similis*. The latter species is found everywhere in the hottest banana growing zones and especially in intensive plantations where it arrived via germplasm movements during the spread of the crop during the past two centuries. *Pratylenchus coffeae* is also present in the hottest zones but is generally indigenous and found mainly on plantain crops. *Pratylenchus goodeyi* prefers cooler areas and originated on the Africa plateaux. It is observed in certain subtropical zones such as the Canary Islands, for example.

Underground enemies

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

chorage of the plants in the ground and increases the risk of toppling, especially during hurricane periods, with a strong economic impact.

Prevention and control

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

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.



Wound anthracnose

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

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 yield 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 fungicide discharges near packing stations.

Banana quality defects in the field

Pests



Flower thrips



Red rust thrips



Snail damage



Damage by *Diaprepes* root weevil



Silver rust thrips

Photos © Luc de Lapeyre, Marc Chillet, Marie-José Rives, Fruidor

Banana quality defects in the field

Physiological defects and other imperfections



Double fruit and deformed fruit



Scarring by a fruit tip



Scarring by a leaf



Scarring by guying cord



Sunscald



Chemical burns

Diseases



Speckling



Red speckling at ripening



Deightoniella



Sooty mould on fruit stalk



Cigar-end rot

Photos © Luc de Lapeyre, Marc Chillet, Marie-José Rives, Fluidor

Banana quality defects at packing

Selection problems and miscellaneous defects



Fruit too thin



Fruit too short



Latex stains



Incomplete flower removal

Bruising



Flexed fruit stalks



Bruising caused by impact during packing

Dehanding problems



Crown cut too short



Pointed crown



Detached crown



Knife wound

Photos © Luc de Lapeyre, Marc Chillet, Marie-José Rives, Fluidor

Banana quality defects after transport

Ripening problems



'Ship ripe' fruits



Unevenness after ripening

Storage problems



'Green ripe' fruits



Chilling injury

Storage diseases



Latent anthracnose infection



Wound anthracnose



Crown rot



Crown rot

Photos © Luc de Lapeyre, Marc Chillet, Marie-José Rives, Fruidor



Genetic diversity of the banana

Over a period of thousands of years, population migrations and movement of plant material have placed the banana in very different ecological contexts on the various continents. Farmers have succeeded in harnessing the natural mutations resulting from vegetative multiplication. This combination of natural reproduction and selection by man since ancient times has resulted 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 foodstuffs (fibre, livestock feed, 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 the emphasis on varietal mixing. This contributes to continuing selection and hence ensures banana diversity ■

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Banana — Estimated world production in 2014					
Tonnes	Cooking bananas		Dessert bananas		Total
	Plantain AAB group	Highland bananas + ABB group + others	Cavendish	Gros Michel + others	
North America	0	1 000	6 525	100	7 625
South America	5 607 796	388 856	13 049 085	3 410 650	22 456 387
Central America	808 338	62 455	7 390 999	71 500	8 333 292
Caribbean	767 852	665 957	1 096 248	168 887	2 698 944
West and Central Africa	9 468 569	1 247 796	2 401 702	498 442	13 616 509
East Africa	966 418	15 785 050	3 519 093	893 683	21 164 244
North Africa and Middle East	33	9 067	2 226 494	71 882	2 307 476
Asia	2 113 680	16 406 438	31 098 370	11 460 263	61 078 751
Oceania	1 162	530 706	796 437	276 486	1 604 791
Europe	2	17	423 900	27	423 946
World total	19 733 850	35 097 342	62 008 853	16 851 920	133 691 965

