No. 256

May 2018

FRuiTROP magazine

fruitrop.com

English edition

Banana

Still a crisis-free fruit?

2018 summer avocado:
A test campaign!

Producer country file:
The table grape in India

Plantain banana:
Self-consumption predominant

Chilean blueberry:
Quality to face off the competition

THIS IS A GOOD GOOD GOOD BANANA

GOOD for the environment, GOOD for producers and GOOD for consumers.

Our SCB Premium bananas are also available in organic, Fairtrade and organic Fairtrade.

High-quality fruit, produced under conditions respectful of people and the environment.

Contenu publié par l'Observatoire des Marques du CESE – Droits de reproduction réservés

The times are changing, and a good thing too. *Agriculture has had its day, from now on let's talk about food and land development. Multi-functional agriculture, a concept introduced at the Rio Earth Summit (1992) since fallen into disuse, is back with a vengeance. At the States General for Food (EGA), France has put the various uses of agriculture back in the limelight. Agriculture had for too long been restricted to a strictly calorie producing function. Now it has become part of a whole where food, rural land development, environmental health, animal welfare, distribution of value, etc., are intertwined and often collide. Welcome to agriculture 2.0, not involving drones, but rather a holistic vision of the activity, extending to all its components, to all its responsibilities and rights. Ultimately, that is the role that the EGA has attributed to it. While the principle is a modern and essential one, how can it be transferred to everyday practice in the industries? Quite simply by promoting more solidarity between the various constituent links. This would be a positive solidarity, to ensure that the system as a whole grows and generates value. Which is just the opposite of management of the industry by the strongest, which subjugates the weakest and impoverishes everyone. So in France, this role will be played by the inter-professional associations. Forced to adopt this organisational model, all French agricultural industries are now united in terms of their future. And because in France everything works via the law, there is a bill under discussion to set a course for these inter-professional associations. But let's not nip this fine idea in the bud. The principle of subsidiarity needs to be the rule: they have been empowered by the authorities, now let's set them to work. They have a diverse enough composition to ensure a balance of forces. Why for example straightjacket them with a certified organic foods quota in the catering sector? Technically, things can often be improved in terms of social and environmental impacts. Come on, let's have a small effort from democracy. There will still be time to regain control. We have waited so long for food to return to the forefront of our lives that we can take the risk to see it succeed.*

Denis Lœillet

cirad
AGRICULTURAL RESEARCH FOR DEVELOPMENT

Publisher
Cirad
TA B-26/PS4
34398 Montpellier cedex 5, France
Tel: 33 (0) 4 67 61 71 41
Email: info@fruitrop.com
www.fruitrop.com

Publishing Director
Eric Imbert

Editor-in-chief
Denis Loeillet

Editor
Catherine Sanchez

Computer graphics
Martine Duportal

Iconography
Régis Domergue

Website
Actimage

Advertising Manager
Eric Imbert

Subscriptions
www.fruitrop.com

Translators
Jabtrad Ltd and Tradeasy

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

ISSN
French: 1256-544X
English: 1256-5458
Separate French and English editions

Subscription rate
EUR 325 / 8 issues per year
(paper and electronic editions)

FRuiTROP

Contents

Cover photograph © Thierry Lescot

Banana

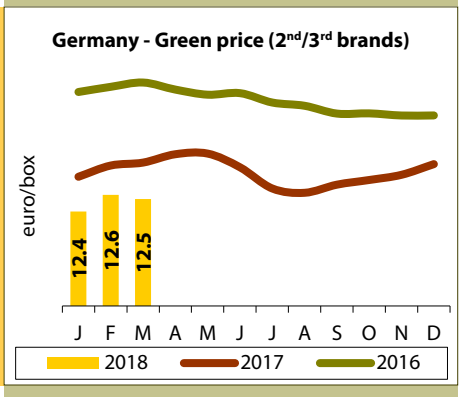
March 2018

Demand on the various European markets maintained a very good level. The absence of competing fruits and the persistent cold contributed to maintaining good banana sales. The launch of promotions on certain markets also contributed to keeping sales going. However, despite some ongoing shortfalls, the supply started to rise. Shipments from the French West Indies remained well below average (- 57 %) due to Cyclone Maria. Despite the incipient increase, African shipments were below-average (- 10 %), because of the ongoing shortfall from Cameroon, which the increasing volumes from Côte d'Ivoire and Ghana were unable to offset. As for the dollar banana supply, it rose throughout the month, with the end of the Colombian shortfall, the beginning of the seasonal increase from Ecuador and stable Costa Rican volumes, bigger than in 2017. Most of all, the ongoing logistical problems, which fostered a feeling of under-supply at the beginning of the month, upset the market as the supply rose, with deferred volumes becoming available at certain ports. Hence prices started to drop toward the end of the month, in particular on the East European markets where availability increased with re-exports from Western Europe on the rise. Spot market prices started to fall, though they maintained record levels for the season (13 % above average). In Russia, in spite of the rising supply, green banana prices reached record levels given the good demand and ongoing logistical disruptions.

NORTHERN EUROPE — IMPORT PRICE

March 2018 euro/box	Comparison	
	previous month	average for last 2 years
12.54	0 %	- 8 %

EUROPE



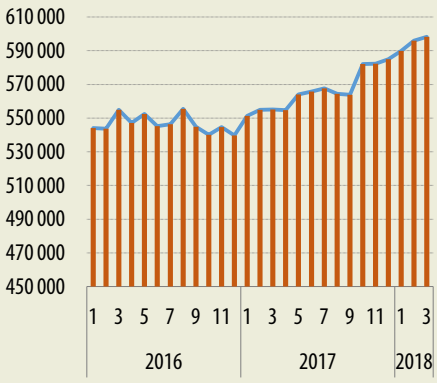
■ **Slowdown in banana demand in Russia and in the Eastern Mediterranean.** The strengthening of the dollar against certain currencies is generating trouble on the world market. The rouble lost nearly 5 % against the American currency from early March. There has been a more gradual downward trend against the buck registered since summer 2017 for the Turkish lira and Iranian rial (- 15 %). These markets are far from bit players in terms of volumes. Turkey imports between 200 000 and 220 000 t of bananas per year. As for Iran and Russia, both markets seeing strong growth in recent years, the volumes respectively reached were 610 000 t (2016) and more than 1.5 million tonnes (2017). These few figures make it clear that when these markets sneeze, world trade catches cold.

Sources: Sopisco, CIRAD, Comtrade

■ **Banana market in France: still on the rise!** Whereas in March 2017 banana consumption was at a standstill, in March 2018 it was up 4 % to practically 60 000 tonnes. We need to go back to 2011 to find as high a figure in March. Over Q1 2018, consumption in France leapt up again by 9 % to reach 162 600 tonnes. Over twelve months (April 2017 to March 2018), consumption was up by 8 % to near the symbolic 600 000-tonnes mark (598 000 to be exact). In terms of supply structure, the one-third fall over one quarter in banana volumes from Martinique and Guadeloupe (18 253 tonnes) was very readily offset by the other categories, i.e. the ACPs (+ 12 %) and dollar origins (+ 4 %). We can note a considerable fall in arrivals from other EU Member States (- 5 %). Re-exports too were down by 14 %, falling below 50 000 tonnes. Côte d'Ivoire (+ 22 % for Q1 2018 compared to 2017) led the way among third-country origins, ahead of Cameroon which saw a 7% decrease. Colombia, Ecuador and Costa Rica were up by 20 %, 28 % and 25 % respectively. In the top 6, the Dominican Republic registered a small rise of approximately 4 %.

Source: CIRAD

Banana - France - Supply over a 12-month sliding basis
(in tonnes / source: French Customs)

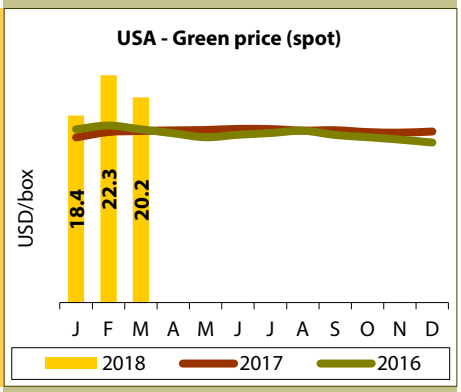


EUROPE - RETAIL PRICE

Country	March 2018		Comparison	
	type	euro/kg	February 2018	average for last 3 years
France	normal	1.66	- 1 %	+ 1 %
	special offer	1.39	+ 7 %	+ 2 %
Germany	normal	1.32	0 %	- 4 %
	discount	1.12	- 1 %	- 5 %
UK (£/kg)	packed	1.05	+ 1 %	+ 2 %
	loose	0.80	0 %	+ 9 %
Spain	platano	2.09	0 %	+ 2 %
	banano	1.24	- 2 %	- 5 %

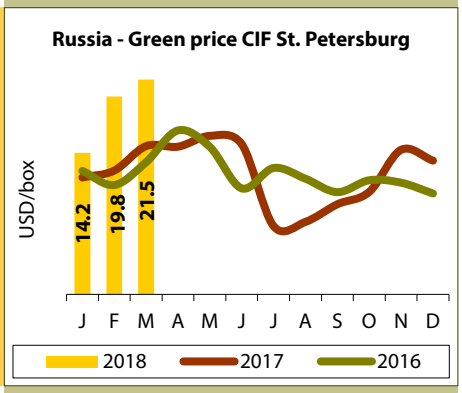
Banana

UNITED STATES



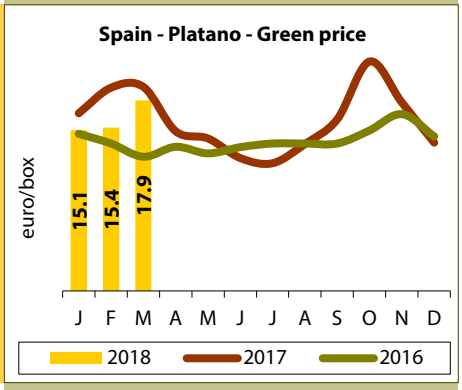
UNITED STATES - IMPORT PRICE		
March 2018 USD/box	Comparison	
	previous month	average for last 2 years
20.15	- 10 %	+ 19 %

RUSSIA



RUSSIA - IMPORT PRICE		
March 2018 USD/box	Comparison	
	previous month	average for last 2 years
21.52	+ 9 %	+ 53 %

CANARIES



CANARIES - IMPORT PRICE*		
March 2018 euro/box	Comparison	
	previous month	average for last 2 years
17.90	+ 17 %	+ 13 %

* 18.5-kg box equivalent

■ **EU on hiatus and USA full steam ahead!** The Eurostat data for February shows that the continual rise in EU-28 consumption is on hiatus. After a good January 2018 (+ 1.5 %), February brought a downturn of 3.4 %. However, we should not over-interpret this very slight under-performance. Consumption in February once again exceeded the 500 000-t threshold, which had never happened before 2016 at this time of year, and over twelve months (March 2017 to February 2018), we are still 200 000 t up on the previous twelve months. Over twelve months, total consumption was 6.36 million tonnes. Apart from European production, which leapt up by 5.7 % (especially the Canaries and Martinique) between 2017 and 2018 (first two months), the dollar origins (- 1.2 %) such as the African ACPs (- 1.3 %) or other ACPs (- 0.8 %) were down. Over the first two months, it was Colombia (- 20 %) and Costa Rica (- 6 %) which were holding back the dollar group. Ecuador (+ 12 %) and Panama (+ 62 %) were a long way up, though without managing to overcome the shortfall. Cameroon (- 11 %), the Dominican Republic (- 3 %) and also Belize (- 23 %) dragged the ACP group into the red, while Côte d'Ivoire increased its supply to the EU by 7 %. The countless logistical problems and alerts for certain transnationals in late January 2018 on the depressive effects on the supply of the climate vagaries, explain this trough, which would only be very fleeting.

For its part, the US market maintained a growth rate of 1 to 2 %, reaching 4.25 million tonnes over the last twelve months (March 2017 to February 2018). It did not have a brilliant February in terms of volumes (+ 0.1 %), yet an excellent January meant a very good start to 2018 on a footing of + 2.1 %. While the conventional banana supply was down by 0.6 % over the first 2 months, it was more than offset by organic banana imports, which leapt up by 25 % (with Ecuador well in the lead). As for the EU, Ecuador proved a hit with a 39 % increase, after a dreadful start to 2017. Guatemala, Costa Rica and Honduras all saw drops.

Source: CIRAD

Banana – EU & USA – Supply from January to February 2018 (provisional)

000 tonnes	2016	2017	2018	2018/2017 difference
EU-28 - Supply	**472**	**535**	**545**	**+ 1.9 %**
Total imports, of which	**883**	**981**	**967**	**- 1 %**
MFN	711	808	799	- 1 %
ACP Africa	100	106	104	- 1 %
ACP others	72	64	64	- 1 %
Total EU, of which	**101**	**80**	**84**	**+ 6 %**
Martinique	26	9	9	+ 5 %
Guadeloupe	8	6	0	- 100 %
Canaries	63	61	72	+ 17 %
USA - Imports	**744**	**764**	**776**	**+ 2 %**
Re-exports	92	91	89	- 3 %
Net supply	652	673	687	+ 2 %

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

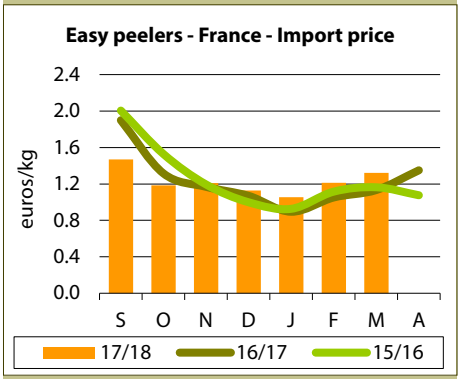
EUROPE - IMPORTED VOLUMES - MARCH 2018			
Source	Comparison		
	February 2018	March 2017	2018 cumulative total compared to 2017
French West Indies	↗	- 28 %	- 34 %
Cameroon/Ghana/Côte d'Ivoire	↗	- 24 %	- 7 %
Surinam	↗	- 18 %	+ 20 %
Canaries	↗	+ 1 %	+ 11 %
Dollar:			
Ecuador*	=	- 3 %	+ 9 %
Colombia*	↗	+ 1 %	- 6 %
Costa Rica	↗	+ 14 %	+ 6 %

Estimate made thanks to professional sources / * total for all destinations

Easy peelers

March 2018

The market started to tighten up in the run-up to the end of the winter campaign. The beginning of the traditional fall in demand was restrained this March by abnormally cool temperatures and by the low pressure from competing fruits. The supply started to wane more considerably with volumes still moderate. However, after the peak in February, Spanish Nadorcott shipments started to subside, though still registering higher levels than in previous years (growth in production). Israeli Or remained well below average (production shortfall), while Moroccan Nadorcott, affected by rains which delayed shipments, also began its seasonal fall and was focused on the North European markets. Hence prices continued to strengthen, reaching higher levels than in previous years.



PRICE

Variety	Average monthly price euro/kg	Comparison with average for last 2 years
Clementine	0.93	+ 13 %
Hybrids	1.61	+ 10 %

VOLUMES

Variety	Comparison	
	previous month	average for last 2 years
Clementine	↘	+ 28 %
Hybrids	↘	- 15 %

VOLUMES

Varieties by source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
	previous month	average for last 2 years		
Spanish Clementine	↘	+ 28 %	Campaign winding down, with bigger volumes than in other years though insignificant.	+ 2 %
Israeli Or	↗	- 33 %	Incoming shipments peak, though with levels still well below average (production shortfall).	- 39 %
Spanish Nadorcott	↘	+ 8 %	Fall underway, though volumes bigger than in previous years (good demand).	- 5 %

■ Regularisation process for the Spring Sunshine easy peeler in Spain.

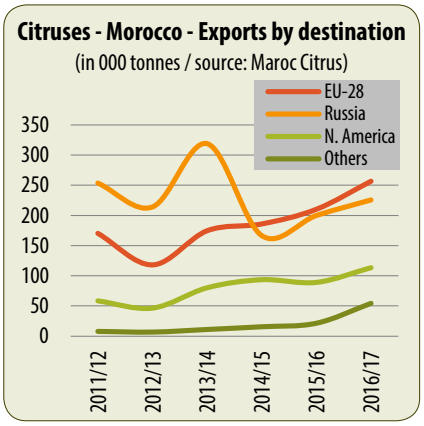
The Enforcement Organization (TEO, the exclusive distributor of the variety in Spain) and ARO (Agricultural Research Organization of Israel, the creator and rights holder) have reached an agreement with a view to the regularisation of illegal plantations and dissemination of this variety in the country. Spain has an allocated quota of 700 000 trees (i.e. approximately 1 000 ha). The regularisation process will run until the end of 2018 (12 euros/tree until late August, then 20 euros/tree until the end of the year). Legal actions will be launched in 2019 against non-regularised plantations. The Spring Sunshine variety has molecular markers making for easy identification. This variety, also known by the name Mor, was derived from irradiation of the Murcott tangor. Its main assets are its late maturity, its low number of pips and the very high sugar content of its juice.

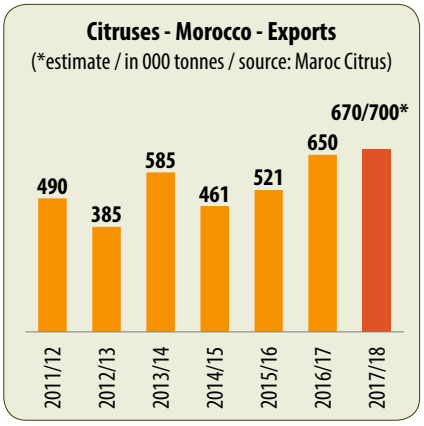
Sources: Reefer Trends, James Saunt (Citrus of the world)

■ Moroccan citrus exports in 2017-18: more than confirmation!

The growth trend in Moroccan citrus exports was confirmed. Volumes on the international market approached 600 000 t in early April, marking a rise of approximately 8 % on 2016-17. The total exports for this campaign should be between 670 000 t and 700 000 t. This is the third consecutive upward season, after the low point of 460 000 t reached in 2014-15. The origin's better footing on the Community market is the other trend confirmed. The EU-28 market share should hold up at approximately 40 %, whereas it was just 30 % at the beginning of the decade. The breakthrough into North American too should be confirmed (more than 20 % in early April, as opposed to barely more than 10 % at the beginning of the decade). This augurs well for Morocco, with production growth still ongoing. The country's planted area of 130 000 ha should be able to produce 3 million tonnes by 2020, i.e. 600 000 to 700 000 t more than today.

Source: Maroc Citrus

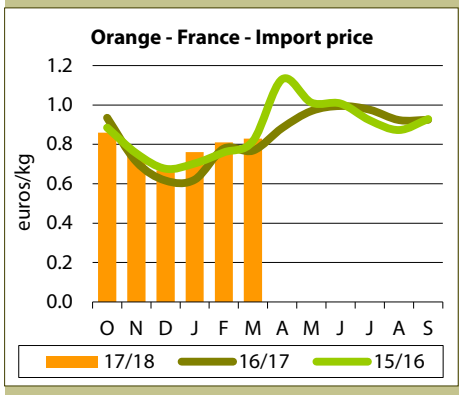




Orange

March 2018

The market remained firm and under tension. On the one hand, thanks to temperatures remaining cool and the absence of competing fruits, demand maintained a positive trend. On the other hand, imports started to ebb more distinctly. For the table orange, Navelate fell well below average (- 25 %) due to starting the season ahead of schedule and the low production potential. The supply was topped up by growing volumes of Navel Powell, yet they could not offset the shortfall. Prices remained stable and firm. Conversely, for the juice orange, the supply was disrupted by rains in the Andalusia production zone. Salustiana volumes were bigger than in previous years, and still available, so Valencia Late was delayed. Prices remained slightly below average because of the often advanced maturity of Salustiana.



■ **Sanitary protocol for the Chilean lemon eased in the USA.** This is excellent news for the Chilean citrus industry. Fumigation of lemons with methyl bromide will now no longer be mandatory for exports to the USA. Fruits bound for this market will nonetheless need to comply with a strict sanitary protocol ensuring the absence of *Brevipalpus chilensis*. Chilean operators will be able to further tap into a market still exhibiting distinct growth, consumption having risen by more than 300 g since the beginning of the decade, peaking at 2.0 kg/capita in 2016-17. While Chile remains by far the main counter-season market supplier, with volumes increasing to nearly 45 000 t in 2017, it must now share it with Uruguay and Argentina.

Sources: Reefer Trends, Comtrade

■ **China vs. USA: the oranges of wrath.** The citrus sector has felt the full force of the Sino-American trade war. Beijing has decided to place a 15 % tax on a long list of fruits from the USA, including citruses. The USA exported approximately 150 000 to 160 000 t of citruses to China and Hong Kong in 2015-16 and 2016-17. This big market, which takes in 15 to 20 % of the country's total exports, represents approximately 130 to 150 million USD.