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

Production and trade 2013 data + 2014 data for EU import/export and USA (or 2012 data in italics) Estimates in tonnes	Production				Total	Exports		Imports	
	Cooking bananas		Dessert bananas			Cavendish	Plantain	Dessert bananas	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB					
North America									
Canada					0	41	17	555 171	16 039
United States		1 000	6 525	100	7 625	545 108	16 289	4 043 567	311 732
Greenland					0			250	11
Saint Pierre & Miquelon								65	
Total	0	1 000	6 525	100	7 625	545 149	16 306	4 599 053	327 782
	0.0%	13.1%	85.6%	1.3%	100.0%	11.9%	2.0%		
Central America									
Belize	2 949	200	102 000	1 000	106 149	96 733	100	20	
Costa Rica	100 000	2 000	2 000 000	10 000	2 112 000	1 928 095	3 305	12 676	61
Guatemala	197 112	21 000	2 200 000	10 000	2 428 112	1 951 663	167 446	12 055	2 034
Honduras	99 000	10 000	880 000	10 000	999 000	677 778	84 106	24 948	12 325
Mexico	230 000	10 000	1 857 772	30 000	2 127 772	361 822	21 226	88	68
Nicaragua	66 777	12 000	37 227	4 000	120 004	9 700	21 984	7 440	242
Panama	78 500	6 800	313 000	6 000	404 300	252 135	9 727		40
El Salvador	34 000	455	1 000	500	35 955	1	2 769	120 787	70 822
Total	808 338	62 455	7 390 999	71 500	8 333 292	5 277 927	310 663	178 014	85 592
	9.7%	0.7%	88.7%	0.9%	100.0%	71.4%	38.4%		
South America									
Argentina			90 000	50	90 050	277		392 488	3 822
Bolivia	120 000	11 000	173 572	60 000	364 572	111 102	5	30	14
Brazil	460 000	30 000	3 950 000	2 452 622	6 892 622	83 462	483	7	1
Chile					0	8	68	186 232	17 045
Colombia	2 657 910	159 830	2 098 625	489 000	5 405 365	1 549 267	121 732	21 095	31 345
Ecuador	554 212	40 000	5 995 527	150 000	6 739 739	5 405 720	232 561	19	669
Guiana	8 000	800	5 168	1 278	15 246	623	301		22
French Guiana	2 448	500	1 700	1 300	5 948			2 200	
Falkland Isl.								20	
Paraguay		300	62 400	4 300	67 000	21 937		915	
Peru	1 391 339	125 000	239 257	120 000	1 875 596	130 000	1	41	
Surinam	22 000	1 426	85 584	20 000	129 010	85 000	548		
Uruguay					0	2		45 743	510
Venezuela	391 887	20 000	347 252	112 100	871 239	756	1 025		21 000
Total	5 607 796	388 856	13 049 085	3 410 650	22 456 387	7 388 154	356 724	648 790	74 428
	25.0%	1.7%	58.1%	15.2%	100.0%	56.6%	6.4%		
Caribbean									
Anguilla			1					70	12
Antigua & Barbuda	550	25	257	25	857			988	53
Netherlands Antilles	1	1	10	1	13	246		2 221	1 753
Aruba					0			1 300	1 599
Bahamas	2 200	90	4 240	35	6 565	17		900	225
Barbados	68	40	848	15	971	1		2 376	1 198
Bermuda	400	30	329	5	764	1		760	13
Cuba	108 164	400 000	10 000	140 336	658 500	1		275	
Dominica	2 900	400	3 000	100	6 400	1 800	573		
Grenada	288	150	1 000	36	1 474	59	2	22	
Guadeloupe	8 209	550	79 000	1 000	88 759	73 592			200
Haiti	267 000	60 000	130 000	18 000	475 000	2	300	7 515	2 326
Cayman Isl.	23	1	190	9	223			408	7
Turks & Caicos Isl.								487	157
Virgin Isl. (USA)	250	50	1 300	100	1 700				1
Virgin Isl. (UK)	80	10	363	20	473	73		20	4
Jamaica	30 937	1 000	33 200	4 000	69 137	84	1	19	3
Martinique	14 338	400	200 000	800	215 538	193 201			3
Montserrat	75	10	101	5	191			5	10
Puerto Rico	94 632	2 000	68 167	500	165 299			1 738	800
Dominican Republic	229 055	200 000	540 000	3 000	972 055	354 872	3 804		
Saint Kitts & Nevis					0			600	500
St Vincent & Grenadines	1 977	400	2 000	300	4 677	215	1 150		1
St Lucia	1 628	300	18 850	500	21 278	13 000	18		1
Trinidad & Tobago	5 077	500	3 392	100	9 069	45		12 032	2 506
Total	767 852	665 957	1 096 248	168 887	2 698 944	637 209	5 848	31 666	11 371
	28.5%	24.7%	40.6%	6.3%	100.0%	58.1%	0.8%		