Sources: Reefer Trends, Comtrade

PRICE

Type	Average monthly price euro/15-kg box	Comparison with average for last 2 years
Dessert orange	12.45	+ 2 %
Juice orange	11.70	- 2 %

VOLUMES

Type	Comparison	
	previous month	average for last 2 years
Dessert orange	↗	- 6 %
Juice orange	↘	+ 4 %

Lemon – United States – Imports from Southern Hemisphere

in tonnes	2013	2014	2015	2016	2017
Chile	11 829	16 780	33 574	31 162	41 246
Uruguay	-	24	795	1 889	2 776
New Zealand	480	770	818	1 177	700
Total	**12 309**	**17 574**	**35 186**	**34 228**	**44 722**

Source: US Customs

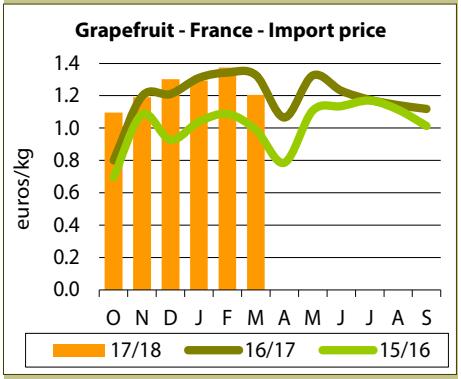
VOLUMES

Varieties by source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
	previous month	average for last 2 years		
Spanish Navelate	↗	- 25 %	Shipments slowing down, volumes in shortfall because of rains at production stage and campaign being ahead of schedule.	- 8 %
Spanish Salustiana	↘	+ 10 %	Volumes falling to levels still higher than in previous years, late end to the campaign due to the rains in Andalusia.	+ 9 %
Spanish Valencia late	↗	- 52 %	Delayed start by Valencia Late, supply progressing slowly with smaller volumes than in previous years.	- 52 %

Grapefruit

March 2018

The market remained firm and balanced. While demand was not particularly dynamic, the supply remained limited. The last Floridian volumes, well below-average, were received at the beginning of the month (a historically short campaign). Stocks were able to feed the market, though with very limited volumes and above all small sizes. Hence prices for the origin, already very high, maintained record levels. The Mediterranean grapefruit supply started to decrease. The seasonal fall from Spain began, with below-average volumes (production shortfall and campaign ahead of schedule), while Turkey exhibited a smaller market presence. Only Israel saw a rise, with bigger volumes than in previous years (late-season strategy). In this context prices remained firm and above average. The first Corsican batches entered the market at the end of the month, bearing in mind that the campaign is predicted to be below-average (winds causing production losses).



PRICE	Source	Average monthly price euro/17-kg box equivalent	Comparison with average for last 2 years
	Mediterranean	13.51	+ 14 %
	Tropical	28.20	+ 33 %

VOLUMES	Source	Comparison	
		previous month	average for last 2 years
	Mediterranean	↗	+ 11 %
	Tropical	↘	- 83 %

VOLUMES	Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Florida	↘	- 83 %	Very early end to the campaign. Historically low season because of losses due to Cyclone Irma in 2017 and greening.	- 60 %
	Israel	↗	+ 11 %	Supply on the rise with above-average volumes.	+ 5 %
	Corsica	↗	-	First shipments at the end of the month. Production below the 3-year average due to losses caused by winds.	-

■ **South African citruses forecast: another record campaign!** South African production remains on a clearly upward trend. Despite the drought in Western Cape and part of Eastern Cape, export volumes should exceed 130 million 15-kg boxes (+ 8 % on 2017 and + 14 % on the 2016-2017 average). There was a major boom in easy peelers (especially late) and lemons, with both varietal groups up by more than 20 % on the 2016-2017 average. This clearly illustrates the strong expansion in mandarin and lemon surface areas (see **FruiTrop** 255). There was a considerable increase for the grapefruit too, though the export potential remained below its record level from 2013. Valencia availability will remain stable compared to 2017, though at a record level (+ 12 % on the 2016-2017 average). Conversely, Navel will bear only average volumes, despite a big increase on the very lean 2017 season. A trend which illustrates the near-stagnation in the cultivation area of the queen of table oranges, usurped among producers by later varieties, which find a place on the international market more easily. After another upward campaign, the stated objective for 2025 of 160 million export boxes appears within reach.

Sources: CGA, Reefer Trends

Citruses – South Africa – Exports

in million 15-kg boxes	2012	2013	2014	2015	2016	2017	2018	2018 compared to 2017	2018 compared to 2016-17 average
Easy peelers	7.6	8.4	10.0	10.0	12.2	13.4	15.9	+ 19 %	+ 24 %
Lemon	10.7	10.6	13.2	15.1	15.1	19.0	20.6	+ 8 %	+ 21 %
Total oranges	71.9	76.2	76.9	77.2	68.3	75.1	79.3	+ 6 %	+ 11 %
Navel	24.6	25.4	26.0	24.5	26.2	21.1	25.4	+ 20 %	+ 7 %
Valencia	47.3	50.8	50.9	52.7	42.1	54.0	53.9	0 %	+ 12 %
Grapefruit	13.0	17.8	15.6	15.7	13.8	15.6	16.8	+ 8 %	+ 14 %
Total	**103.2**	**113.0**	**115.7**	**118.0**	**109.4**	**123.1**	**132.6**	**+ 8 %**	**+ 14 %**

Source: CGA

Mango

March 2018

In March, the European mango market recovered very slowly, without approaching the price levels seen at the same period in 2017. Peru maintained very large shipments in the first half of the month. These subsided a little more in the second half. The fall in quantities shipped by Peru was offset by the progressing Brazilian supply. While certain sales were still made at low prices for merchandise taken out of prolonged storage, incoming produce – of good quality and the right sizing – earned better value. Rates rallied slowly and unevenly on the different European markets. One of the driving forces behind the improvement in market conditions was the pick-up in demand, especially in the second half-month in the run-up to the Easter holidays.

The improvements observed for sea-freight mangos were not achieved for air-freight mangos. High volumes and bigger re-shipments from other European markets saturated the French market, and also the Belgian and Dutch markets. The frequent deliveries of advanced maturity batches forced recipients to make price concessions to sell this merchandise which was swelling the market. Numerous sales were made at distinctly lower prices (from 2.50 euros/kg). The Easter holidays only moderately favoured sales. At the end of the month, the first West African mangos made their appearance. Primarily from Burkina Faso, Amélie, Valencia, but also Springfield, Smith and Kent in smaller quantities, struggled to find a place on a market largely supplied by Peru. The West African campaign seemed to be having a more difficult start this year. African produce generally represents an alternative to more expensive Peruvian fruits. Yet this year, the price difference has done nothing to favour West African fruits.

EUROPE

MANGO - INCOMING SHIPMENTS (estimates in tonnes)

Weeks 2018	10	11	12	13
Air-freight				
Peru	80	80	120	200
Sea-freight				
Brazil	1 250	1 700	2 530	2 400
Peru	7 000	6 500	4 800	5 600

Pineapple

March 2018

In March, the supply was disrupted by numerous shipping delays. The irregularity and paucity of the Costa Rican supply had little impact on demand, at least during the first half-month. There was no surge in rates, while demand was more interested in sizes 7 and 8, which had low availability and were the subject of several promotions. From the beginning of the second half-month, the operators realised that the supply would be less than demand for the Easter holidays. A strengthening of rates was observed, with demand focused on sizes 8 and 9. Without being exceptional, demand nonetheless made it possible to sell off the batches available at fairly steady rates. At the very end of the month, operators were informed by their Costa Rican suppliers that the Sweet supply would increase after Easter because of the fairly early natural flowering.

With the end of the February school holidays, the market conditions for the air-freight pineapple improved, and operators gradually improved their imports. Unfortunately, Cayenne met with increasing disillusionment, and did not sell as well as Sugarloaf. Quality problems (lack of coloration and sometimes over-mature fruits) from the main origins supplying the market can also explain the lack of interest demonstrated by purchasers. As regards Sugarloaf, the market remained split in two, with on the one hand a green supply and on the other hand a coloured supply which found it easier to sell, especially on the wholesale markets. The additional Sweet supply, which was less regular and more limited in terms of volume, nonetheless sold on a footing of between 2.30 and 2.50 euros/kg depending on availability.

The Victoria market also had a lean supply, especially at the beginning of the month because of cyclone alerts. Despite an increase from the beginning of the second half-month, the supply remained slightly less than demand, especially in the run-up to Easter, which helped operators maintain high rates throughout the month.

PINEAPPLE - IMPORT PRICE IN FRANCE - MAIN SOURCES

Weeks 2018		10	11	12	13
Air-freight (euro/kg)					
Smooth Cayenne	Benin	1.80-2.00	1.80-2.00	1.80-2.00	1.80-2.00
	Cameroon	1.80-2.00	1.80-2.00	1.80-2.00	1.80-2.00
	Ghana	2.00-2.30	2.00-2.30	2.00-2.30	2.00-2.30
	Côte d'Ivoire	1.90	1.90	1.90-2.00	1.90-2.00
Victoria	Reunion	3.50-4.20	3.00-4.50	3.00-4.50	3.00-4.50
	Mauritius	3.30-3.60	3.30-3.60	3.30-3.60	3.20-3.60
Sea-freight (euro/box)					
Smooth Cayenne	Côte d'Ivoire	6.00-8.00	6.00-8.00	6.00-9.50	7.00-9.00
Sweet	Côte d'Ivoire	8.00-9.50	8.00-9.50	9.00-10.50	9.00-10.50
	Ghana	8.00-9.50	8.00-9.50	9.00-10.50	9.00-10.50
	Costa Rica	7.00-9.00	7.00-9.00	8.00-10.00	8.00-10.00

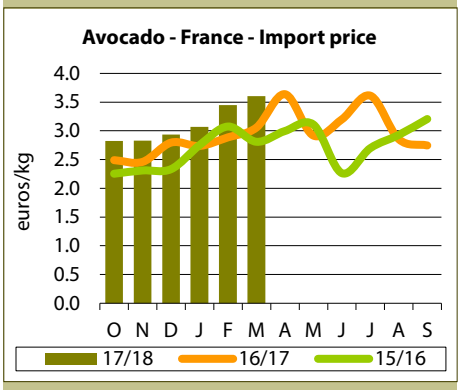
MANGO - IMPORT PRICE ON THE FRENCH MARKET

Weeks 2018		10	11	12	13	March 2018 average	March 2017 average
Air-freight (euro/kg)							
Peru	Kent	3.50-4.50	3.50-4.50	3.50-4.30	3.00-4.00	3.35-4.30	5.00-5.85
Burkina Faso	Amélie	-	-	-	3.00	3.00	3.30-3.60
Burkina Faso	Valencia	-	-	-	3.00	3.00	4.00-4.50
Sea-freight (euro/box)							
Brazil	T. Atkins	4.00	4.50	-	-	4.25	na
Brazil	Keitt	-	4.50	4.50	-	4.50	7.00-8.00
Peru	Kent	3.50-4.50	4.00-5.50	4.50-5.50	5.00-6.00	4.25-5.35	6.35-7.85

Avocado

March 2018

The transition between origins proceeded in a tight context. The overall Hass supply remained similar to last year, though availability was low outside of the programmes. However, the summer origins progressed early (Peru), and other origins continued to break through with above-average volumes (Colombia, Guatemala, Mexico). However, they were unable to offset the early end to the Chilean campaign and the fall from the Mediterranean origins (Israel and Spain). Hence despite an overall supply similar to 2017, the market remained tight because demand gathering pace with the start of the Easter promotions, and prices continued to rise. For green varieties, the market became heavily laden with the huge rise in Peruvian and South African volumes. Prices started to drop, though they remained above average.



PRICE

Varieties	Average monthly price euro/box	Comparison with the last 2 years
Green	9.61	+ 1 %
Hass	14.68	+ 16 %

VOLUMES

Varieties	Comparison	
	previous month	average for last 2 years
Green	↗	+ 36 %
Hass	↗	+ 1 %

VOLUMES

Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
	previous month	average for last 2 years		
Peru	↗	+ 93 %	Early start. Volumes well above average for Hass (+ 43 %), and above all the green varieties (+ 150 %).	+ 96 %
South Africa	↗	+ 16 %	Starting with above-average volumes for green varieties (+ 74 %), and a similar situation for Hass.	+ 51%
Mexico	↘	- 6 %	Volumes falling because of logistical disruptions.	+ 12 %
Israel	↘	+ 5 %	Campaign winding down with high Hass volumes (+ 17 %), but below-average green variety volumes (- 15 %).	+ 2 %
Spain	↘	- 3 %	Campaign winding down, shortfall less marked than at the beginning of the season.	- 20 %

■ A development plan for the Hass avocado in Honduras.

The government has decided to support an aid programme for planting Hass avocado. The main objective is to replace the 10 000 to 11 000 t of annual imports (largely from Mexico) with local produce. Plantations of this variety, estimated at approximately 800 ha and situated mainly in the high-altitude zones in the south-west of the country, will need to expand to 4 000 ha by 2022. The project is supported by international cooperation, especially Taiwanese, in terms of plant production.

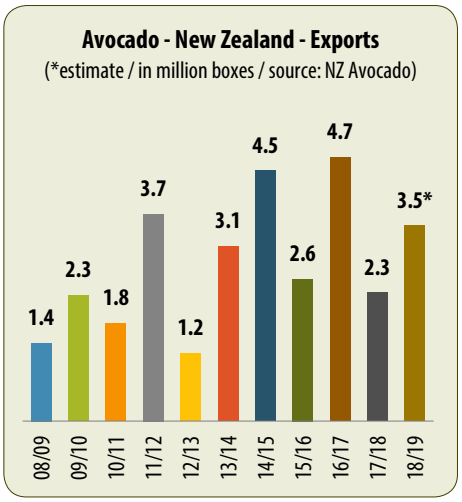
Sources: Reefer Trend, Comtrade

■ New Zealand avocado: positive alternate bearing in 2018-19, and big ambitions.

New Zealand is definitely one of the countries with the most marked alternate bearing phenomena (particularly in the Bay of Plenty, where more than 60 % of surface areas are concentrated). The coming season should demonstrate this once more: exports, which dropped to 2.3 million boxes in 2017-18 (approximately 13 000 t), should rise to approximately 3.5 million boxes according to an initial estimate (approximately 19 000 t). An impressive rise it is true, though with volumes still a long way off the records for the past two years of positive alternate bearing (4.5 million boxes in 2014-15 and 4.7 in 2016-17). New Zealand will have a major new customer in China, after this country lifted its sanitary restrictions in early 2018. The

industry has set itself an ambitious target of doubling production within ten years (70 000 t as opposed to just over 30 000 t on average at present). The project is based on a big increase in average yield (15 t/ha) and expanding surface areas by 1 200 ha (in particular in Northland), taking total surface areas to 5 000 ha.

Sources: NZ Herald, ANZ



Weekly avocado market report

Comprehensive and relevant European market monitoring

- Detailed import prices for each source, variety and size
- Weekly market trends
- Forecasts
- Supply levels

Annual subscription price: €1 000 pre-VAT

(approx. 48 editions per year)

E-mailed out on Fridays

Contact: info@fruitrop.com

or www.fruitrop.com/en/ciradshop/subscribe

FRuiTROP weekly

Roots & tubers

Q1 2018

Sweet potato (SP)

Egypt was the main and most regular supplier of white-fleshed sweet potatoes. They enjoyed a stable sale price of around 0.90 euro/kg on average, with a slight downturn in the second half of March. At the beginning of the year, Egypt also shipped some batches of pink-fleshed sweet potatoes, which sold at between 1.10 and 1.20 euro/kg. Other origins offered white-fleshed sweet potatoes, such as Nicaragua and Guatemala, with average prices of 1.50 euro/kg. Conversely, Brazilian produce traded at higher prices for more limited quantities. The more substantial supply of orange-fleshed sweet potatoes weighed down on prices, with sales of around 1.20-1.30 euro/kg for most of the origins on the market. Israeli produce, generally more expensive, sold at around 1.50 euro/kg, while usually prices for merchandise from this origin are around 1.70 euro/kg. Quality problems (keeping) in January and part of February probably explain the lower rates charged. Prices for Spanish produce strengthened in the second half of the period, as the shipment quantities decreased. Senegal, an origin new to this market slot, has gradually anchored itself on the market with good quality produce. We should note a top-up supply of violet-fleshed sweet potato from Portugal, mainly aimed at the catering sector.

Yam

Ghana, the main yam supplier to the market, saw a downward trend. Sale prices declined gradually from nearly 0.50 euro/kg between the beginning of the year and the end of March. The supply was sufficient in view of the sluggish demand. French-produced yams were present throughout the period, selling at stable prices, though they saw a dip at the end of the period, which also coincided with the end of the market campaign.

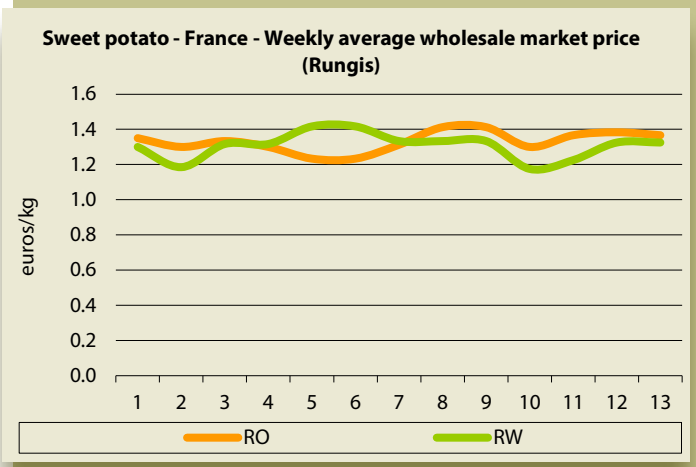
Cassava

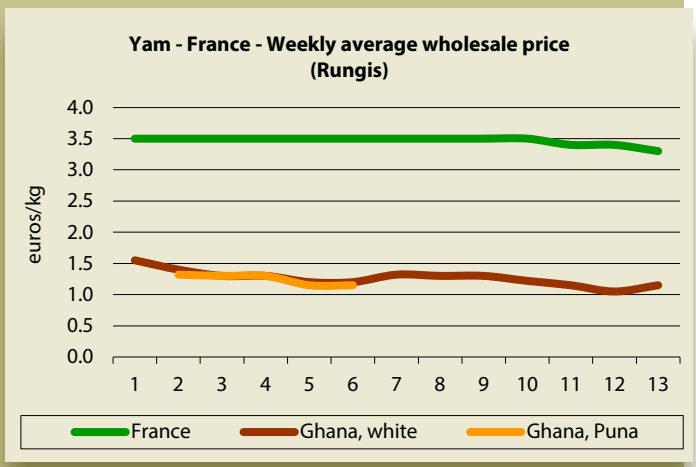
Prices of Costa Rican cassava registered little variation, though with rates strengthening at the end of the period.

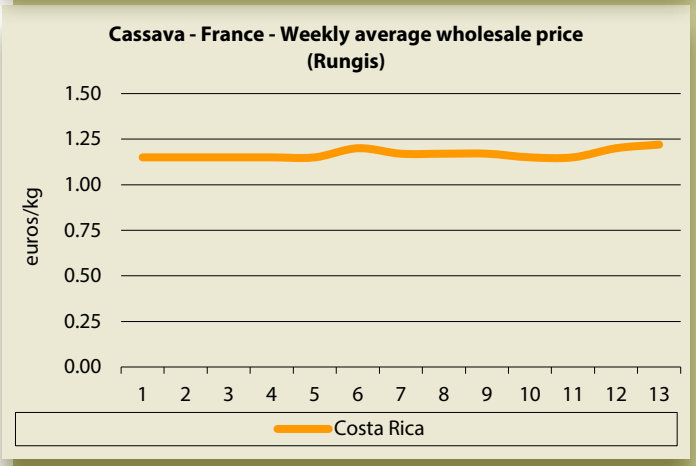
Eddoe

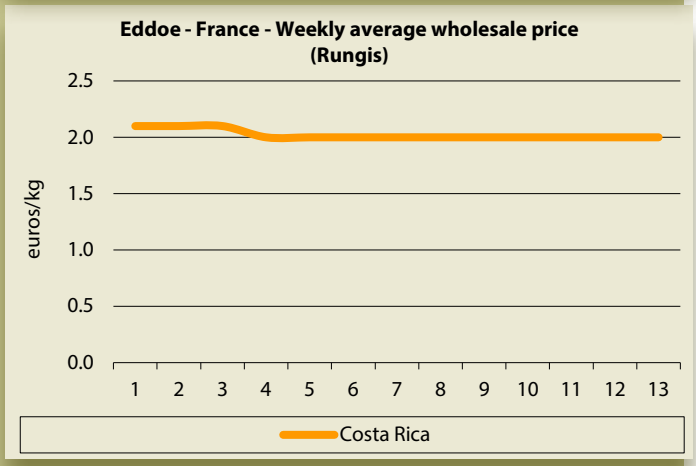
In the second half of January, Costa Rican eddoe rates had to adapt to a dip in demand. They remained stable thereafter, with the supply in balance against demand. Sale prices maintained a wide range, according to the size of the produce (from 1.80 to 2.50 euros/kg).

Cassava









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

Other exotics

Q1 2018

Plantain banana

Market conditions were difficult for the plantain banana in Q1 2018. After improving in December thanks to supply better matching demand, sales declined. Prices gradually ebbed, though volumes on the market were not excessive. However, they came up against a lack of demand highlighted by the operators. From mid-March, sales became even more difficult due to stable demand in a context of larger volumes, and the development of quality problems. Price differences widened between on the one hand, merchandise of satisfactory quality which sold at around 1.00 euro/kg, and on the other hand merchandise which underwent clearance sales from 0.45 euro/kg.

Plantain

Chayote and christophine

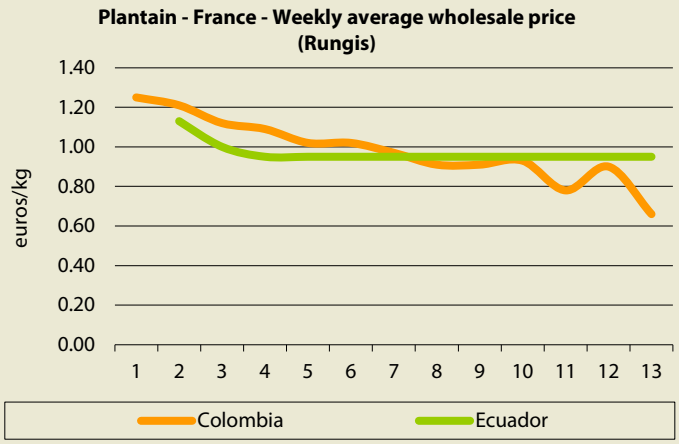
Q1 2018 saw the end of the French chayote marketing campaign. Prices dipped for the last shipments, especially because of the more fragile quality of the produce. Costa Rica took over with steady through moderate volumes, helping maintain high prices in spite of a slight gradual decline. The smaller volumes of christophine shipments favoured high rates, especially in the first half of February when the shortage of produce caused a temporary surge in prices.

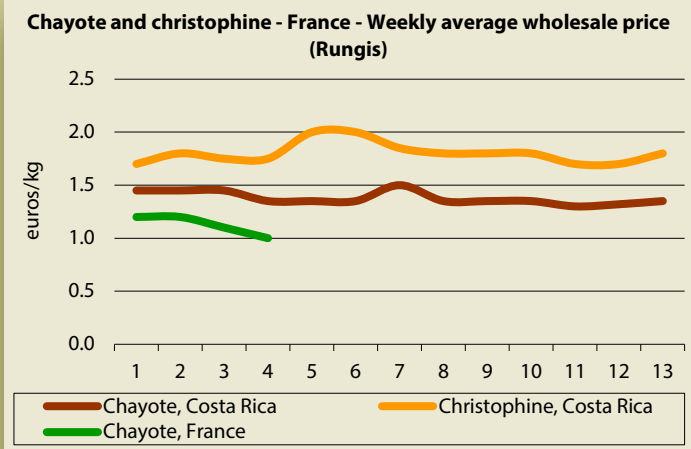
Dasheen

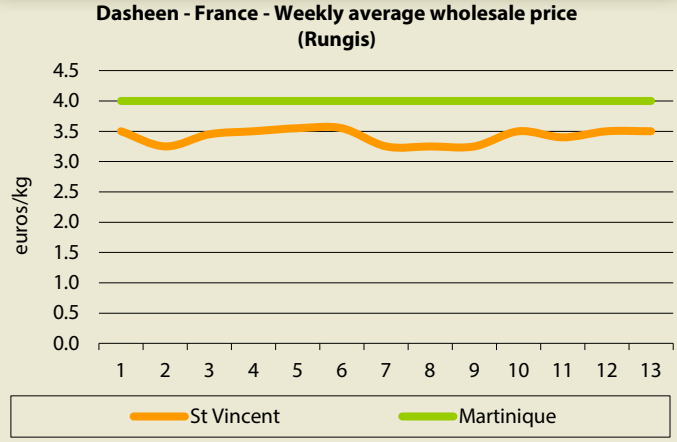
Sale prices for the Saint Vincent dasheen fluctuated with the irregular shipments and sluggish demand. The supply was small from the second half of January to late February. Small air-freight batches of dasheen from Martinique sold steadily at an unchanged price of 4.00 euros/kg.

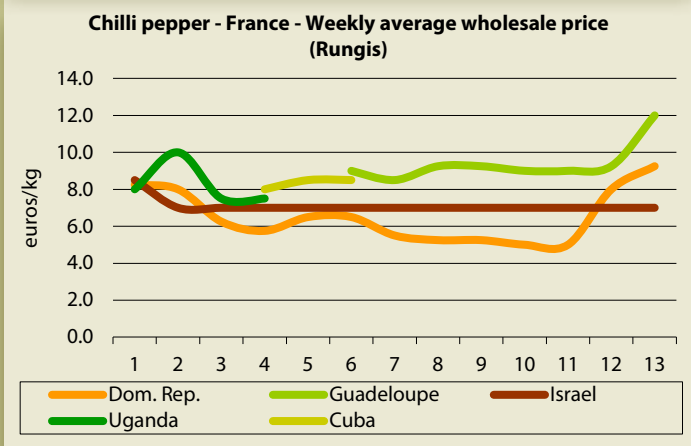
Chilli pepper

The beginning of the year brought a lean chilli pepper supply. The French campaign had ended in mid-December, giving way to Dominican produce. Initially small, shipments from this origin grew, leading to a price slump aggravated by the mediocre quality of certain batches. The shortage of produce encourage other origins to join in, especially several European countries (the Netherlands, Italy, etc.), followed by Uganda and Cuba. The accumulation of quantities ended up swelling the market. The first half of February saw the start of the Guadeloupe campaign, with good quality produce obtaining the highest prices on the market. In March, the dwindling Dominican supply caused a sudden price surge, to in excess of 10.00 euros/kg. Meanwhile, Israel offered chilli peppers throughout the period. Selling at a constant price of 7.00 euros/kg, this produce struggled to establish itself among traditional chilli pepper consumers, given its mildness and lack of flavour.



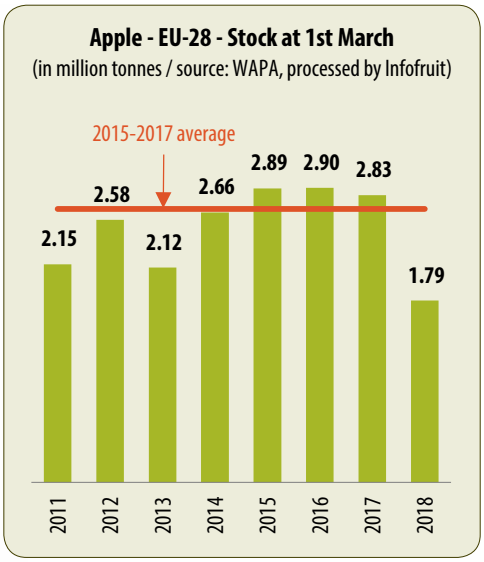






Temperate fruits & vegetables


© Régis Domergue



Apple – EU-28 – Stock at 1st March 2018

in tonnes	2018	2018 compared to	
		2017	Last 3-year average
Golden	587 411	- 37 %	- 36 %
Granny	113 150	+ 10 %	- 3 %
Gala	110 745	- 7 %	- 10 %
Jonagold/Jonagored	97 761	- 62 %	- 65 %
Cripps Pink	84 537	- 22 %	- 48 %
Braeburn	56 820	- 40 %	- 45 %
Elstar	42 173	- 71 %	- 73 %

Source: WAPA

■ **Apple heading for a very meagre end to the season.** The apple shortfall in Europe continued to widen, with just 1.7 million tonnes in stock as at 1 March 2018 (- 37 % on 2017, as opposed to - 32 % in February and 33 % below the 2015-2017 average). Volumes were particularly scarce in Northern Europe and the Alps (- 88 % in Belgium, - 44 % in the Netherlands, - 44 % in Germany, - 37 % in Italy and - 46 % in Switzerland), as well as in Poland (- 37 %). There were still good volumes in France, with a stock on 1 March 2018 only 5 % below the three-year average, but still a very good export level to the whole of Europe throughout March. So the Gala supply was only 10 % below the three-year average at European level in early March, due to the still good volumes in certain Member States, especially France (+ 23 % on 2017). Yet it would seem that they collapsed thereafter, especially for small sizes. The campaign could end early between late April and mid-May for Pink Lady, given the very strong demand at the beginning of the year (- 22 % on 2017 as at 1 March 2018). The end of the season will be especially lean, with overall very few end-of-season varieties in stock, since they were hard hit by the frosts of April 2017. In particular the stock of Golden was 37 % smaller than in 2017, and the Braeburn stock 40 % smaller. For their part, Jonagold/Jonagored registered a fall of 62 %. Only Granny will remain in place with a stock 10 % larger than in 2017 as at 1 March 2018.

Source: WAPA

■ **Stone fruits scarce at the beginning of the European season.** Summer fruits should be in short supply at the beginning of the season, as a result of heavy frosts in late February which affected all the production zones in Southern Europe, more particularly Spain, Italy and France, when the early varieties were already in flower. Hence there should be major losses in the first fortnight of the campaign in Seville, Murcia and Valencia for peaches, nectarines and apricots, whereas the later flat peaches do not seem to have been affected. Losses should also be registered in France, at the very beginning of the season, in the PACA region, in Roussillon and in certain sectors of Rhône-Alpes. The same applies to Italy, where the very first flowers were burned in the south of the country, but also in Emilia-Romagna with in terms of early varieties. There may be summer pear shortages in these countries, but little damage for cherries, plums or seasonal varieties of apricots, peaches and nectarines whose buds were not yet open at this time. More precise info will be presented at the Medfel trade show, to be held this year from 24 to 26 April 2018 in Perpignan.

Source: Infofruit

Sea freight

March 2018

As the world spins into the second quarter of 2018, one could be left with the impression that little is wrong with reefer shipping. The first three months of 2018 were characterized by optimum deployment of the reefer fleet in liner schedules or seasonal business: when spot business did materialize, there were more vessels fixed at lumpsum values and TC rates certainly well above those achieved in the period 12 months ago.

As ever, the explanation for this apparent change of fortune lies on both sides of the supply and demand equation. Historically, Chilean table grape and stonefruit volumes underpin demand for reefer capacity between mid December and end March; despite aggressive, price-based competition from the carriers, the reefer mode has been able to maintain a leading presence in the Chile-US trade until, and frequently beyond the Marketing Order deadline.

This year was no exception – indeed the reefer performed more strongly this season than last: the services operated by Cool Carriers and Global Reefers carried 76% of early Chilean fruit to the US, up from a 72% share in 2016/17. In the early peak of the stonefruit and table grape seasons (i.e. to the end of week 13), the operators carried 447K pallets out of the total 591K shipped to the US east and west coasts. This compares to 442K out of the corresponding 611K pallets shipped in 2016/17 - higher therefore in both relative and absolute terms.

While the specialized reefer remains the modal choice of Chilean shippers, operators undeniably benefitted from the shortage of reefer equipment suffered by the lines, the origins of which stretched back to early February, when bad weather on both sides of the Atlantic wrecked liner schedules, leading to the displacement of reefer container stocks. But it wasn't just Chile. The bad weather in the Caribbean that so disrupted shipping, also caused widespread damage to banana production in Central America. Meanwhile the cold spell in the US and Europe, coupled with a delay to the early berries and relative shortage of substitutable northern and southern hemisphere fruit led to a spike in interest in bananas. The combination led to an unusually buoyant banana market. Ecuador was initially unable to take full advantage; however warmer weather west of the Andes in mid February led to greater availability of bananas. The exit price fell partly because of this increased volume and partly because there was an accumulation of fruit as a result of insufficient equipment in place to meet the sudden rise in demand. This, in turn, led to a series of spot banana charters. With the large vessels either fully occupied, chartered out, sold into the Far East or demolishing, it was the small and handysize units that were able to take advantage.

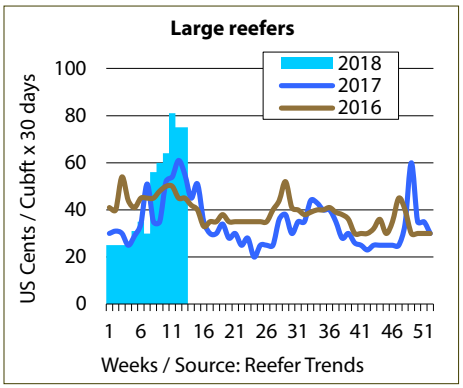
■ **CyclOpe 2018 "Heaven smiles and the Earth rejoices",** the title of Johann Sebastian Bach's cantata BWV 31, is a good illustration of the world economy and its markets as described in the thirty-second CyclOpe report. Virtually all economies on the planet have found their way back to growth and shaken off the final dregs of the 2008 crisis. The markets themselves have rebounded sharply. However, political tensions have by no means been quelled. Produced by a team of sixty experts united around Philippe Chalmin, Professor at Paris-Dauphine University, and Yves Jégourel of the University of Bordeaux, CyclOpe presents an analysis of all these tensions through the prism of the global raw materials and commodities markets – in the broadest sense, from art to zirconium.

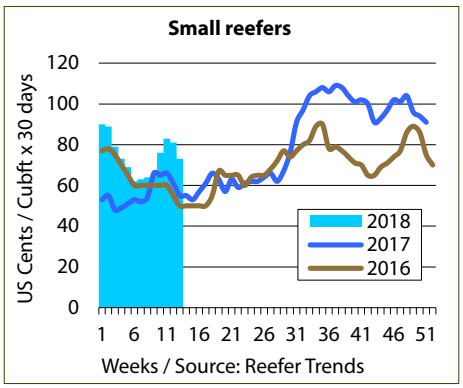
Published in French and English, editions ECONOMICA

EUROPE

MONTHLY SPOT AVERAGE

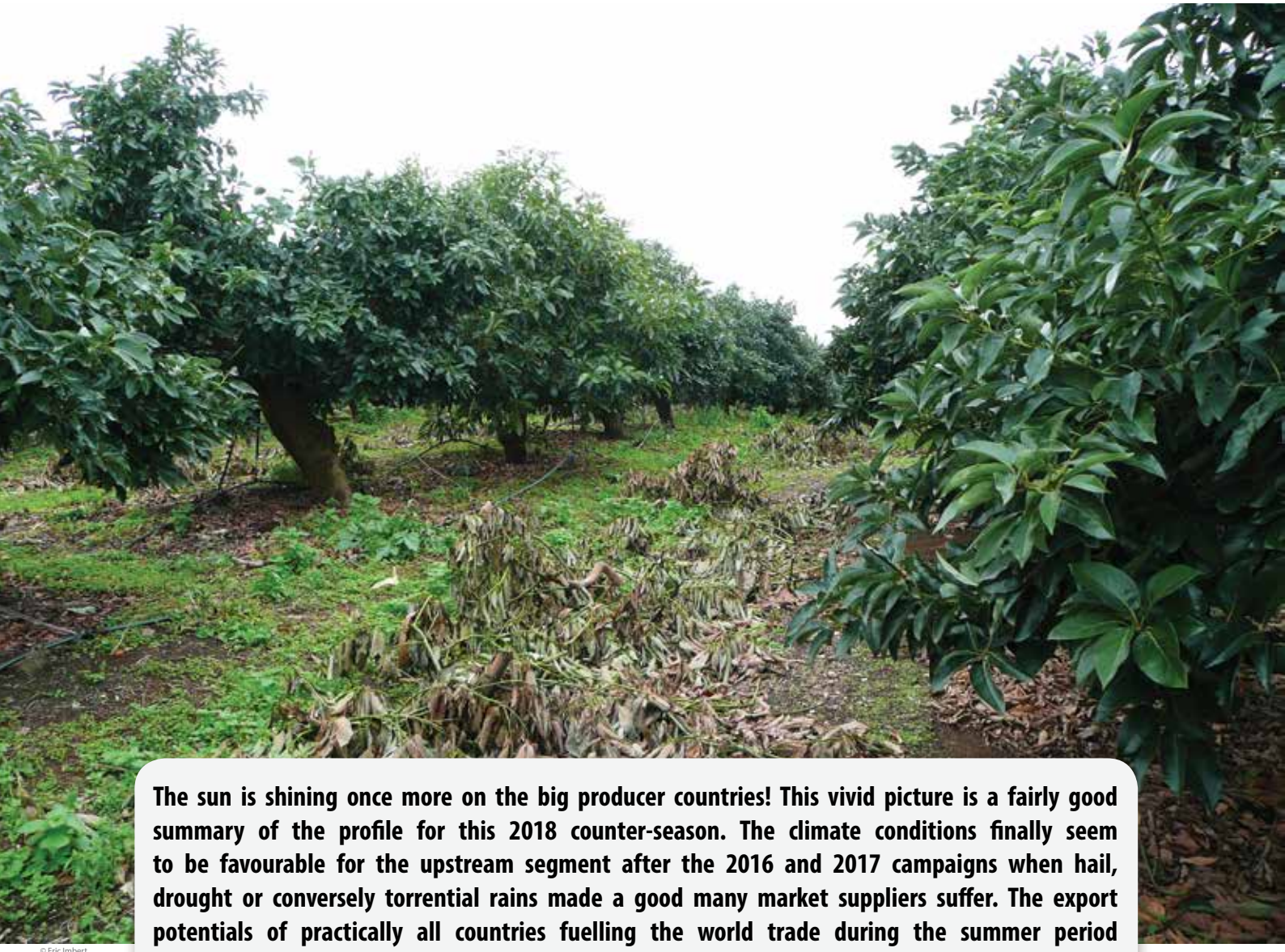
USD cents/cubic foot x 30 days	Large reefers	Small reefers
March 2018	69	72
March 2017	46	59
March 2016	47	54





European summer avocado market

Forecasts for 2018: a test campaign!



© Eric Imbert

The sun is shining once more on the big producer countries! This vivid picture is a fairly good summary of the profile for this 2018 counter-season. The climate conditions finally seem to be favourable for the upstream segment after the 2016 and 2017 campaigns when hail, drought or conversely torrential rains made a good many market suppliers suffer. The export potentials of practically all countries fuelling the world trade during the summer period are set for optimum levels. Will the European market still be smiling too, given the large volumes expected due to expanding surface areas seen across the board in recent years?

Comexa Services

YOUR AVOCADO SPECIALIST FOR MORE THAN 25 YEARS.

Our ambitions, to offer you ripening solutions tailored to your requirements. Backed up by a structure with cutting-edge technologies, our know-how dedicated to ready-to-eat and triggered fruit, and all types of packing, is based primarily on the experience of our teams.

Our commitments, providing you with a daily service from the sources Brazil, Chile, Colombia, Dominican Republic, Israel, Kenya, Mexico, Peru, South Africa, Spain, Tanzania, Zimbabwe... with optimum quality ensured all year round.

Our expertise, the ability to develop partnerships based on quality projects, and jointly anticipate new market developments.

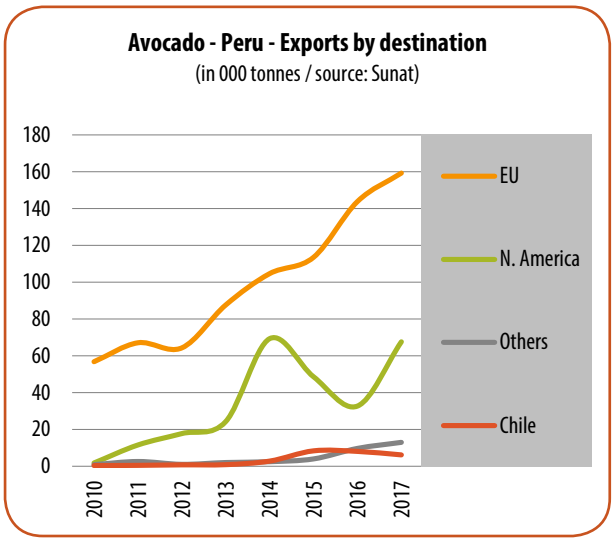
WORLD WIDE PRODUCER AND FRENCH LEADER IN AVOCADO DISTRIBUTION.

5 boulevard du Delta - Zone Eurodelta, 94658 RUNGIS • comexa@wanadoo.fr • Tél. +33 1 46 86 71 77 • Fax +33 1 46 86 80 43

Peru

A new record potential

Peru is expecting another boom in export potential. Volumes bound for the international market could rise, just as in 2017, by approximately 50 000 tonnes to near the 300 000-tonnes mark across all varieties (of which just over 280 000 t of Hass). This should consolidate Peru's place as the world number two exporter, albeit a long way behind Mexico with its one million tonnes, yet this has been achieved in barely more than a decade (as a reminder, Peru exported less than 20 000 t in 2005). This new record year is no surprise; on the one hand, the weather has been rather clement, after the 2016 and 2017 seasons disrupted by El Niño or La Niña (torrential rains in 2017 which damaged the country's very infrastructures). Most of all, for the past two or three years the industry has seen massive surface areas start to enter production, after an annual planting rate of around 2 500 ha in 2012 and 2013, 3 500 ha in 2014 and 3 000 ha in 2015. On top of that if we consider the exceptional yields of the "natural greenhouse" that is the Peruvian coastal zone, exporters have large additional volumes, and will continue to do so over the coming years. The sizing is set to be somewhat bigger than in 2017, though the fruits are maturing a bit later.



Avocado (all varieties) – Peru – Exports

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017
European Union	56 750	67 050	64 270	87 609	104 650	113 514	143 852	159 326
North America	1 700	11 481	17 675	24 209	69 289	48 568	32 636	67 573
Chile	281	400	678	785	2 717	8 294	7 992	6 090
Others	790	2 500	953	1 941	2 388	3 901	9 618	12 908
Total	**59 521**	**81 431**	**83 576**	**114 544**	**179 044**	**174 277**	**194 098**	**245 897**

Source: Sunat

Avocado at its best

"Year round supplies of the finest varieties from the best sources in the world"

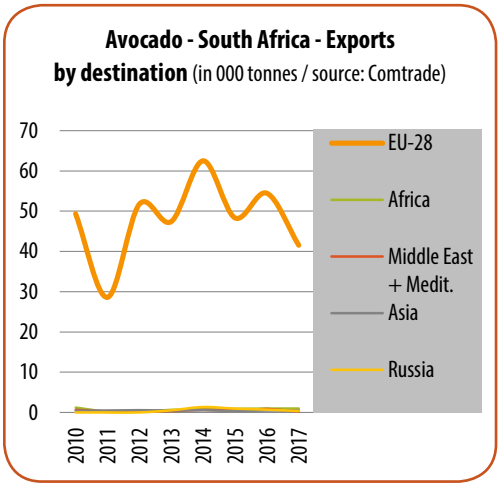
Gabriel Burunat

Let's all respond to consumer expectations and increase sales by supplying ripe fruits!