Production and trade 2013 data + 2014 data for EU import/export and USA (or 2012 data in italics) Estimates in tonnes	Production				Total	Exports		Imports	
	Cooking bananas		Dessert bananas			Cavendish	Plantain	Dessert bananas	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB					
East Africa									
South Africa	20	1 500	384 583	3 600	389 703	15 256		108 192	
Botswana					0	5		9 421	
Burundi	115 000	1 895 697	130 000	95 000	2 235 697	487		3	10
Comoros	3 000	23 000	33 598	10 000	69 598			10	
Djibouti			1		1			4 634	
Eritrea			10	1	11	20		15 000	
Ethiopia	100	1 000	296 400	2 500	300 000	10 263		2	
Reunion Isl.	10	500	7 645	4 790	12 945				
Kenya	31 000	872 412	412 000	82 742	1 398 154	63	1	557	282
Lesotho					0			2 900	
Madagascar	42 000	12 000	293 000	8 000	355 000	32			
Malawi	75 000	20 000	50 000	10 000	155 000			60	
Mauritius	10	700	8 671	800	10 181			1	
Mayotte	640	6 400	6 000	1 000	14 040			1 724	
Mozambique	30 000	4 000	415 000	1 000	450 000	144 698		19	
Uganda	180 000	8 246 308	50 000	450 000	8 926 308	22 883	2 639	39	1 000
Rwanda	320 000	2 693 462	180 000	70 000	3 263 462	20	1	1 037	10
Seychelles	80	317	1 520	100	2 017			1	1
Somalia	5 000	1 000	32 000	1 000	39 000	18	1	4 417	
Sudan		1 000	600 000	2 000	603 000	9 288			
Western Sudan	2	300	153 698	500	154 500				
Swaziland	5	4	6 157	1	6 167	1 000		2 339	
Tanzania	150 700	2 004 900	373 080	150 000	2 678 680	69	23	1	
Zambia	1	50	680	49	780	1		2 272	5
Zimbabwe	13 850	500	85 050	600	100 000	49	341	10	
Total	966 418	15 785 050	3 519 093	893 683	21 164 244	204 152	3 006	152 639	1 308
	4.6%	74.6%	16.6%	4.2%	100.0%	5.8%	0.3%		
West and Central Africa									
Angola	120 000	10 000	287 000	15 700	432 700			21	85
Benin	45 000	500	18 143	3 000	66 643		200	5 000	2 100
Burkina Faso	100	10	15 000	10	15 120	22		5 914	1 636
Cameroon	1 600 000	200 000	500 000	220 000	2 520 000	255 079	40 000	36	
Cape Verde	10	30	9 963	30	10 033			3	
Congo	86 117	3 000	28 000	3 000	120 117			11	2 000
Congo (Dem. Rep.)	427 000	600 000	223 000	100 000	1 350 000	208	3 000	5	
Côte d'Ivoire	1 624 354	205 454	480 000	6 000	2 315 808	210 614	35 000		
Gabon	80 000	10 000	17 143	2 000	109 143	19		161	11 000
Gambia	8	1	180	1	190			2 800	
Ghana	1 980 000	50 000	130 000	25 000	2 185 000	46 000	233	21	97
Guinea	450 000	20 000	193 742	20 000	683 742	19	20		
Guinea Bissau	39 962	4 000	7 592	400	51 954	1			
Equatorial Guinea	20 000	3 000	4 972	2 000	29 972	6		2 000	9 000
Liberia	48 357	7 000	42 000	10 000	107 357			3 929	14
Mali	6 500	500	110 000	500	117 500			16 934	5 500
Mauritania		1	70	1	72			3 562	
Namibia					0	2		4 676	
Niger			350		350			4 883	2 500
Nigeria	2 780 000	127 000	230 000	85 000	3 222 000	75	1	336	1 000
Central African Rep.	85 734	3 000	37 395	3 000	129 129				2 000
St Helena								12	2
Sao Tomé & Príncipe	3 000	1 000	1 500	1 000	6 500				10
Senegal	200	100	33 444	100	33 844	13		17 066	22
Sierra Leone	44 227	2 000	9 000	1 000	56 227			10	
Chad			10		10			15 000	1 500
Togo	28 000	1 200	23 198	700	53 098	99		2	100
Total	9 468 569	1 247 796	2 401 702	498 442	13 616 509	512 157	78 454	82 382	38 566
	69.5%	9.2%	17.6%	3.7%	100.0%	21.3%	0.8%		
North Africa & Middle East									
Algeria		1	324	10	335			273 997	54
Saudi Arabia			5		5	4 019		306 207	
Bahrain			967	50	1 017	613		6 629	
West Bank		5	3 737	5	3 747			17 475	
Egypt	3	3 000	1 076 714	65 000	1 144 717	13 235		30 000	1 060
United Arab Emirates			204	1	205	6 028		401 004	
Iraq			10		10			4 504	
Iran		3 000	128 050	3 000	134 050	28		122 391	
Israel		1 000	137 199	1 200	139 399	15		9	
Jordan		400	41 068	540	42 008	124		47 298	
Kuwait					0	2		99 876	
Lebanon	10	400	129 069	800	130 279	38 017		179	
Libya		1	2	1	4			69 174	
sub-total (contd. p. 101)	13	7 807	1 517 349	70 607	1 595 776	62 081	0	1 378 743	1 114