Commercial Fruits

www.commercial-fruits.com

31, Avenue de l'Europe - Zone des Entrepôts - Bât. I 9
BP 70122 - 94538 Rungis Cedex - FRANCE
Tel +33 (0)1 46 87 30 00 - Fax : +33 (0)1 45 12 96 74
gabriel.burunat@commercial-fruits.com



South Africa

Positive alternate bearing phenomenon, with an expanding cultivation area

No two successive years are the same for South African professionals. After a year marked by a very wide shortfall in 2017, the number 2 supplier to the Community market will also have substantial export volumes. They should be close of those to the record 2014 season (i.e. approximately 65 000 t), thanks to a positive bearing phenomenon and expanding surface areas. The supply of green varieties, particularly meagre in 2017, will double but only regain an average level. Conversely, Hass volumes should reach a historic high. Although the severe drought affecting the Cape region has spared the large production centres in the north of the country, the sizing is set to be rather average because of the heavy load on the trees.

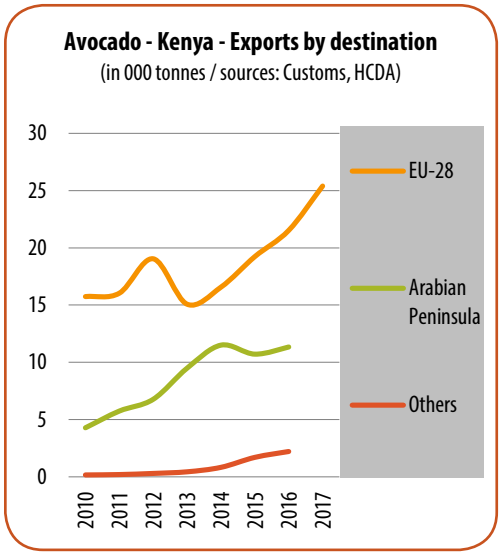
Avocado – South Africa – Exports

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017
European Union	49 351	28 582	51 713	47 404	62 499	48 325	54 448	41 527
Africa	1 217	57	150	656	765	908	924	944
Middle East + Medit.	627	253	308	362	610	444	898	283
Asia	430	488	588	486	548	313	502	474
Russia	-	-	-	534	1 344	950	701	350
Total	**51 631**	**29 614**	**53 016**	**49 460**	**65 772**	**51 046**	**57 473**	**43 492**

Source: Comtrade

Kenya

Better in every respect



After a long period practically flat-lining, Kenyan avocado exports rose by more than 20 000 t from 2013 to in excess of 46 000 t in 2017 (of which more than 25 000 t to the EU-28, with the Hass share going from 74 % to 94 %). The growth dynamic should continue in 2018. The climate conditions have been much less of a hindrance than in 2017, a year marked by a severe drought. In addition, surface areas are expanding, especially among the big producers. Logistics to Europe will be facilitated by the establishment of a new MSC line. This direct link will connect Mombasa to Le Havre in 17 to 19 days, with one sailing every week – though this rapidity does come at a high cost. Finally, the authorities seem to be attempting to enforce better quality control; it remains a problem for certain brands especially those marketing fruits from small producers with little or no supervision. Exports were prohibited in January to avoid sending immature fruits. While the measure had little effect at a time of such small production, it nonetheless marks an increased desire to tackle the problem. This gesture contributes toward better compliance during the peak of the season, with regulations on minimum dry matter for exports, which is set at 20 %.

Avocado – Kenya – Exports

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017
European Union	15 743	16 039	19 045	15 079	16 568	19 238	21 529	25 400
Arabian Peninsula	4 280	5 741	6 769	9 489	11 502	10 714	11 340	-
Others	160	194	292	434	824	1 696	2 208	-
Total	**20 183**	**21 974**	**26 106**	**25 002**	**28 894**	**31 648**	**35 077**	**46 600**

Sources: Customs, HCDA

WITH THE HALLS "RIPE" RANGE THE WAIT IS OVER.

At Halls, we understand your customers expect you to consistently supply quality avocados that are ready to eat. As specialist avocado producers and marketers, we are able to offer you the Halls "RIPE" Range in retail-ready formats to meet the growing need for ripe & ready fruit.

To find out more, please contact us:

UK: +44 (0) 1892 723488 or eusales@hlhall.co.uk
France: +33 (0) 1 82 39 00 30 or ventes@hlhall.co.uk
Netherlands: +31 (0) 1 174 791 040 or info@hallsbv.nl
Spain: +34 (0) 9 10 632 925 or ventas@hallsiberia.es

Good for growth. Growth for good.
www.halls.co.za

HALLS
EST 1890

HALLS IS A MEMBER OF THE HL HALL & SONS GROUP

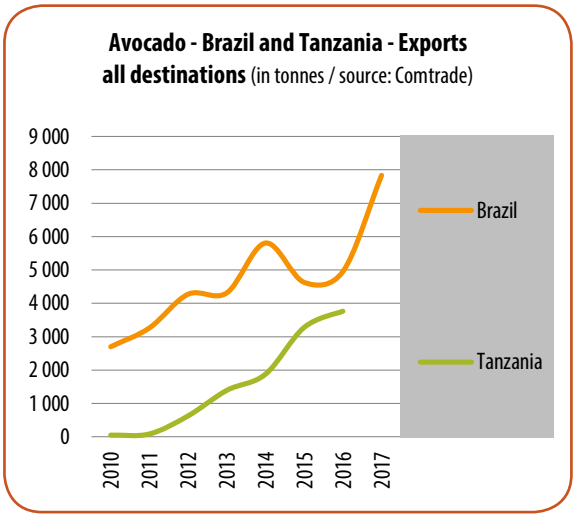
Brazil
Todo bon!

In 2017, the marked surge in Brazilian Hass exports, which had gone from 3 000-4 000 t at the beginning of the decade to more than 7 000 t, was not just a cyclical phenomenon. It is symptomatic of significant growth in the cultivation area over recent years, and should continue in 2018. Jaguacy, the pioneer and number one Hass grower in the country, is predicting exports of approximately 350 containers on its own. So the overall volumes supplied by Brazil to its practically sole outlet, namely the Community market, should be between 9 000 and 10 000 t, if we add the supply of the country's other operators. The rise should make itself felt in the mid-season and late season. The high temperatures and summer drought had an adverse effect on production in the earliest zones. Rains are required to ensure that the promised volumes are achieved, in this country where the majority of plantations are not irrigated.

Avocado (all varieties) – Brazil – Exports

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017
European Union	2 560	3 062	4 105	4 203	5 464	4 494	4 883	7 502
Others	140	202	168	110	343	135	68	333
Total	**2 700**	**3 263**	**4 273**	**4 313**	**5 807**	**4 628**	**4 951**	**7 835**

Source: Comtrade



Tanzania
A rise expected, probably

Tanzanian exports have remained relatively stable since 2015: approximately 3 000 t to the EU-28 and development of a small flow to Kenya, itself ultimately aimed at the Community market. They should see more distinct progress in 2018 (probably 7 000 to 8 000 t). There is some prevailing uncertainty since the majority of fruits come from small producers (especially in the south), making forecasting difficult. The vast majority of volumes will continue to be exported via the port of Mombasa, which has a bigger freight supply than Dar Es Salaam.

Avocado (all varieties) – Tanzania – Exports

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017
European Union	1	-	17	1 260	1 757	3 178	3 162	*3 000*
Kenya	29	86	610	133	120	100	500	-
Others	20	-	1	-	-	1	102	-
Total	**50**	**86**	**628**	**1 393**	**1 877**	**3 279**	**3 764**	**-**

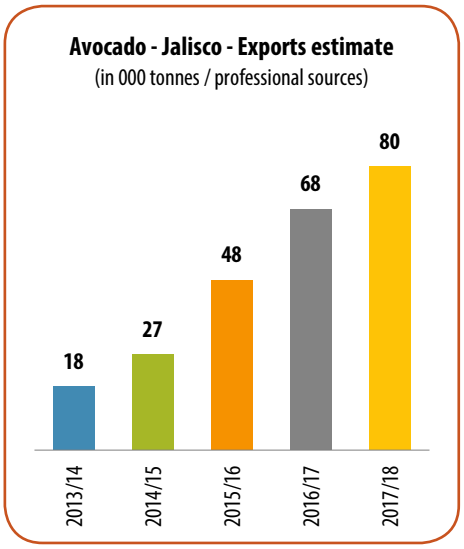
Sources: Comtrade, Eurostat

The brand that makes the difference

Campaña financiada con la ayuda de la UE

TROPS

Passion for Tropical Fruits
www.trops.es

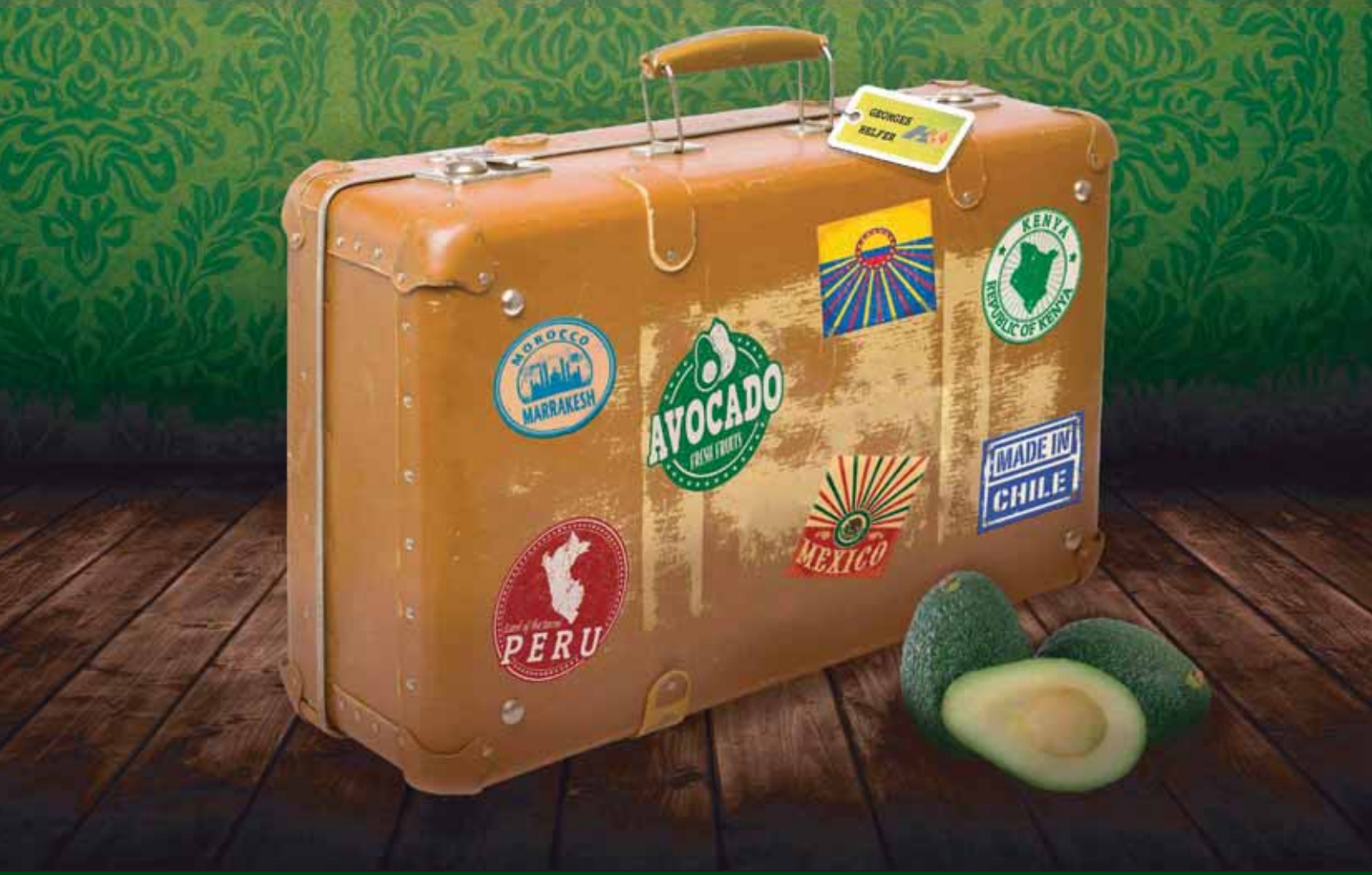


Jalisco

A surprise guest in the second half of the summer season?

While Mexico since 2015-16 has become a key winter season supplier to the EU-28 once again, controlling approximately 20 % of the market, it had a barely perceptible presence hitherto during the summer season (a few hundred thousand boxes of "flor loca" from Michoacán in August, before a more distinct increase in shipments in September). Could the boom of the Hass industry in Jalisco change the hand? We should recall that this zone, where the avocado cultivation area has more than doubled since the beginning of the decade to in excess of 20 000 ha, has an early production calendar thanks to its climate and the use of the Mendez variety (approximately 35 to 40 % of production). Harvesting of this "Hass like" (also known as Carmen®) can start from mid-May, with volumes becoming substantial from July. With the US market still closed for the moment, exporters could turn to their traditional markets, which include the EU-28 (30 % of shipments in 2016-17). According to the initial information collected, the 2018-19 harvest is set to be bigger than in 2016-17 (160 000 t, of which approximately 60 000 t of Mendez). While the very first shipments should be forwarded to Canada and Japan, Europe could start to be supplied with the burgeoning production in July, if market conditions are favourable.

Georges Helfer
Avocado Hunter
since 1972



40 *years of experience*

2 WAREHOUSES:
Rungis (94) and Plan d'Orgon (13)

8 *sales executives*

6 *origins*

8 *ripening rooms in Rungis*

8,000 tons per year

innovative machines:

MATURITY CONTROL OF THE AVOCADO | 2 TRAY SEALERS | 4 BAGGING MACHINES

Georges Helfer - RUNGIS
1, avenue de l'Europe - Ent. 133
Tél : +33 1 45 12 36 50

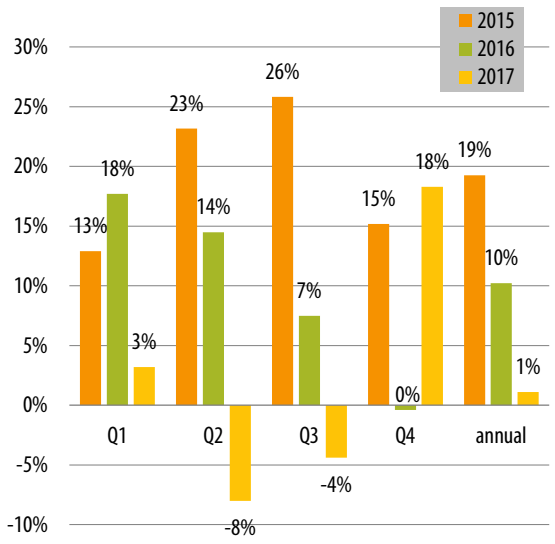
Georges Helfer - Plan d'Orgon
Z.I du Pont - 717, avenue des Vergers
Tél : +33 4 90 73 19 19

www.georgeshelfer.com
contact@helferfrance.fr

Consumption in the United States: no change in 2017 due to lack of volumes

The market responded positively to the return of big volumes in Q4

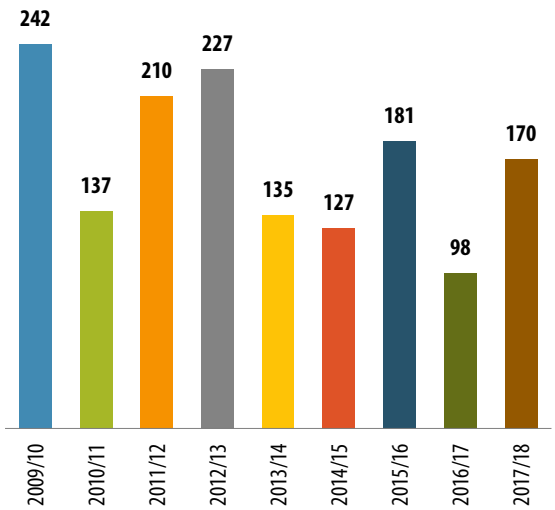
Avocado - USA - Evolution of consumption
(source: HAB)

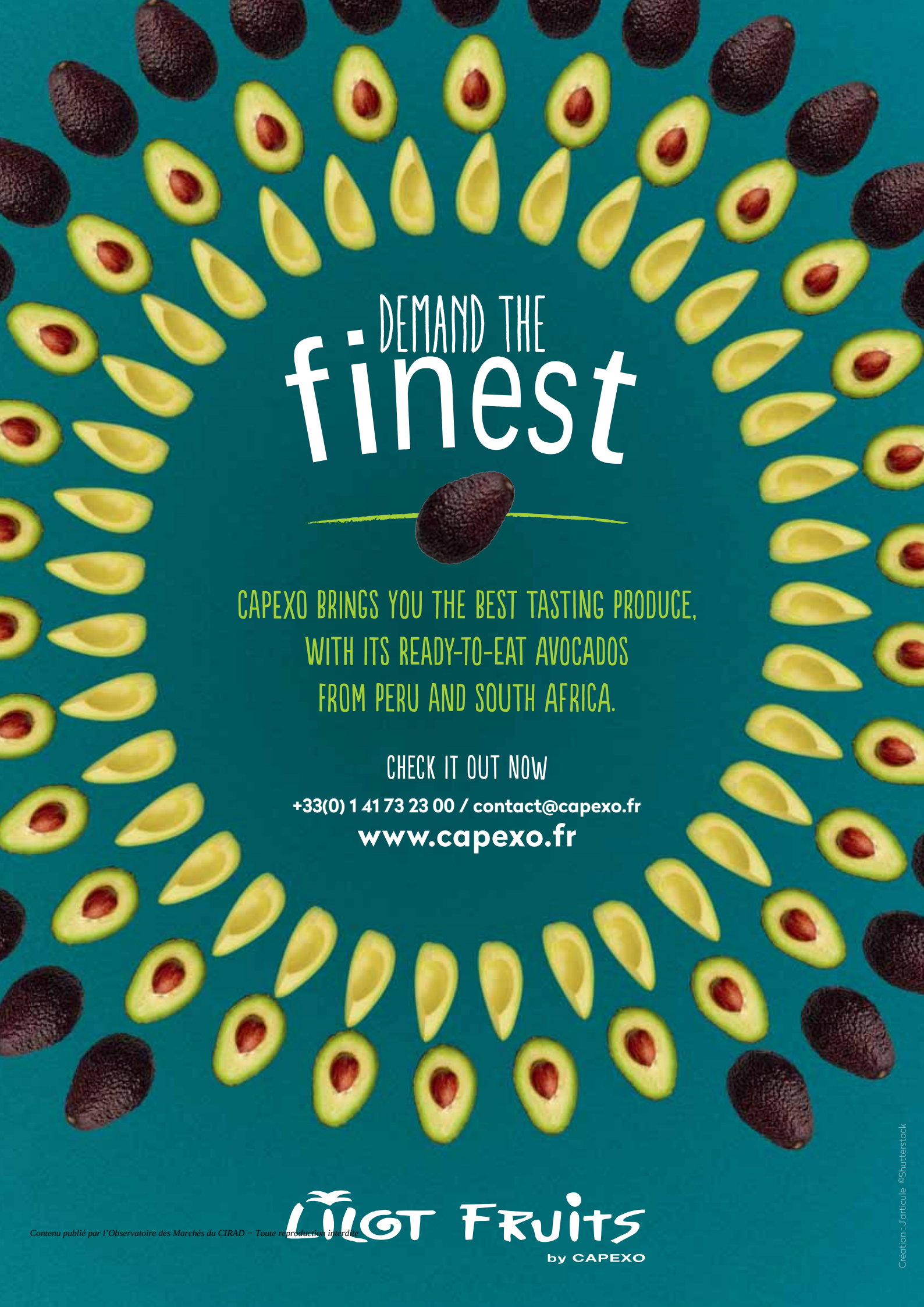


Opening up of the US market: a key issue for Peru and for the balance of the European market

So export potentials are registering a high level for all origins. It remains to be seen which markets will receive these volumes. This is only really an issue for Peru, with the other suppliers having in the EU-28 practically their sole outlet. The main alternative market for this origin is of course the US market. The breakthrough made in 2017 may seem to augur well (65 000 t exported, a levelling equalling the record from 2014 and marking a rise of more than 30 000 t on 2016). However, the context in 2018 seems very different. On the one hand, the Californian harvest is back to a high level of 170 000 t, up by more than 70 000 t from 2017. While the fires which ravaged thousands of hectares in late 2017 had dramatic repercussions for certain producers, the consequences on a Statewide scale remained limited (loss of approximately 5 % of the potential). Furthermore, Michoacán production went from a distinct shortfall in 2016-17 to a record in 2017-18 (+ 15 % on the previous season). And a two-figure rise in the production of this giant is not without consequences in terms of volumes available, especially at the end of the season. The US market in particular may be rather inaccessible during the critical period from mid-May to mid-June, when Californian and Mexican volumes will remain very high and when Peruvian exports will be at their peak (+ 45 % for Mexican and Californian volumes compared to 2017 according to the HAB projection).