Production and trade 2013 data + 2014 data for EU import/export and USA (or 2012 data in italics) Estimates in tonnes	Production				Total	Exports		Imports	
	Cooking bananas		Dessert bananas			Cavendish	Plantain	Dessert bananas	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB					
North Africa & Middle East (concluding)									
Morocco		500	301 469	500	302 469	150		19 485	
Oman		500	66 365	300	67 165	2 758		19 060	
Qatar					0	129		25 933	
Western Sahara					0			2 500	
Syria			137	10	147			240 000	
Tunisia		10	55	50	115	800		17 545	8
Turkey		50	215 307	115	215 472	7		207 171	
Yemen	20	200	125 812	300	126 332	56 249			
Total	33	9 067	2 226 494	71 882	2 307 476	122 174	0	1 910 437	1 122
	0.0%	0.4%	96.5%	3.1%	100.0%	5.5%	0.0%		
Asia									
Afghanistan					0	1		85 950	
Azerbaijan					0			2 666	18
Bangladesh	13 000	120 000	425 000	216 000	774 000	380	20	169	
Bhutan	70	500	1 479	400	2 449	1		432	
Brunei		40	891	70	1 001	394		4 216	
Cambodia	2 000	40 000	155 259	12 000	209 259				
China	1 000	568 000	10 900 000	606 238	12 075 238	4 347		1 127 158	20
South Korea					0	544		359 124	
North Korea					0			13 372	
Hong Kong					0	103		81 973	
India	1 900 000	8 600 000	10 000 000	7 075 000	27 575 000	54 904	1	4	
Indonesia	70 000	2 000 000	2 100 000	1 189 115	5 359 115	100	5 580	337	
Japan			126		126	14		946 204	6 380
Kazakhstan					0	33		50 566	15
Kyrgyzstan					0	115		13 545	
Laos	1 000	153 000	182 543	65 000	401 543			17	
Macau					0			2 763	
Malaysia	20 000	60 000	140 479	70 000	290 479	20 922		21 468	
Maldives	90	1 500	2 000	850	4 440			939	29
Mongolia					0			2 155	
Myanmar	20 000	560 000	190 000	230 000	1 000 000	45 118		103	
Nepal	10	20 000	146 990	15 000	182 000	3		7 701	
Uzbekistan					0			3 419	
Pakistan	500	9 000	115 552	5 000	130 052	86 056		52	
Philippines	1 000	2 854 658	4 419 751	1 370 340	8 645 749	3 201 905		6	
Singapore					0	160		51 475	
Sri Lanka	63 000	294 000	228 000	55 000	640 000	104	20 356	3	55
Tajikistan					0			925	
Taiwan		100	294 700	200	295 000	10 284		16	
Thailand	20 000	530 000	750 000	300 000	1 600 000	31 677	100	9 827	
East Timor	10	40	677	50	777			1	
Turkmenistan					0			100	
Vietnam	2 000	595 600	1 044 923	250 000	1 892 523	16 802	11	8 064	
Total	2 113 680	16 406 438	31 098 370	11 460 263	61 078 751	3 473 967	26 068	2 794 750	6 517
	3.5%	26.9%	50.9%	18.8%	100.0%	11.2%	1.2%		
Oceania									
Australia	20	70	290 250	40 000	330 340	43		167	
Fiji	100	1 550	3 475	500	5 625	19		2	
Guam		100	350		450			1 000	
Cook Isl.		20	63		83	1			
Marshall Isl.					0			50	
Solomon Isl.		90	247		337				
Kiribati		3 300	3 078	400	6 778				
Micronesia	294	500	1 214	13	2 021			89	
Nauru					0			29	
Niue		10	68	2	80	50			
New Caledonia	45	1 500	1 037	100	2 682			1 000	
New Zealand					0	40		73 908	130
Palau					0			50	
Papua New Guinea	500	500 000	478 990	232 500	1 211 990	1 000		75	
French Polynesia		900	2 100	600	3 600			1	
Samoa		13 237	6 286	80	19 603	2			
Samoa (USA)	2	274	540	70	886			1	
Tokelau		5	9	1	15				
Tonga	100	2 656	792	100	3 648	2			
Tuvalu	1	94	155	20	270				
Vanuatu	100	6 000	7 483	2 000	15 583	4			
Wallis & Futuna		400	300	100	800				
Total	1 162	530 706	796 437	276 486	1 604 791	1 161	0	76 372	130
	0.1%	33.1%	49.6%	17.2%	100.0%	0.1%	0.0%		