Avocado - California - Production
(in 000 tonnes / source: CAC)

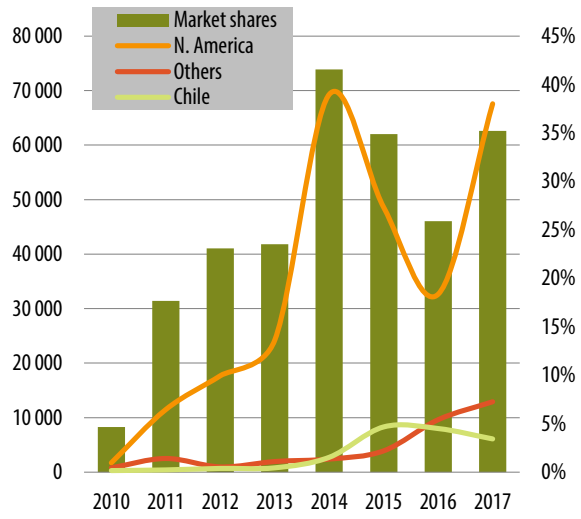




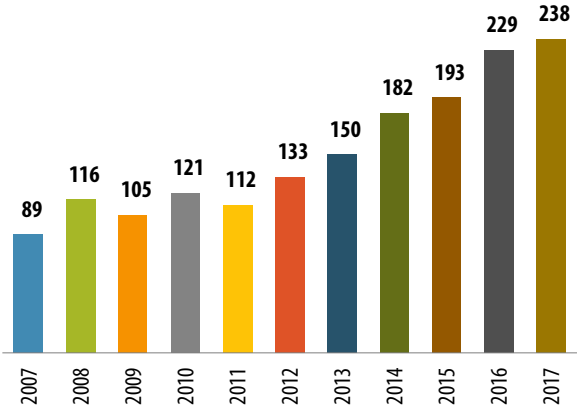
What sort of Peruvian volumes will there be on the Asian diversification markets?

Bearing in mind the volumes to come, the Peruvian industry has put in a lot of work to open up diversification markets. There is a real surge in exports to Asia, with shipments doubling between 2016 and 2017, though volumes remain moderate at approximately 10 000 t. China and Hong Kong, to which Peru exported approximately 6 500 t in 2017, should continue to grow. The latest consumption figures are showing just as big an appetite (50 000 to 55 000 t imported in 2017 according to an initial estimate, i.e. + 25 % on 2016) – which augurs well! Will Peru repeat its fine performance from 2017 in Japan (exports going from less than 1 000 t to more than 3 000 t)? The question arises since, unlike for China, 2017 was a year synonymous with decline for the Japanese avocado market (imports down 20 % from 2016). Chile has also become an important outlet, though it has stagnated for several seasons at between 6 000 and 8 000 t.

Avocado - Peru - Exports excluding EU
(in tonnes and in % of total shipments / source: Sunat)



Avocado - EU-28 - Summer market
(in 000 tonnes / source: Eurostat)



What will the supply to the EU-28 look like in 2018?

What availability will there be for the EU-28? True, this kind of projection is highly theoretical and usable only as a guide, though it is a worthwhile exercise to have a general idea of this campaign. Overall, even if we assume continuing growth in Peruvian shipments to the United States (75 000 to 80 000 t according to the HAB's projections, i.e. 10 000 t more than in 2017) and exports to Asia doubling again (20 000 t, i.e. 10 000 t more than in 2017), there would still be approximately an additional 30 000 t to place in the EU. So if we add the rise in South African volumes, Europe could receive approximately 50 000 t more than in 2017 from its two flagship suppliers, i.e. a rise in the overall supply of approximately 25 % from 2017.

Avocado – EU-28 supply – Trend for 2018

in tonnes	Volumes in 2017	Trend for 2018
Peru	157 744	+ 25 000 to 30 000
South Africa	43 984	+ 15 000 to 20 000
Kenya	25 425	+ 2 000 to 5 000
Brazil	7 189	+ 2 000 to 3 000
Tanzania	2 987	+2 000 to 3 000
Mozambique	280	= ↗
Total	**237 608**	**+ 45 000 to 60 000??**

Professional sources, Customs

Perú

Camposol®

Enjoy the perfect ripeness inside

Avocado

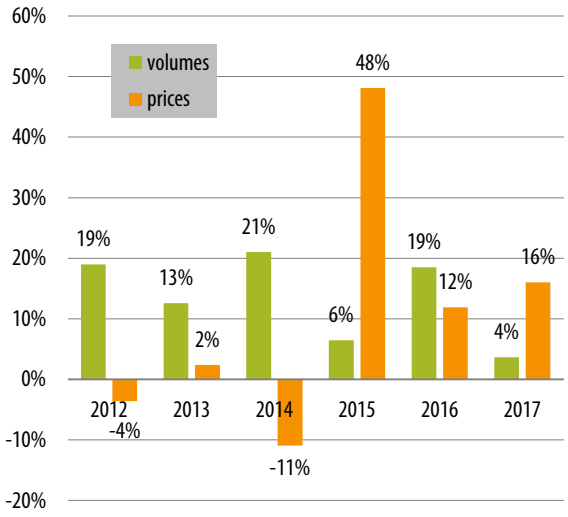
HEALTHY FRESH

Distributed by Camposol EU:
Honderdland 94 | 2676 LS
Maasdijk | Netherlands
Email: storres@camposol.eu

Camposol

www.camposol.com.pe

Avocado - EU-28 - Evolution of volumes and prices by comparison with previous season
(sources: Eurostat, CIRAD)



Consumption still on a high in the EU-28

Should we fear such a level of growth in volumes? Past seasons can provide some indications. Supply increases of approximately 20 % are not unprecedented. Until 2014, they were accompanied by a big downturn in prices. Two years later, in 2016, the market was on a different scale, with Germany becoming a significant consumer to support the growth dynamic of France and the United Kingdom; and this same rise in volumes was accompanied by a big increase in prices. Furthermore, it must be highlighted that demand will be driven by WAO promotions (see **FruiTrop** 254, January/February 2018). While these two factors are rather reassuring, we should not forget two other important points. On the one hand, Scandinavia is no longer acting as a driving force. The 2017 figures confirm a stabilisation on these markets, the European champions in terms of consumption (nearly 2.1 kg/capita/year on average, and even between 2.3 and 2.5 kg in Denmark and Norway). On the other hand, supply peak periods will also need to be managed.

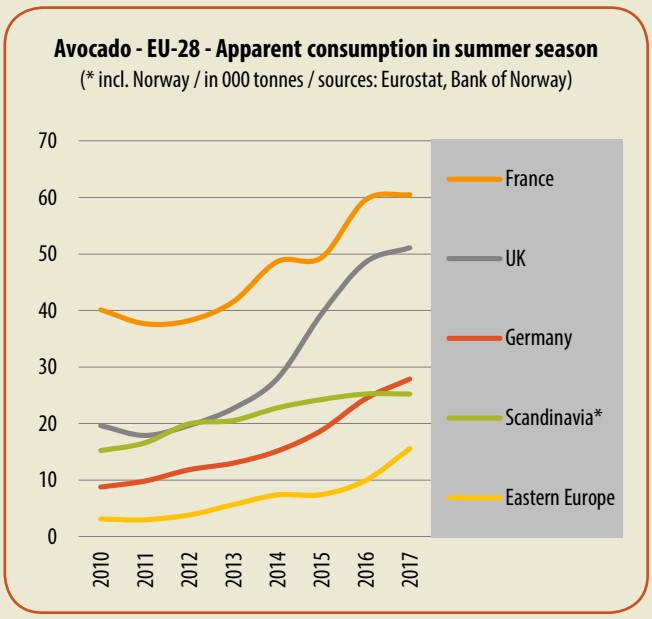
Consumption: small movements confirming the big trends

There were no major changes in consumption on the big EU-28 markets during the 2017 summer season, with the available supply barely increasing. Nonetheless, they confirmed some well-established trends. The big French market has continued to grow, though at a fairly moderate rate. The same goes for the United Kingdom, although growth was a bit more marked. It was Germany which registered the biggest rise, with its dynamic showing little sign of flagging despite the lack of volumes available. Quantities consumed are still less than half the levels in France and the United Kingdom, despite a much bigger population. The Scandinavian markets have confirmed their arrival at maturity. All the countries in the zone are flat-lining (even Finland despite quite clearly under-consuming), with Denmark actually registering a second negative year. In any case, Scandinavia still has the best consumption per capita figures. We should note the boom in Italy, where volumes taken in during the summer period have quadrupled in five years, nearing 9 000 t.

Avocado – EU-28 – Apparent consumption in main markets (May to October*)

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017	2017 compared to 2016	2017 compared to 2010-11 average
Germany	8 748	9 816	11 819	12 989	15 129	18 767	24 377	27 869	+ 14 %	+ 200 %
Scandinavia**	15 204	16 568	19 937	20 520	22 766	24 240	25 220	25 222	0 %	+ 59 %
France	40 131	37 659	38 205	41 525	48 639	49 362	59 570	60 494	+ 2 %	+ 56 %
UK	19 631	17 889	19 654	22 647	27 940	39 364	48 514	51 093	+ 5 %	+ 172 %
Eastern Europe	3 097	2 965	3 808	5 644	7 358	7 421	9 924	15 556	+ 57 %	+ 413 %
Total	**86 812**	**84 897**	**93 422**	**103 325**	**121 832**	**139 154**	**167 605**	**180 234**	**+ 8 %**	**+ 110 %**

* includes most Customs declarations of South African, Peruvian and Kenyan volumes / ** including Norway
Sources: Eurostat, Bank of Norway



Avocado – EU-28 – Consumption estimate

	Population (millions)	Summer 2017 (g/capita)	2017 (g/capita)
Scandinavia*	**24.5**	**1 029**	**2 078**
Denmark	5.4	1 177	2 310
Sweden	9.1	1 007	2 092
Norway	4.7	1 301	2 436
Finland	5.3	677	1 499
France	**63.4**	**954**	**1 862**
United Kingdom	**60.8**	**840**	**1 526**
Germany	**82.3**	**339**	**709**
Eastern Europe	**102.2**	**145**	**347**

* including Norway / Source: Eurostat

European avocado market

Summer 2017 review: much better than expected

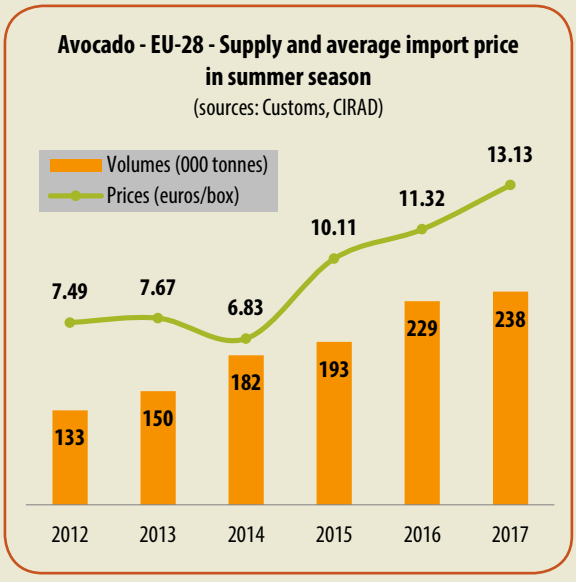
The scenario for the 2017 summer campaign was extremely uncertain. The torrential rains which had battered Peru before the start of the season raised doubts over the available supply and the trading calendar, as well as over the quality of fruits from the origin, which on its own accounts for two-thirds of the supply to the Community market. We can say in hindsight that it all worked out – mainly. The supply was in place, with a slight rise (+ 4 %) which was rather unexpected given the initial uncertainties. As predicted, the South African supply registered a distinct shortfall (44 000 t for the EU-28, i.e. its lightest campaign since 2011). Peru had a strong presence, managing to export record volumes to the EU-28 of nearly 160 000 t, while regaining a more substantial level of shipments to North America, and in particular seeing an increase to Asia. As for the outsiders, Kenya's small growth dynamic was confirmed (+ 2 000 t to reach 25 000 t), while Brazil achieved a more significant leap, while remaining one of the small suppliers (7 000 t up from barely 4 000 t). Contrary to the forecasts, Tanzanian volumes remained stable and very limited (3 000 t). We should note the emergence on the market of a new supplier, Mozambique, though still with anecdotal volumes. In the face of this overall supply, albeit bigger than forecast yet still well below expectations of a structurally increasing demand boosted by the WAO's first promotions, rates responded with an increase. Our average campaign price indicators was more than 13 euros/box upon import, an unprecedented level up 12 % on the previous season. And the figures could have been even more favourable: while the still critical period of late May-early June went rather smoothly, the month of August was as difficult as it was atypical because of an unexpected surge in Peruvian volumes due to lower penetration than predicted in the USA.

Avocado – EU-28 – Imports during summer season

in tonnes	2012	2013	2014	2015	2016	2017
Peru	62 618	86 260	101 971	114 321	144 367	*157 744*
Southern Africa*	49 083	45 165	56 713	50 962	54 095	43 984
Kenya	17 078	13 313	15 604	20 728	23 444	25 425
Brazil	3 959	3 928	5 265	3 535	3 908	7 189
Tanzania	133	968	1 643	3 278	2 948	2 987
Others	306	300	447	497	337	280
Argentina	114	158	43	78	133	3
Total	**133 291**	**150 092**	**181 686**	**193 399**	**229 231**	**237 611**

* South Africa + Zimbabwe + Swaziland / Source: Eurostat

© Denis Loeillet



RG Reyes Gutiérrez
frutas tropicales

25 años
desde 1993

365 días
SANOS X NATURALEZA

EXPORTACIÓN E IMPORTACIÓN
DE FRUTAS TROPICALES

Apdo. de Correos nº65 Camino de Málaga s/n 29700
Vélez-Málaga (Málaga) +34 952 505 606

www.reyesgutierrez.com

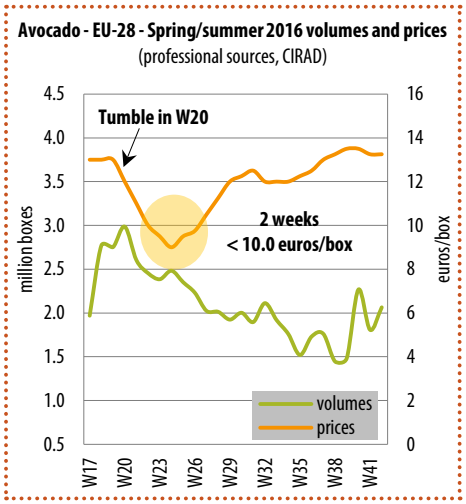
Anticipating potential oversupply periods

Late May-early June brings a well-known dangerous turning point. It results from the combined peak in Peruvian and South African production. It is particularly at risk this season since the US market is set to be heavily laden. You will recall that this period is one of the crucial factors determining the success of the season (see **FruiTrop** 240, April 2016). August has also become a fraught period, with the late Peruvian supply on the increase. This was demonstrated in 2017, when prices dropped to around 10 euros practically throughout the month. Again, the opening of the US market will be the point to keep an eye on. It will of course depend on how much space Mexico leaves at the start of its 2018-19 campaign (size of the "flor loca" harvest). Yet the 2017 crisis has also shown that other parameters are in play. Will ripeners in the USA, accustomed to working with Mexican and Californian fruits practically "fresh-picked", be more disposed than in 2017 to open up their units to Peruvian Hass in the second part of the season, after a two-week voyage? Secondly, will the Peruvian spot supply be as large and disruptive as in 2017 across the Pond? There are many major questions for the Community market, over which European importers unfortunately have no control.

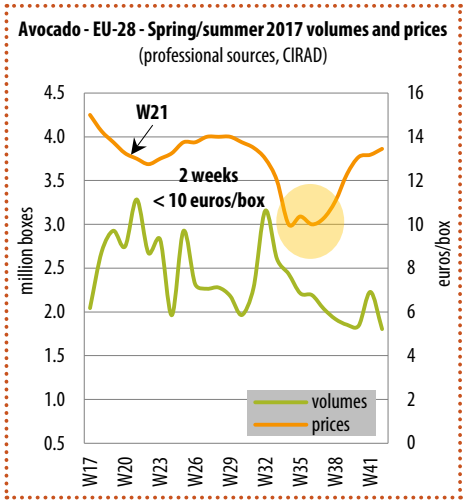
Weeks 20/21: a key, make or break period!