Production and trade 2013 data + 2014 data for EU import/export and USA (or 2012 data in italics) Estimates in tonnes	Production				Total	Exports		Imports	
	Cooking bananas		Dessert bananas			Cavendish	Plantain	Dessert bananas	Plantain
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB					
Europe									
Azores			1 000		1 000				
Albania					0	255		16 581	553
Germany					0	347 121	812	1 385 733	911
Andorra					0	2		590	1
Armenia					0	50		9 875	
Austria					0	20 943	19	123 209	26
Belarus					0			66 408	109
Belgium - Luxembourg					0	1 171 048	36 049	1 320 613	53 954
Bosnia Herzegovina					0	2		31 156	8 235
Bulgaria					0	6 569	21	38 412	3 795
Canaries	1	5	395 000	5	395 011	364 419			
Cyprus			3 952	5	3 957	38	4	4 903	256
Croatia					0	3 128	14	53 938	725
Denmark					0	6 893	123	86 000	2 697
Spain			250	5	255	98 311	13 838	622 123	36 704
Estonia					0	59		12 542	6
Finland					0	450		85 652	70
France					0	306 525	367	863 177	16 873
Georgia					0	365		17 539	
Gibraltar								132	
Greece		2	2 167	2	2 171	29 959	1 917	137 930	2 330
Hungary					0	3 415	2 487	39 635	6 951
Faroe Isl.					0	9		195	
Ireland					0	452		73 177	10 808
Iceland			1		1	5		3 594	2 850
Italy			347		347	50 648	13 611	690 791	18 450
Latvia					0	16 997	3	29 725	540
Lithuania					0	8 684	253	33 963	3 956
Luxembourg						168		4 620	91
Macedonia					0	8	120	24 831	20 056
Madeira	1	10	20 979	10	21 000	18 649			29
Malta					0			5 160	245
Moldova					0			10 800	131
Montenegro						8	1	9 844	1 332
Norway					0	32		84 570	75
Netherlands					0	250 000	7 096	448 052	22 283
Poland					0	19 720	1 554	305 328	8 462
Portugal			204		204	5 958	1	143 600	3 441
Czech Rep.					0	44 764	37	139 945	9 169
Romania					0	275	777	63 622	35 940
United Kingdom					0	14 930	3 278	1 116 474	25 989
Russia					0	30 503		1 233 356	1
San Marino					0			120	
Serbia & Montenegro					0	808	131	45 652	293
Slovakia					0	15 748	944	50 896	14 181
Slovenia					0	25 712		58 130	1
Sweden					0	35 724	66	197 879	1 309
Switzerland					0	7		84 110	1 304
Ukraine					0	780		215 109	36
Total	2	17	423 900	27	423 946	2 900 141	83 523	9 989 691	315 168
	0.0%	0.0%	100.0%	0.0%	100.0%	29.0%	0.8%		231 645
World total	19 733 850	35 097 342	62 008 853	16 851 920	133 691 965	21 062 191	880 592	20 463 795	861 984
	14.8%	26.3%	46.4%	12.6%	100.0%	34.0%	4.5%		

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

Note 2: differences between import and export totals result from re-exports between non-producer countries (intra-EU trade for example), taking into account two years (2012 and 2013) and the experimental nature of this work.

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

Wholesale market prices in Europe

March 2015

					EUROPEAN UNION - EURO					
					Germany	Belgium	France	Holland	UK	
AVOCADO	Air	TROPICAL	BRAZIL	Box			14.00	17.75		
			DOMINICAN REP.	Box			14.40			
	Sea	ARAD ARDIT ETTINGER FUERTE	ISRAEL	Box	9.50				9.00	
			ISRAEL	Box	9.50		8.50		9.25	
			ISRAEL	Box			7.50			
			BRAZIL	Box	9.00				9.50	
			ISRAEL	Box	9.50		7.00		8.50	
			PERU	Box					9.75	
			SOUTH AFRICA	Box			8.75		9.38	
		HASS	CHILE	Box	13.00					
			COLOMBIA	Box			10.67		11.75	
			ISRAEL	Box	13.00		10.50		11.38	
			KENYA	Box			10.67			
			MEXICO	Box			10.67			
			MOROCCO	Box			10.00			
			PERU	Box						13.64
		NABAL PINKERTON REED FUERTE HASS REED	SOUTH AFRICA	Box			9.00			14.32
			ISRAEL	Box					8.00	
			ISRAEL	Box	9.50		8.50		10.00	11.17
ISRAEL	Box				8.50		9.00			
SPAIN	Box				7.00					
SPAIN	Box		13.00		12.50		11.75	9.55		
SPAIN	Box							6.82		
BANANA	Air	SMALL	COLOMBIA	kg			7.92			
			ECUADOR	kg				5.67		
	Sea	RED SMALL	COLOMBIA	kg				2.94		
			COLOMBIA	kg				2.50		
			ECUADOR	kg			1.70	2.65		
CARAMBOLA	Air Sea		MALAYSIA	kg			4.84	5.32		
			COLOMBIA	kg					3.90	
			MALAYSIA	kg					3.90	
COCONUT	Sea	NOT DETERMINED	COTE D'IVOIRE	Bag			13.50	12.00		
			DOMINICAN REP.	Bag				23.30		
			DOMINICA	Bag					13.64	
			SRI LANKA	Bag					10.23	
			YOUNG	COSTA RICA	Bag					15.50
				THAILAND	Bag					13.80
DATE	Sea	KENTA MEDJOO	TUNISIA	kg				1.75		
			ISRAEL	kg			8.00	7.70		
			PERU	kg				6.00		
		MOZAFATI NOT DETERMINED	IRAN	kg					3.30	
			ALGERIA	kg					1.50	
			ISRAEL	kg					4.09	
			TUNISIA	kg					2.13	
		STONELESS	TUNISIA	kg					2.75	
		GINGER	Sea		CHINA	kg	1.31		2.35	1.31
THAILAND	kg							2.38	1.36	
GUAVA	Air		BRAZIL	kg			6.50	6.22		
	Sea		BRAZIL	kg					2.50	
KUMQUAT	Air		ISRAEL	kg				3.98	6.82	
LIME	Air		BRAZIL	kg			4.00			
	Sea		BRAZIL	kg	1.32	1.28	1.50	1.23	1.23	
			MEXICO	kg			2.15	1.77	1.81	
LONGAN	Air		THAILAND	kg				5.14		
MANGO	Air	KENT NAM DOK MAI PALMER	PERU	kg			5.75	5.50		
			THAILAND	kg				9.20		
			BRAZIL	kg			6.00			
			BRAZIL	kg	1.25		1.44	1.35	1.55	
	Sea	ATKINS KEITT KENT PALMER	PERU	kg				1.38		
			PERU	kg	2.00		2.15	1.63	1.60	
			BRAZIL	kg				2.10		