For the last 2 years things have worked out

2016: prices tumbling slightly for a while

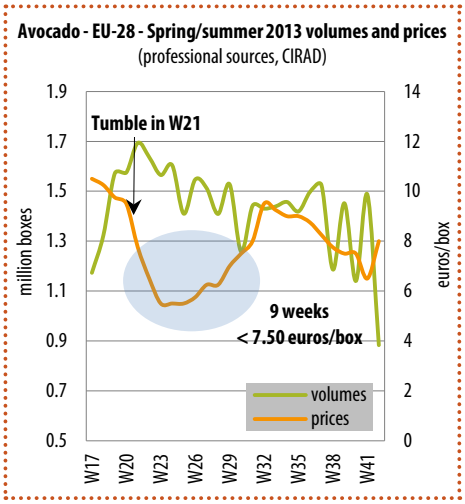


2017: practically no movement in week 21, but a major tumble in late July

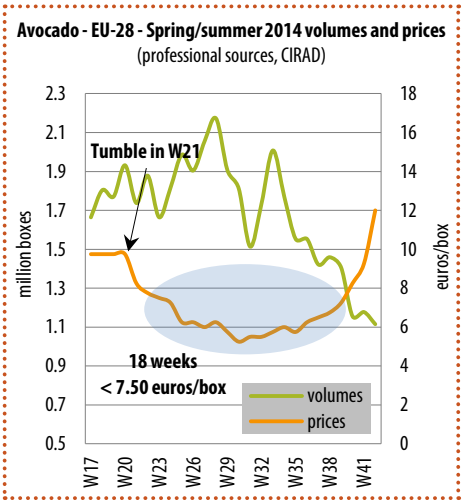


Between 2013 and 2015 things broke down

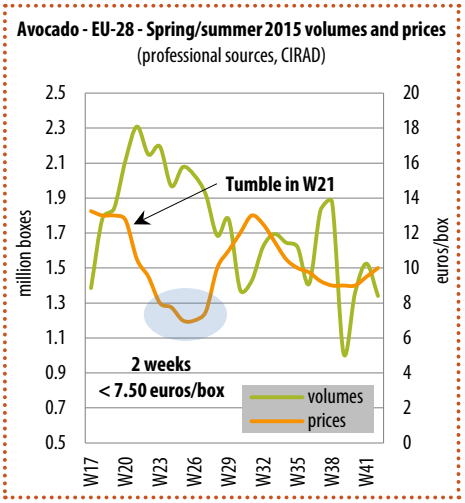
2013: 9 weeks of major crisis

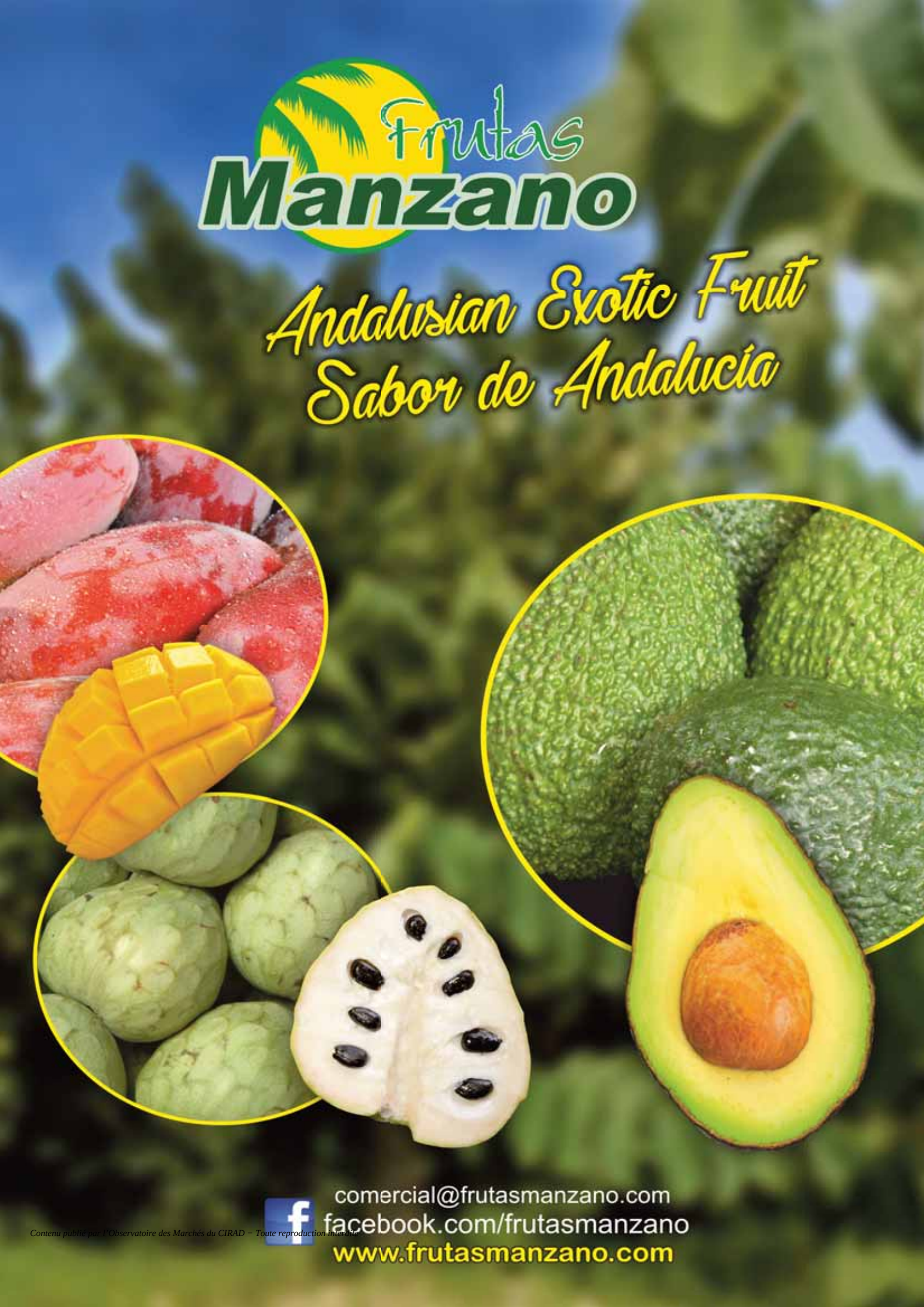


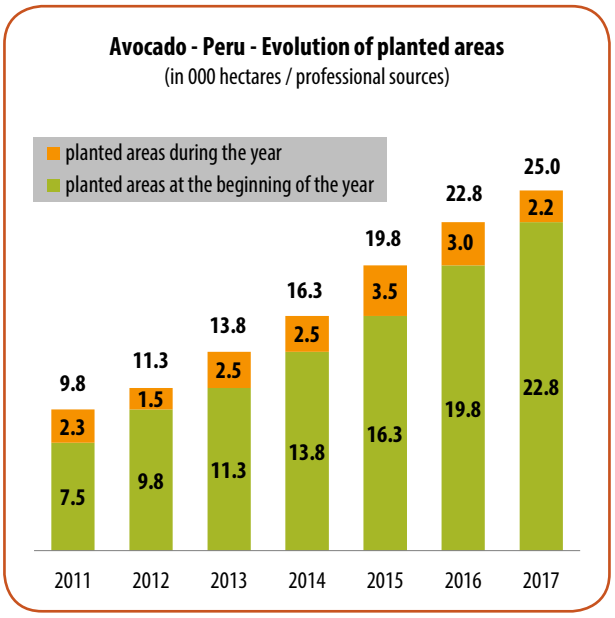
2014: 18 weeks of major crisis



2015: 2 weeks of major crisis







Peru: surface areas still seeing massive expansion, extending the season

What are the medium-term prospects for volumes? Growth in Peruvian production is not close to stopping. On the one hand, existing surface areas, evaluated at 28 000 ha in 2018, represent a potential harvest of more than 400 000 t (assuming an average yield of 15 t/ha, as in the Olmos and Chavomochic zones at present). On the other hand, the planting rate remains high, although it seems to be slowing down (2 200 ha between 2016 and 2017 as opposed to more than 3 000 to 3 500 ha in the previous two years). These new extensions are based on a rationale of production extension, harnessing the country's great climatic diversity. Two zones are seeing strong growth trends. Hence 4 700 ha of Hass have already been planted in the Olmos irrigated area, under large industrial projects. While the wind is sometimes a problem, the milder climate of this northern zone provides earlier availability and even more rapid tree growth than in other parts of the country. Conversely, irrigation and fertilisation requirements are greater. Surface areas should reach 7 000 ha by 2020. The other developing centre is more extensive, and situated in the Sierra zone (inter-Andean valleys generally above 1 200 m in altitude in the regions of Ancash, Ayacucho, Huancavelica, Apurimac, Cuzco, etc.). The production structures and systems are very different (lower-tech small producers), as are the pedoclimatic conditions (much cooler zones, and clayey non-sandy soils). These zones, which also have an asset in terms of earliness (harvest from February), represent approximately 3 400 ha. Marketing for these small facilities is generally provided by the country's big exporters, in addition to technical assistance.

The best of the avocado

GALILEE-EXPORT France
10 rue du Séminaire 94516 RUNGIS, FRANCE I Tel: +33 (0)1 46 87 28 59
I Fax: +33 (0)1 46 87 94 50 I ely@galil-export.com I www.galilee-export.com

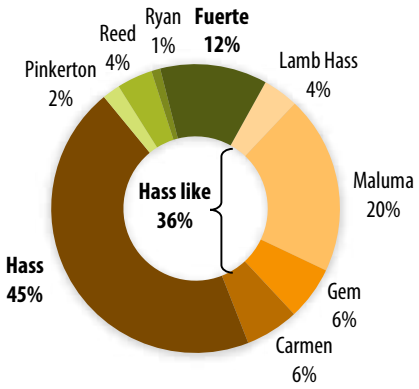
3040, route de Banon, Les VIGNERES 84300 CAVAILLON, FRANCE
Tel: +33 (0)4 90 76 68 68 I Fax: +33 (0)4 90 05 87 90

Galilee
...direct from the field

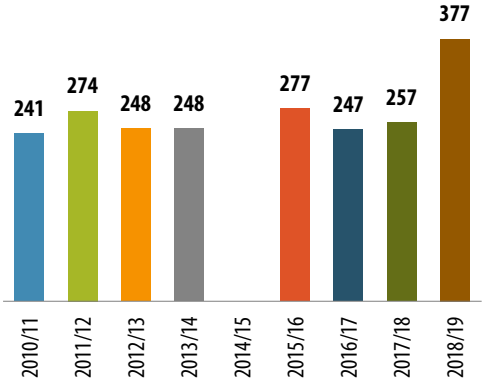
South Africa shifting gear

South African producers are preparing to shift gear. Since the early 2010s, the planting rate has been around 250 000 to 280 000 trees per year, i.e. approximately 750 ha per year if we assume an average density of 300 to 400 trees/ha in the country. From 2018-19 it should reach more than 1 000 ha (380 000 trees per year), thanks to a big increase in plant production capacity (expansion of certain existing nurseries and appearance of new players). So the harvest should increase by approximately 9 000 to 10 000 t per year, if we assume an average yield of around 8.5 to 10 t/ha in the country. The production calendar should also evolve. The geographical centre of gravity of the cultivation area will see little movement. While all the production zones are developing, the vast majority of new planting is still being carried out in Limpopo (currently 60 % of the harvest, especially in the leading centre, Tzaneen). Conversely, the varietal range is not only tending toward "Hassification", but also toward an expanding market window. In 2017, Hass remained the most commonly planted cultivar (45 % of total plant sales). However, the share of "Hass like" climbed to 36 %, 26 % of which for the rather early Maluma and 10 % for the late varieties Lamb and Gem.

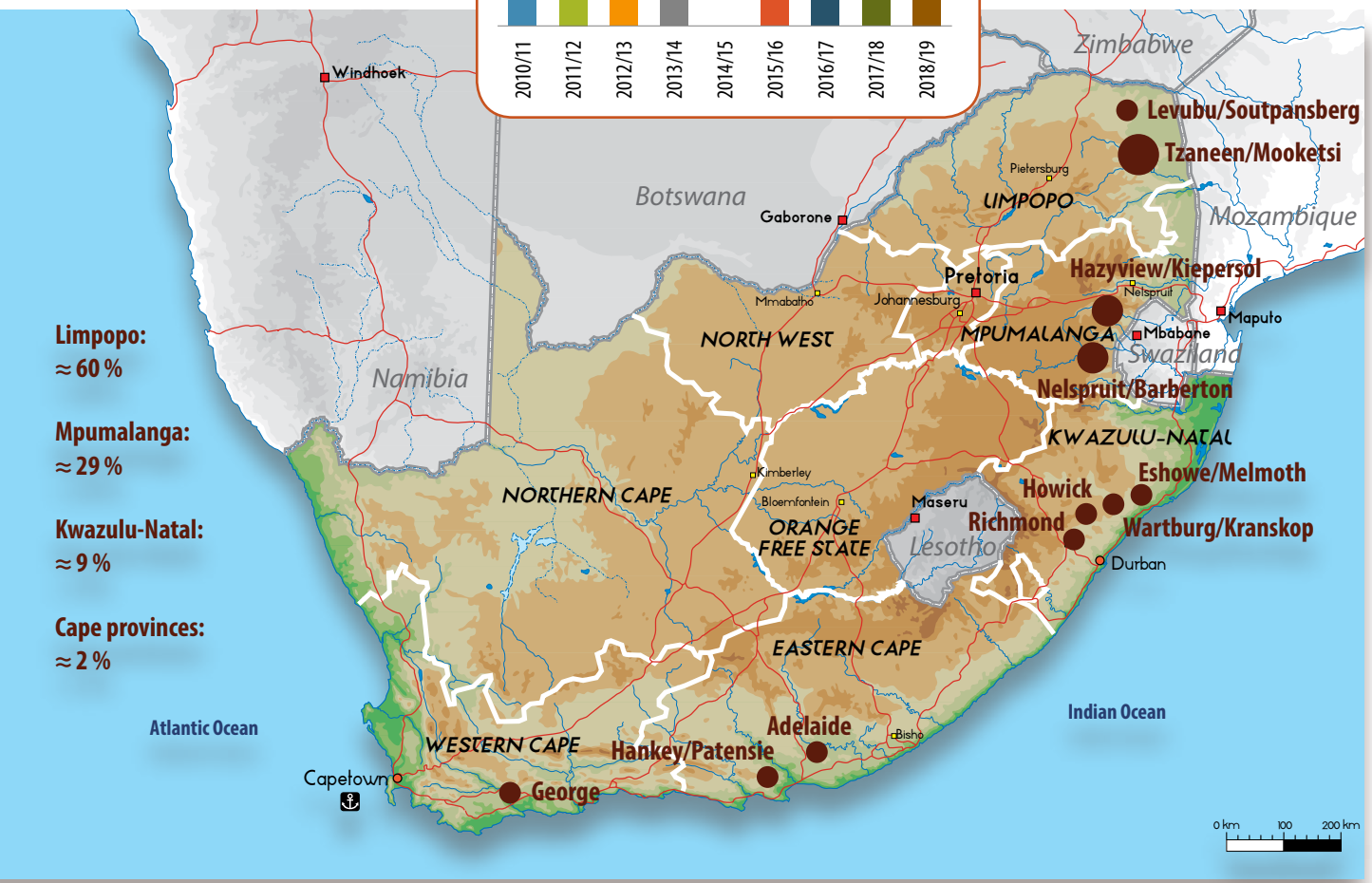
Avocado - South Africa - Plant sales by variety in 2016-17 (source: SAAGA)



Avocado - South Africa - Plant sales Projection for 2017/18 and 2018/19
(in 000 plants / source: SAAGA)




© Guy Brehinier



WITH MISSION, IT'S ALWAYS AVOCADO SEASON

Mission Produce is committed to supplying Europe with fresh Hass avocados year-round. We source from the top growing regions in the world with a renowned supply chain system and a standardized state-of-the-art ripening program.

MISSION PRODUCE EUROPE B.V.

+31 (0) 85 066 28 08
mpesales@missionproduce.com

WORLDSFINESTAVOCADOS.COM @MISSIONAVOCADOS

Kenya: growing interest and plant production capacity

Kenya is also seeing an accelerating trend in surface area expansion. Interest in the crop is increasingly marked. Historic producers are extending their production surface areas, like Kakuzi which had a planted area of just over 600 ha in late 2017 (as opposed to 485 ha in late 2015), and which is planning further extensions, especially by replacing its pineapple plantations with avocado. Others still, certain agribusiness groups which are currently non-producers, are starting to take an interest in the avocado as part of diversification programmes (Sasini group, a tea and coffee giant, recently set up its first 80 hectares of avocado plantations). The big groups are in parallel promoting the avocado crop among small producers, whose produce they market. Finally, the plants supply has expanded considerably, with the establishment of the country's first certified plant nursery in 2016 (Soloplant, a subsidiary of Amiran group), which currently has a production capacity of 120 000 plants (under development). Thanks to this new plant supply, growth in surface areas could reach a level of approximately 700 ha/year. As another point worthy of consideration, the development of this produce aimed mainly at "organised" medium or large-scale producers is contributing to boosting the origin's credibility.

Avocado – EU-28 – Summer market supplier countries

		Surface areas in 2017	Annual growth	Notes
Main suppliers	Peru	25 000	1 500-2 000	Average yield 15 t/ha (Chavimochic/Olmos)
	South Africa	17 500	1 000	Average yield 9.5 t/ha (national average)
	Kenya	na	500-700	Of which 400-500 ha/year commercial plantations
	Brazil	1 550	200-300	Average yield 15 t/ha
	Total	43 550	3 200-4 000	
Other suppliers	Tanzania	900-1 000*	?**	+ 200 to 300 ha for low-yield small producers in the north. What about the south?
	Mozambique	150	?	

* commercial plantations, from 700 to 800 ha planted in 2017-18 / ** planting boom in 2017-18, what next? / Professional sources

Brazil: all change in Sao Paulo, but also in Minas Gerais

The Brazilian cultivation area is continuing to see great growth. In the main centre of Sao Paulo, surface areas operated by Jaguacy have apparently reached 1 000 ha (own plantations and associated producers). They should continue to rise at a rate of approximately 200 ha per year, enabling Jaguacy to achieve a production of approximately 15 000 t by 2020. The plantations of other producers in this State, currently estimated at approximately 150 ha, are also reportedly expanding. Furthermore, certain citrus packing stations in the centre and north of the State are apparently looking into the possibility of developing services for avocado producers, since the demand is there. Moreover, it also appears that plantations are expanding rapidly in the cooler and later zone of Minas Gerais, not only for Tsugue (the zone leader, based in the centre), but also for other medium-sized producers situated in the south of the State. Surface areas reportedly increased by approximately 100 to 150 ha in 2017, up from 400 ha.


© Rob Clowes

Tanzania: planting resuming on a new model

After a period on standby relatively speaking, Tanzania apparently has a new planting trend underway. It is based on a development model more centred on medium or large industrial plantations than previously. This change is contributing to better production quality control, even among the smallest producers, which should obtain more advanced technical supervision. This is clearly the case in the north, in the foothills of Kilimanjaro. Africado has extended its own production surface areas, while another major project is being set up. The zone's cultivation area should soon be around 800 to 900 ha. The same can be said of the new production centre situated in the Southern Highlands (Iringa zone), where several medium-scale projects have been set up (approximately 200 ha). Conversely, the Mount Rungwe zone retains a more traditional system. Besides the Rungwe Avocado Company, which has a stable surface area of approximately 60 hectares, the vast majority of production comes from very small producers whose planted areas are practically impossible to estimate. A large planting project could emerge, though at present it is only at the study stage. So Tanzanian production should evolve very gradually over the coming four or five years, before seeing a more marked growth trend with new medium and large orchards entering production in the north and the Highlands.

WAO needs to be strengthened!

It is well known that nature abhors a vacuum, and the high economic returns seen for the past several campaigns have set the ball rolling. The planting dynamic remains strong or is tending to speed up in most producer countries supplying the summer market. Furthermore, while the big US market has an ever greater hunger for Hass, it is clear that now Michoacán and in future Jalisco, both far from static in terms of production capacity, will be the primary beneficiaries. So is there cause for alarm? No, since the whole world has an appetite for the avocado. In Europe, although certain countries seem to be getting their fill (Scandinavia), there are still enormous untapped growth reservoirs (margins for manoeuvre in France, the United Kingdom and even more so in Germany). Asia has also clearly shown a desire for more avocado, although this potential is more difficult to harness for logistical reasons (a generally long voyage time for most suppliers) or because of dietary habits. However, whatever the market, work needs to be done to stimulate this demand. At present the World Avocado Organization has a budget of approximately 3 million USD to reach the 500 million inhabitants of the EU-28, and in future Asia. In the United States, the HAB can call on nearly 60 million USD to mobilise 330 million Americans. Strengthening the WAO is more than a good idea, it is a necessity given the world production dynamic during the summer period ■

Eric Imbert, CIRAD
eric.imbert@cirad.fr

MEHADRIN INTERNATIONAL . 696 chemin du Barret, ZA du Barret
13 160 Chateaurenard . France
Tel. +33(0)4 32 60 62 90 . Fax. +33(0)4 90 24 82 54
benchadod@mehadrin-inter.com . www.mtex.co.il

mehadrin
Growers at heart

European avocado market

Initial 2017-18 winter review: a very fine campaign, especially for Mexico

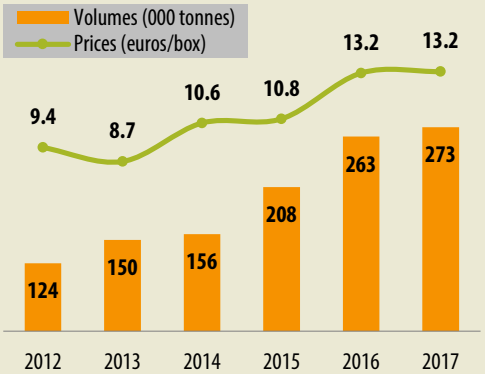
The campaign got off to a really bad start, with the winter market players carrying on from a disappointing 2017 summer season (equally astonishing). However, the result turned out OK. The average guide price for the campaign calculated by our Market News Service found, just as in 2016-17, a really excellent level of 13.20 euros/box at the import stage. After a gloomy start, rates would only develop one way, from early October following the positive profile of the 2016-17 season practically to the nearest euro, and also finishing on a high of nearly 15 euros/box at the end of the period. However, the supply was less meagre than predicted. According to the initial figures available, to be confirmed by the Customs data, the cumulative incoming shipments from the main origins were up by approximately 4 %. Chile, still by far the number one supplier to the Community market, seems to have had a slightly bigger presence than in 2016-17 (both in Europe and also the USA). The shipments calendar was slightly different, with trading starting ahead of schedule early in the season offset by shipments winding down early from late February. Unsurprisingly, the shortfall from the two main Mediterranean suppliers was confirmed, with Spanish and above all Israeli exports distinctly at a standstill compared to 2016-17. Colombia continued its rise to the fore, keeping its flow focused almost entirely on the European market (for now few orchards are currently approved to export to the USA). The big winner of this campaign was Mexico. Exports from the world number one producer should reach 60 000 t (to be confirmed, though Mexican Customs had already registered exports of more than 47 000 t to the EU-28 between early July and late January). This is a record figure, up by more than 20 000 t from 2016-17, probably largely due to the big increase in production in Jalisco, which at present primarily serves Canada, Japan and Europe, given its lack of access across the border to the USA.

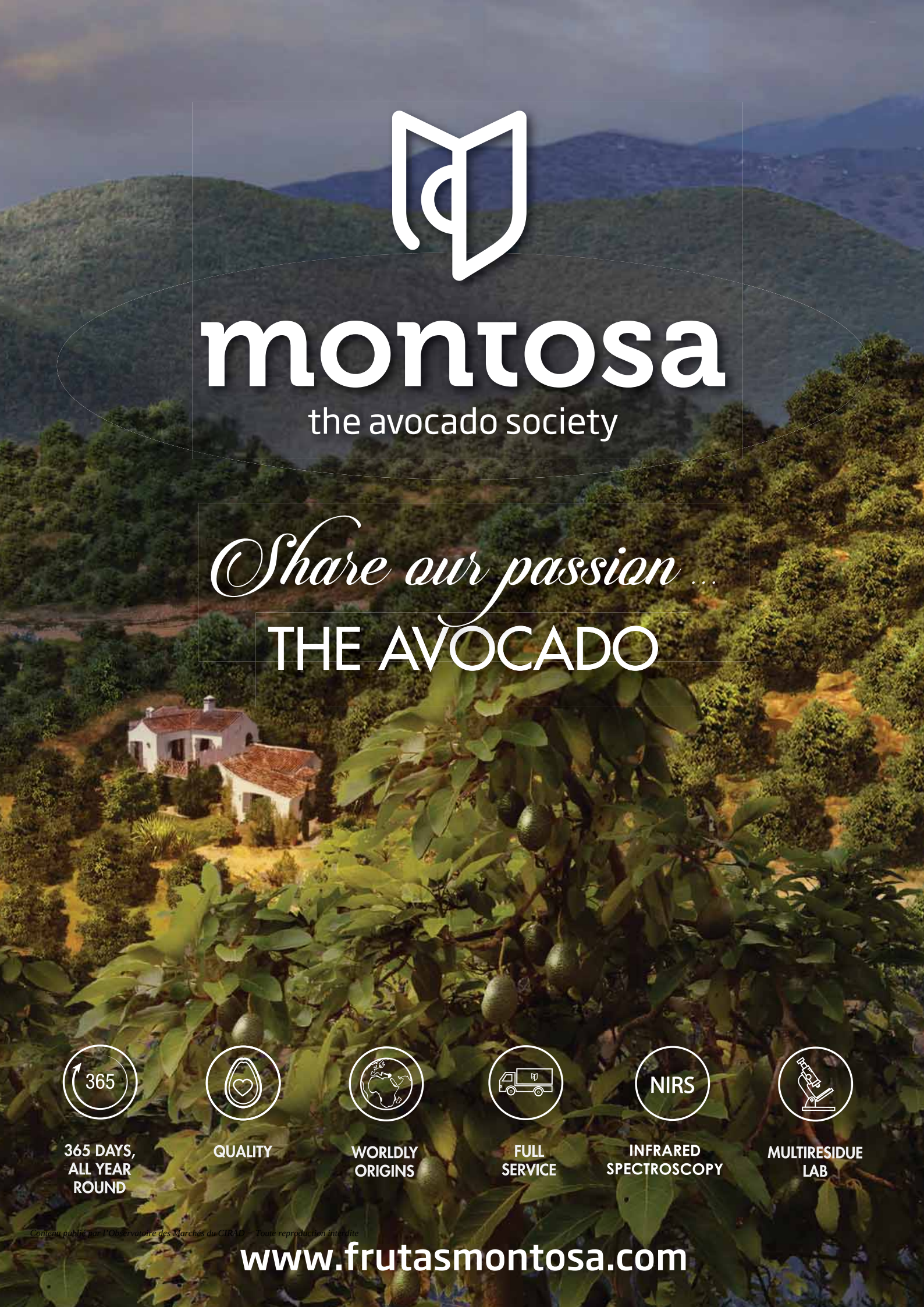
Avocado – EU-28 – Imports during winter season (main origins*)

in tonnes	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Chile	41 074	62 968	42 797	78 244	90 138	95 000
Mexico	9 085	6 293	12 918	45 593	36 884	60 000
Spain	38 500	36 700	50 600	37 700	55 200	45 000
Israel	35 175	42 844	46 086	34 995	56 600	45 000
Colombia	486	1 142	3 740	11 189	24 024	28 000
Total	**124 320**	**149 947**	**156 141**	**207 721**	**262 846**	**273 000**

* Morocco and the Dominican Republic missing / Source: Eurostat, estimate

Avocado - EU-28 - Supply* and average import price in winter season
(* main origins / sources: Customs, CIRAD)





Producer country file

The table grape in India

by Cécilia Céleyrette

Grape production in India is continuing its development, to supply growing world demand. The industry has set itself some ambitious objectives, hoping to triple its production by 2050. So surface areas have seen a big rise over the past twenty years, though it is above all improved cropping techniques which are currently enabling better productivity and access to the international markets. While this origin is highly competitive, its development was curbed in the early 2010s by phytosanitary constraints, forcing the authorities to implement strict protocols and encourage producer training.