				EUROPEAN UNION - EUROS						
				Germany	Belgium	France	Holland	UK		
MANGOSTEEN	Air		INDONESIA	kg			9.80	7.82		
			THAILAND	kg			9.80			
MANIOC	Sea		COSTA RICA	kg			1.35	1.13		
MELON	Air	CHARENTAIS YELLOW	DOMINICAN REP.	kg			4.60			
			SENEGAL	kg			2.50			
	Sea	CANTALOUPE	BRAZIL	kg			1.30	1.50	1.77	
			COSTA RICA	kg				1.50	1.21	
			HONDURAS	kg					1.91	
			BRAZIL	kg				1.50		
		CHARENTAIS	COSTA RICA	kg						1.47
			MOROCCO	kg			1.95			
		CHARENTAIS GREEN GALIA	BRAZIL	kg			1.10	1.68	1.84	
			COSTA RICA	kg				1.80		
		HONEY DEW	HONDURAS	kg				1.80	1.91	
			BRAZIL	kg			1.25	1.01	1.01	
			COSTA RICA	kg			0.90	1.01	1.23	
		PIEL DE SAPO	PANAMA	kg				1.07		
			BRAZIL	kg			0.90	1.00		
		SEEDLESS WATER	COSTA RICA	kg						1.50
BRAZIL	kg				0.95	1.22	0.94			
COSTA RICA	kg							0.95		
WATERMELON	BRAZIL	kg						0.86		
	PANAMA	kg			0.85	0.98				
	COSTA RICA	kg				0.98				
PAPAYA	Air	FORMOSA NOT DETERMINED	BRAZIL	kg			3.50	3.25		
			BRAZIL	kg		3.71	3.40	3.57	4.17	
	Sea	FORMOSA NOT DETERMINED	THAILAND	kg				5.25		
			BRAZIL	kg				1.86		
			ECUADOR	kg	2.00		2.43			
PASSION FRUIT	Air	NOT DETERMINED PURPLE	COLOMBIA	kg	4.75	6.25	6.00	6.51		
			ISRAEL	kg		7.25	7.20	6.38		
			KENYA	kg		6.25			5.45	
			SOUTH AFRICA	kg			6.25			
			VIETNAM	kg			8.50			
			ZIMBABWE	kg		6.25		5.25		
			COLOMBIA	kg				8.40		
			ECUADOR	kg				9.25		
PHYSALIS	Air		COLOMBIA	kg			8.66	9.22		
	Sea		COLOMBIA	kg	5.63			6.45		
PINEAPPLE	Air	VICTORIA	MAURITIUS	Box				14.43		
			MAURITIUS	kg			3.85			
	Sea	MD-2	SOUTH AFRICA	Box				12.70		
			COSTA RICA	Box	11.75	12.00		12.47		
			COSTA RICA	kg			1.15			
			COSTA RICA	Piece				1.50		
			COTE D'IVOIRE	kg			1.13			
			PANAMA	Box				12.22		
PANAMA	kg			0.90						
PITAHAYA	Air	RED	THAILAND	kg			8.00			
			VIETNAM	kg			8.00	7.00		
		YELLOW	COLOMBIA	kg				10.42		
			ECUADOR	kg				8.80		
PLANTAIN	Sea		COLOMBIA	kg			1.07			
			ECUADOR	kg			0.90	0.89		
			WINDWARD ISL.	kg					1.65	
RAMBUTAN	Air		INDONESIA	kg				7.75		
			VIETNAM	kg				9.55		
SWEET POTATO	Sea		EGYPT	kg			1.00	1.47		
			HONDURAS	kg				2.05		
			ISRAEL	kg				1.81		
TAMARILLO	Air		COLOMBIA	kg				7.73		
YAM	Sea		BRAZIL	kg				1.50		
			GHANA	kg			1.40	1.29		

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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UNIVEG Katopé France is an important player in the production, packaging, export, storage, ripening and distribution of fresh fruit and vegetables. All these services are carried out to ensure the quality and natural flavour of the fresh produce.

Thanks to its diversified sourcing areas, UNIVEG Katopé France offers all year round a varied range of banana avoiding risks because of climatic hazards. These bananas are marketed under different brands to accommodate the specific needs and requirements of UNIVEG Katopé France's clients.



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