Food2China
链 接 全 球 · 美 味 中 国
Food to China. Tastes from the World

Food to China,Tastes from the World 链 接 全 球 · 美 味 中 国

FOOD hospitality WORLD Exhibition 展会

FOOD hospitality WORLD

Food2China
链 接 全 球 · 美 味 中 国
Food to China. Tastes from the World

THE 7TH INTERNATIONAL FOOD AND BEVERAGE EXHIBITION

7-9 SEPT, 2018

China Import & Export Fair Complex Area A,
Guangzhou, China

Table grape – India

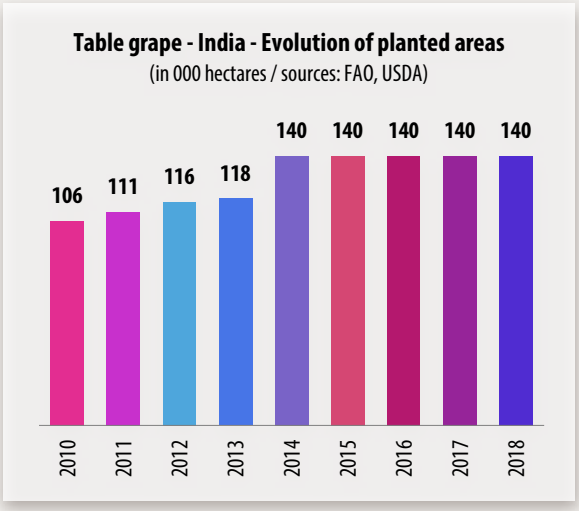
Location

Grape cultivation is an ancient activity in India, apparently introduced by the Persians in the north of the country, from where it then spread to the main southern production zones. Northern India (Punjab, Haryana and western Uttar Pradesh) is characterised by a subtropical climate. The production period there is restricted since vegetation starts in early March and the rains arrive in June, which leaves just 90 to 95 days between development and harvest. The Maharashtra region in the west of the country is the main production zone. It enjoys a tropical climate, though it suffers from water salinity and drought, although irrigation is under development. It also has big temperature variations (from 8°C to 42°C), which promote fruit coloration, or even a slight blush. It is the main production zone for Thompson Seedless and its mutants. The Karnataka zone, in the south of the country, is the number two production region. It is also characterised by a tropical climate, just like the Andhra Pradesh and Tamil Nadu regions. However temperature differences are less pronounced (from 12°C to 36°C) than in the Maharashtra region, enabling two harvests per year.

Table grape – India

Production

Surfaces areas in India have seen a big increase over the past twenty years, going from 40 000 ha in 1998, to more than 100 000 ha in 2010 and nearly 140 000 ha today, of which 138 000 ha already in production. They are now stabilising, though productivity is continuing to increase thanks to the implementation of a complete set of practices such as varietal selection and compatible rootstocks, producer training, optimisation of cropping techniques, development of irrigation and disease management in accordance with the standards in place on the international markets. Hence the farmers take part in workshops and courses on parasite management in conjunction with companies with an international presence. So India within the space of ten years has become the world no. 2 grape producer country, behind China (more than 6 million tonnes) and ahead of Turkey (less than 2 million tonnes). The potential is currently 3 million tonnes, though this should increase further in the coming years.



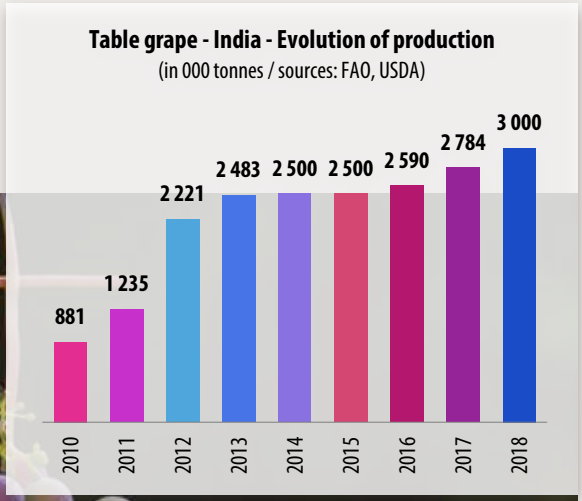


Table grape – India

Production calendar and varieties

The Thompson Seedless variety, and its mutants (Sonaka Seedless, Tas-A-Ganesh, and Manik chaman), remains the main variety of the Indian table grape stock. On its own it represents 50 % of production, and is the main export variety. Bangalore Blue (Isabella) is another icon of Indian production, and in 2013 received a geographic indication. Other coloured varieties such as Sharad (black seedless) or Jumbo have expanded the export varietal range, with in addition some Flame Seedless, Crimson Seedless and Red Globe. The stock also includes some varieties aimed rather at the local market, such as Perlette, Gulabi (Black Muscat) or Anab-e-Shahi. The production period extends year-round, especially since certain regions carry out two harvests per year. The campaign starts in the early zones at the beginning of the year, or even in December for very early varieties, though the vast majority of volumes is harvested between February and April in the Maharashtra zone. Tests are currently being conducted on ten or so varieties in order to select two or three to replace Thompson Seedless.

Table grape — India — Production calendar

Varieties	S	O	N	D	J	F	M	A	M	J	J	A
Thompson Seedless and mutants					■	■	■	■				
Bangalore Blue (Isabella)	■	■	■	■	■	■	■			■	■	■
Gulabi (Black Muscat)	■	■	■	■	■	■	■			■	■	■
Anab-e-Shahi			■	■		■	■	■	■		■	
Bhokri			■	■						■	■	
Perlette										■		

Source: ICAR

Table grape - India
Breakdown of exports in 2016-17
(sources: ADEPA, Comext)

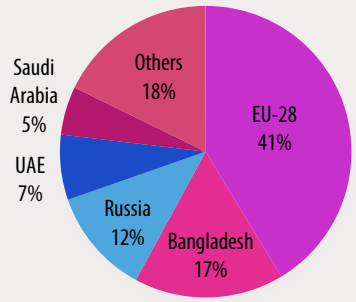
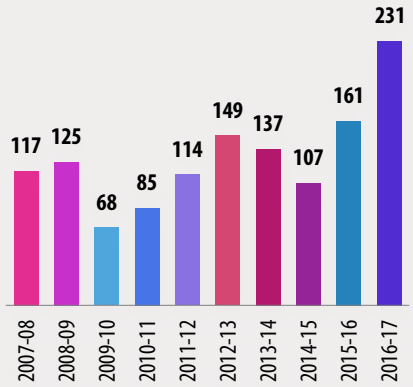


Table grape - India - Exports
(in 000 tonnes / sources: ADEPA, Comtrade)



Exports

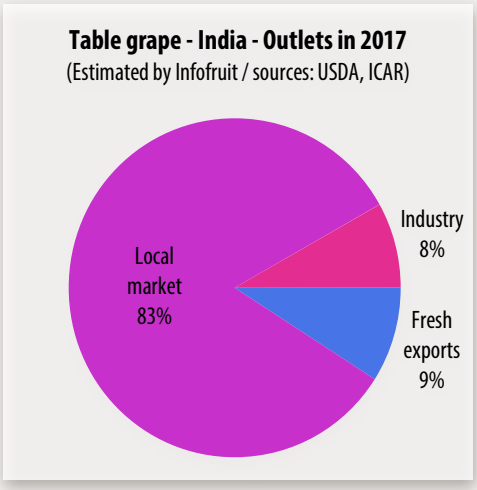

© Guy Brehmer

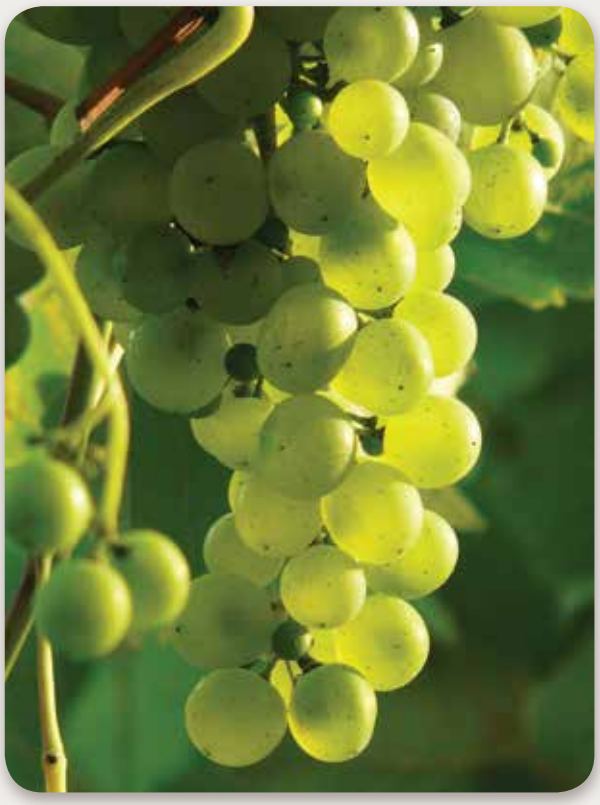
Indian grape exports saw regular growth until 2010, but were temporarily slowed due to Chlormequat exceeding the MRL. Adaptation of production practices and the inspections performed by ADEPA, within what is now a very strict protocol since 2016, has enabled shipments to the European Union to resume. So tonnages increased very steeply again in 2015-16 and 2016-17. This campaign, exporters actually hoped this campaign for an 18 % increase on 2016-17, i.e. an expected record of 272 000 t. Europe remains the main outlet for Indian production, with 40 % of total exports in 2017, i.e. 95 500 t (+ 19 % on 2016), on top of which 27 000 t must be added for Russia (+ 96 %). Other destinations are becoming more important in the customer portfolio of Indian exporters, such as the Middle East or Asia. In particular there is strong demand for the black table grape in China, Hong Kong, Thailand, Malaysia and Singapore. However several of these countries have decided to introduce stricter regulations in terms of phytosanitary residue monitoring.

Table grape – India

Outlets

The bulk of Indian table grape production is consumed on the local market. Only approximately 10 % of production is currently exported, while a small part is processed, especially into raisins, and a very small proportion into juice.





Logistics

Exports are made primarily out of Jawaharlal Nehru Port and its container terminal Nhava Sheva. This is the biggest port in India. It serves primarily the districts of Madhya Pradesh, Maharashtra, Gujarat, Karnataka and the majority of the northern Indian production zones. However, India's infrastructures remain a brake on export growth.

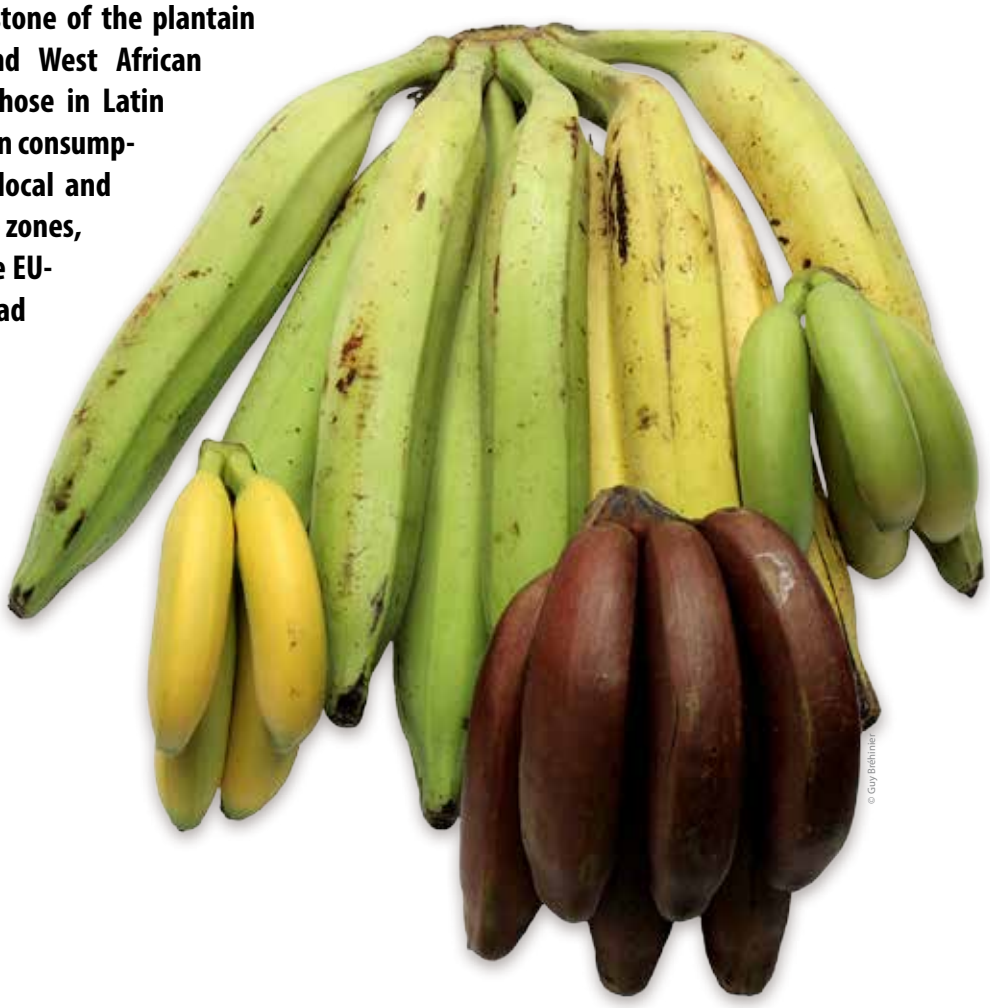
Table grape — India — Sea-freight logistics to EU

Port of departure	Port of arrival	Transit time
Jawaharlal Nehru Port	Gioia Tauro (Italy) Thamesport (UK) Hamburg (Germany) Antwerp (Belgium)	15 to 21 days

Plantain banana market

Self-consumption predominant on this still non-globalised market

Despite world production reaching approximately 20 million tonnes, international trade remains extremely limited, involving just 5 % of production, i.e. probably 750 000 t. Self-consumption remains the cornerstone of the plantain market: the Central and West African production areas, plus those in Latin America, are also the main consumption zones. Besides the local and regional markets in these zones, the United States and the EU-28 (the former well ahead of the latter) are driving international trade, mainly meeting the demand from populations of Latin American or African ethnic origin.



World production mainly aimed at self-consumption

The discreet presence of the plantain banana on European supermarket shelves and in world trade might imply that world production is limited; yet it is nothing of the sort! With approximately 20 million tonnes produced in 2016, the plantain banana, cultivated mainly in Central and West Africa, and also in Latin America, represents nearly 15 % of world banana production (dessert + cooking). Production of this cooking banana, hard to estimate due to the vast number of small producers, is rising by just 1 to 2 % per year, steadily but very slowly. Hence in the space of ten years, world production has increased by just 8 %, mainly in Central and West Africa (4 %), and also in South America (5 %). A big rise has also been seen in India, promoting Asia to the world number three production region spot, still far behind the other two.

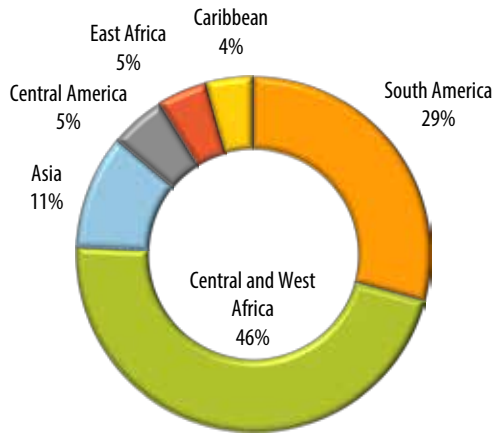

© Thierry Lescot

Plantain – Top 10 producer countries

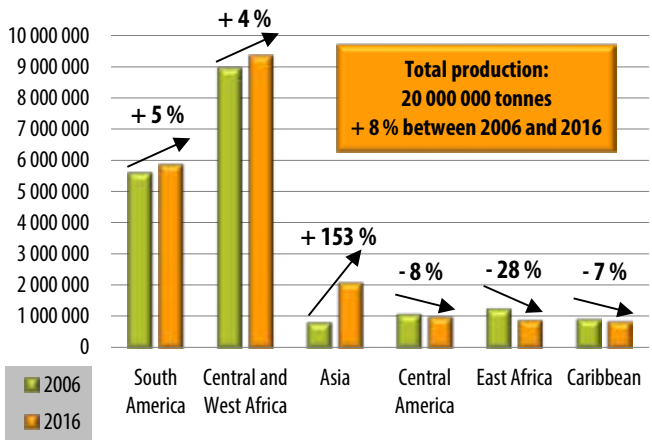
in tonnes	2016
Colombia	2 700 000
Nigeria	2 580 000
Ghana	1 980 000
India	1 900 000
Cameroon	1 700 000
Côte d'Ivoire	1 589 643
Peru	1 391 339
Ecuador	570 413
Brazil	560 000
Venezuela	557 146

Source: FAO 2016

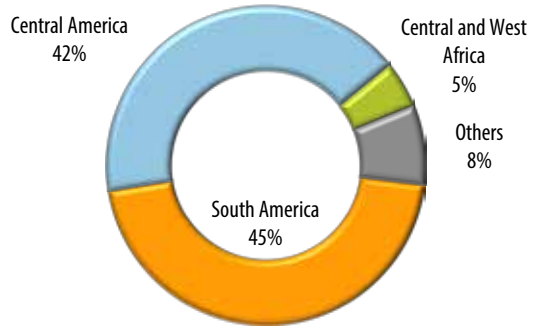
Plantain - Breakdown of world production
(sources : FAO 2016, CIRAD)



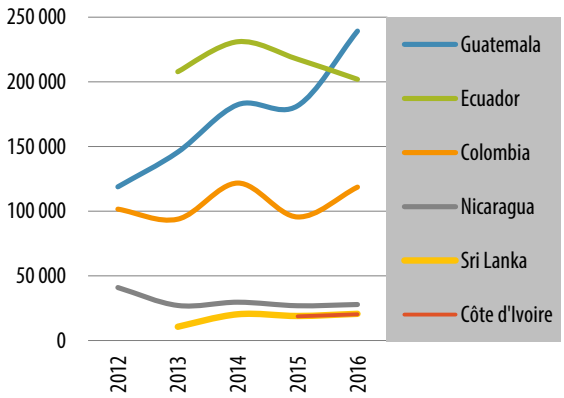
Plantain - Evolution of production between 2006 and 2016 by producer region (in tonnes / sources: FAO, CIRAD)



Plantain - Breakdown of world exports
(source: Comtrade 2016)



Plantain - Evolution of main exporter countries
(in tonnes / source: Comtrade)



Central and West Africa: big production

While Central and West Africa is the leading production region, representing 46 % of world production in 2016, export volumes remain highly limited. This paradox can be explained above all by the highly dynamic local demand, with plantain a staple for these populations. Hence there is a big shortfall between supply and demand in the sub-region, maintaining an attractive price level on these markets. In addition, the industry is under-organised in terms of export, while the production model is still for the most part traditional, comprising almost exclusively small producers using a wide range of varietal types because of the diversity of culinary uses and the large number of ethnic groups. It is difficult to determine the proportion of varieties belonging to one of the two main types of plantain: "French" (abundant hands, fruits bananas) and "Corne" (some hands, big fruits). Hence given the Latin American competition, Central and West Africa are outmatched (high cost) and are restricted to intra-regional trade, still lucrative and with high demand. By way of example, we can mention Cameroonian exports to Equatorial Guinea, Gabon and also the Central African Republic, Chad and Nigeria; or trade from Côte d'Ivoire to Liberia, Mali and Burkina Faso.

Latin America, more focused on exports

It is in Latin America (South and Central America), where the multinational Chiquita has developed plantain banana exports and set the standards, that we need to look for the big exporters. While this zone represents just 34 % of world production (29 % in South America and 5 % in Central America), it is responsible for 87 % of world exports. While local and regional demand is dynamic, as in Central and West Africa, exports growth has been driven by export purchasers. There are two coexisting production models: traditional small producers, some of whose production is still aimed at the local and regional markets, and medium-sized plantations, which have adopted more intensive models, driven by export purchasers.

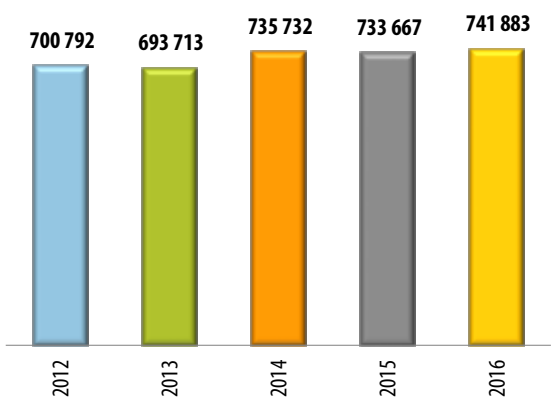
Unlike with large-scale Cavendish production, the multinationals have refrained from direct involvement in plantain production, which represents too risky an investment (diseases, yield, theft, etc.). However, they have imposed strict technical procedures and qual-

ity controls to meet the requirements of exporting to the Northern Hemisphere. This production is mainly based in Ecuador (main zone "El Carmen" to the north of Guayaquil), in Colombia ("Uraba" export banana zone), in Guatemala (new big exporter), but also in Nicaragua, Mexico and Costa Rica. Whether the production is traditional or intensive, the predominant variety type is "Corne", and more particularly the "Fake-Corne" largely preferred by Latin Americans, earning them numerous names in local dialects ("Baraganete" in Ecuador, "Harton" in Colombia, "Currare" in Costa Rica, and "Cuerno" or "Macho" in other Latin American countries).

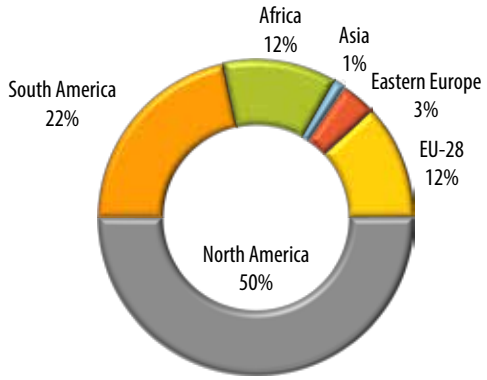
World demand still meagre

Overall, production remains aimed at self-consumption, a powerful force in the production areas, relegating world trade to a limited secondary role, accounting for just 4 % of world production. Since 2012, world trade, estimated at 700 000 to 750 000 tonnes, has maintained a relatively stable level. It is hard to estimate world imports because of the uncertainty prevailing over possible customs declaration errors (similar customs codes for the banana/plantain banana). Here, we have opted to exclude the Middle East, despite the data available (approximately 950 000 tonnes in 2016), given the dietary habits of the populations and the data of countries exporting to this region. Besides the intra-regional trade in Africa and South America, which nonetheless represented 25 % of world trade in 2016 (i.e. 247 000 t), it is North America (especially the United States) that is registering solid figures, with 50 % of world imports in 2016, i.e. 370 000 tonnes. The European Union remains far behind, with just 12 % in 2016, i.e. 88 000 t.

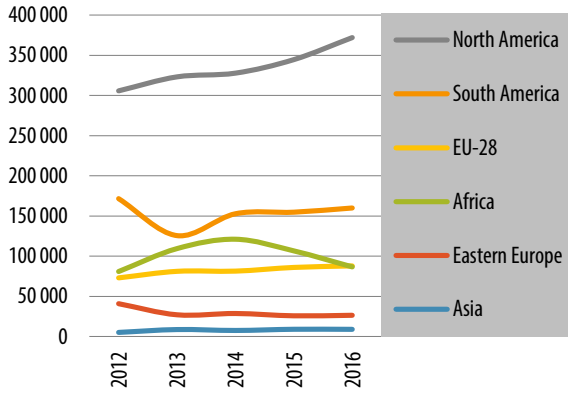
Plantain - Evolution of world imports
(in tonnes / sources: Comtrade, US Customs, Eurostat)



Plantain - Breakdown of world imports
(sources: Comtrade, US Customs, Eurostat, 2016)



Plantain - Evolution of world imports by region
(in tonnes / sources: Comtrade, US Customs, Eurostat)



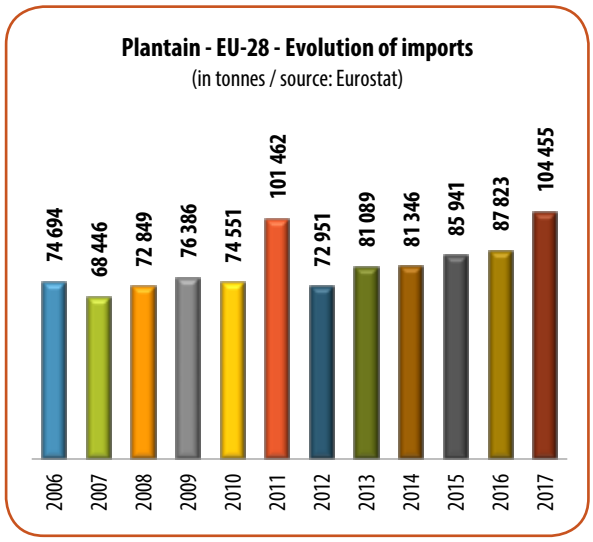
USA, the number one and driving force behind world trade

With estimated imports of 380 000 t (33 % of the world market) and a steady rise of 5 to 8 % per year between 2012 and 2017, the USA is the driving force behind international trade. Since re-exports are minimal (between 15 000 and 18 000 tonnes to Canada according to US Customs), it would very much seem that it is US consumption which is rising, albeit slowly but surely. The size of the US plantain banana market should, of course, be put into context compared to the Cavendish banana (more than 4.5 million tonnes) or other tropical fruits such as the pineapple (more than one million tonnes). The plantain is not yet a familiar product for all consumers. So it would seem that consumption and therefore the rise in imports are extremely closely linked to dietary habits of ethnic populations.

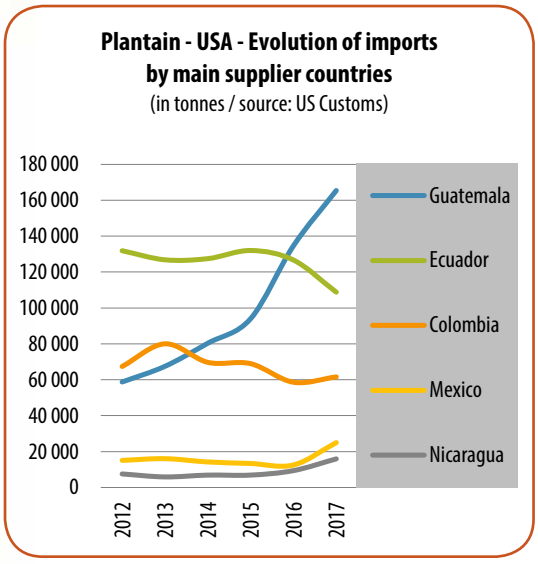
The supply to the US market comes solely from Latin America. Since 2016, Guatemala has been the market leader (+ 100 000 tonnes in 5 years), to the detriment of Ecuador. This shift in market share is in some ways reminiscent of the Cavendish banana, with Guatemala in this case too asserting its competitiveness. The boom in volumes from this origin is doubtless due to its favourable strategic position in relation to the US market (logistics facilitated by geographic proximity, low freight costs and competitive production costs). In second position, Ecuador seems to have suffered from the Guatemalan boom, with a downward trend since 2015 and volumes barely reaching 110 000 tonnes in 2017. Though trailing far behind, Colombia is holding up with stable exports of 60 000 to 70 000 tonnes. Mexico and Nicaragua are bringing up the rear, with respective rises of approximately 10 000 t and 8 000 t in the space of five years.

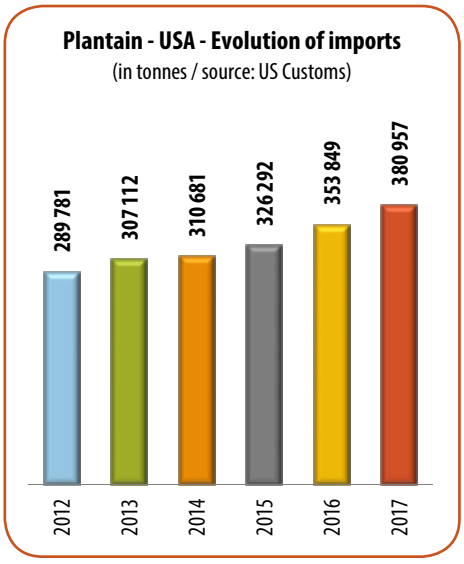
EU-28 market still just as limited, apparently…

After several years of near-stability, European Union imports reportedly exceeded the 100 000-t mark in 2017. It is legitimate to doubt this astonishing rise, bearing in mind that the lack of distinction between banana and plantain on Customs declarations could still be responsible. In 2016, a volume of 131 000 t had been declared, before being revised downward to approximately 88 000 tonnes (see **FruiTrop** 248, April 2017, p. 58). Regarding the various EU-28 members, customs declaration errors have apparently put countries such as Romania, Poland and Hungary among the biggest importers and consumers. So we should remain cautious with regard to customs figures, and above all bear in mind an approximate European market size of 80 000 t to 90 000 t. With




© Guy Brehinier





this level of plantain imports, Europe pales on the international market in comparison to the USA (more than 350 000 t). The list of the main importers includes more credible members such as the United Kingdom, the Netherlands, Belgium, Spain, France and also Italy, which re-export to other member countries. Hence European consumption per capita was just 0.17 kg on average, and as in the USA the regular demand comes mainly from ethnic populations.

The supply to the European market comes primarily from Latin America because of its production model (as set out above). While keeping a critical eye on customs figures, indisputably Colombia and Ecuador are by far the leading supplier countries, disputing first place. However, there remains a doubt over the exact value of imports, and the recent rise from Colombia. Far behind, Costa Rica, long in the top three, has been driven out by the emergence of Guatemala. Finally, despite their special links with the European market (historical and geographic proximity), Central and West Africa have only a very small presence: the number one African country, Uganda, occupies a very distant fourth place.

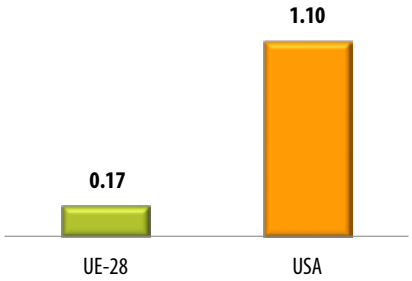
Has the plantain a chance of seeing success?

Outside of the big production zones, the plantain banana remains a niche market with limited rises, especially in the European Union where its consumption remains restricted to ethnic populations, due to lack of knowledge of its uses and recognition of this "fruit-cum-vegetable". Yet the plantain banana is all in all comparable to the sweet potato, which has seen renewed interest from consumers. Like the sweet potato, the plantain banana is exotic, featuring a slightly sweet taste, and has the advantage of an affordable price (wholesale price in France around 0.90-0.95 euro/kg, and according to IRI/Fresh Look Marketing, retail prices around 0.60-0.65 USD/kg in the USA). Hence, why could the plantain banana not see the same boom as the sweet potato, reaching a wider public? ■

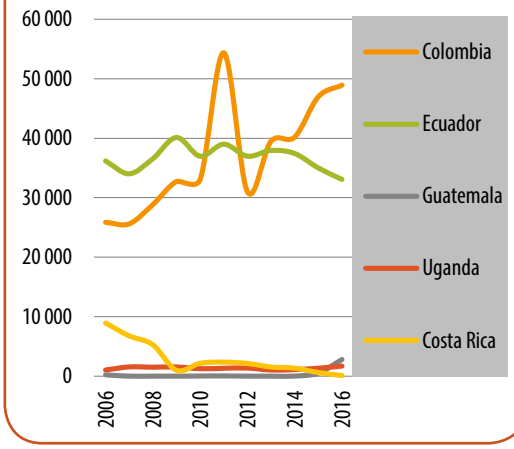
Anaïs Falk, CIRAD
anais.falk@cirad.fr

Photos © Thierry Lescot

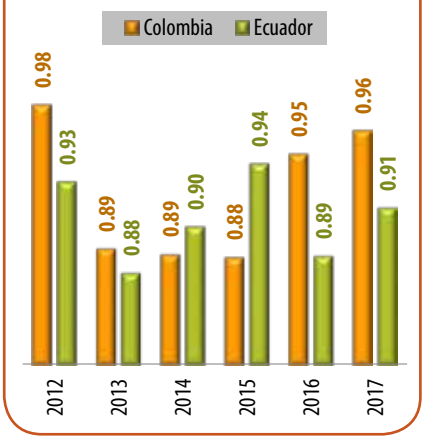
Plantain - EU/USA - Estimated average consumption - High standard deviations
(in kg per capita / sources: US Customs, Eurostat)



Plantain - EU-28 - Imports by supplier country
(in tonnes / source: Eurostat)



Plantain - France
Average wholesale market price
(in euro/kg / source: Pierre Gerbaud)



Banana

A report by
Denis Loeillet

Contents

SiiM
Société Internationale d'Importation

WWW.SIIM.NET

Beautiful Banana

Expertise in both production and ripening

Green or ripened in our warehouses, our Ecuadorian Selvatica Bananas, certified Rainforest Alliance as well as organic and Fairtrade, are produced in compliance with best agricultural, social and environmental practices.

Selvática®
Aroma, texture and taste of Ecuador

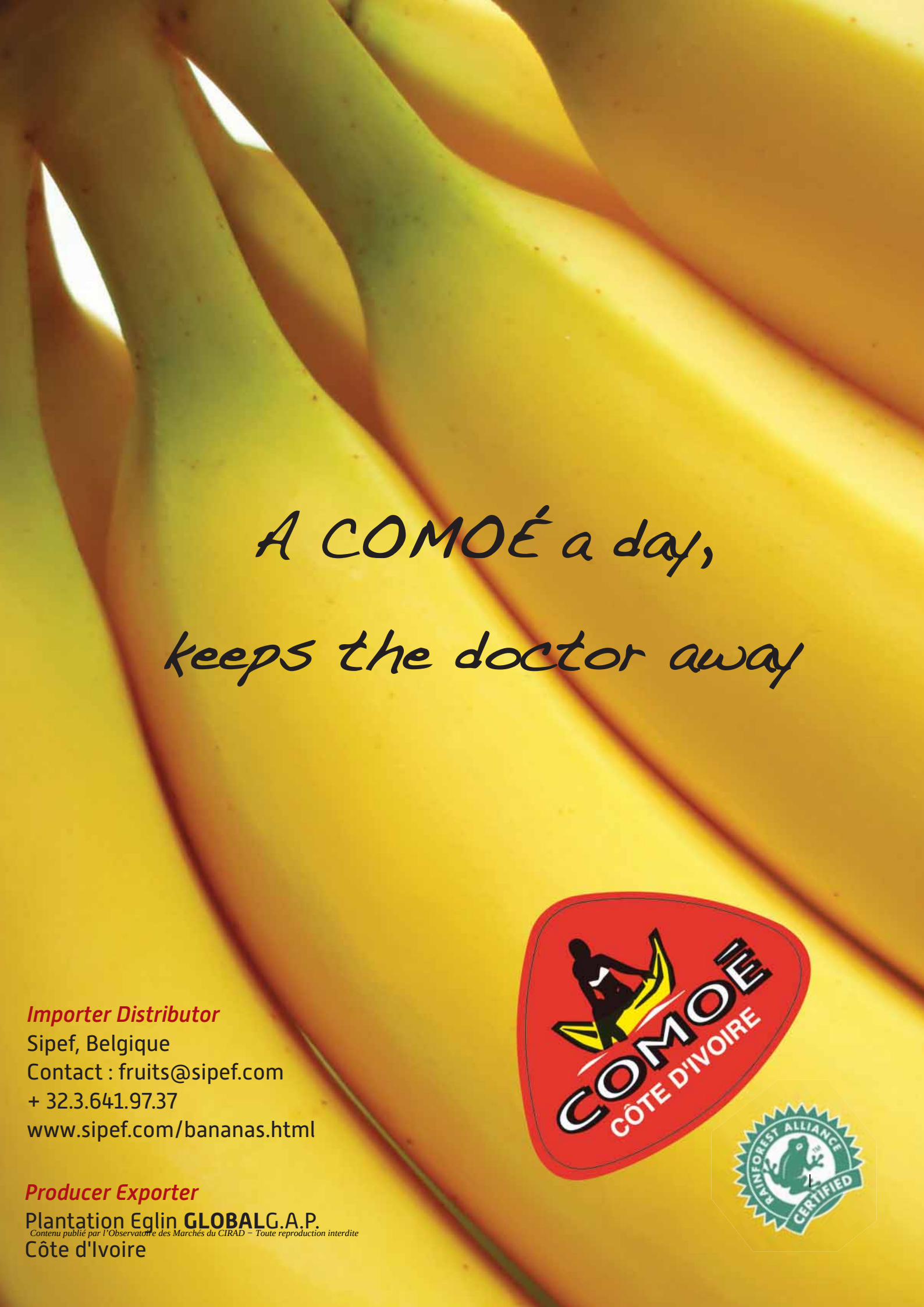
PRODUCER-IMPORTER-RIPENER-DISTRIBUTOR

SIIM - Plateforme de mûrissage - MIN Rungis
Bâtiment C3 - C5 - D2 / 2 rue de Perpignan
Fruileg CP 60431 / 94642 Rungis Cedex / France
T. +33 1 45 12 29 60 / F. +33 1 45 60 01 29
Email : dibra@siim.net

Banana
World market

Banana: still a crisis-free fruit?

Ageism in consumption has gone out of fashion. The trend for novelty at any price and its corollary, planned obsolescence, have given way to the cult of *Musa*. The banana, the good old fresh product which has not seen any significant modification for more than half a century, has asserted itself as the absolute star of the fresh section, and more particularly the fruits and vegetables section. Long may it last!



Importer Distributor

Sipef, Belgique
Contact : fruits@sipef.com
+ 32.3.641.97.37
www.sipef.com/bananas.html

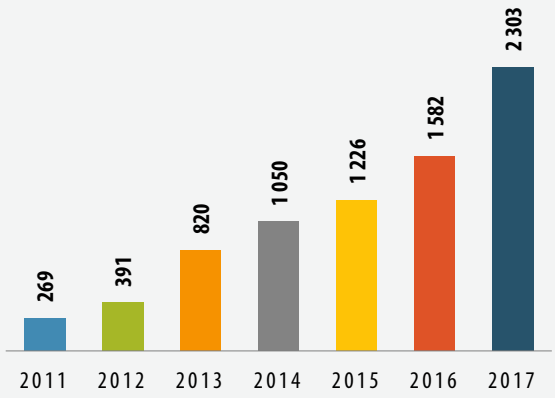
Producer Exporter

Plantation Eglin **GLOBAL**G.A.P.
Côte d'Ivoire

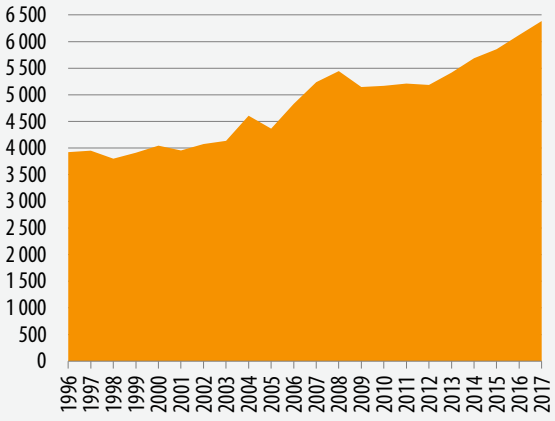
While 2017 was very volatile in terms of price (see **FruiTrop** 254, January 2018), all the indicators for consumption were at green. And if we look well beyond the scope of our analysis, focused on the EU, we find that this was a worldwide phenomenon. Indeed the import world should celebrate a very auspicious year. If we combine the consumption performances of the world's four main import centres (EU-28, USA/Canada, Japan and Russia), 2016-2017 saw an additional intake of more than 720 000 tonnes, i.e. a total of 13.7 million tonnes. The growth rate for the group as a whole was 6 %, and up to 14 % for Russia alone.

Below we will return to look at the supply to each of these zones in detail. But let's take advantage of this overview to take the analysis a little further. From a historical viewpoint, the same utopian view wins out. Without going back to time immemorial, but only 2011, it is indisputable that the consumption of these four zones swelled the world market by 2.3 million tonnes between 2011 and 2017. Every four years, demand from these countries have gone up by 1 million tonnes, i.e. 55 million boxes more entering the market.

Banana - Cumulative consumption surplus since 2010 in Japan, the USA, Russia, the EU and Canada
(in 000 tonnes / source: CIRAD)



Banana - EU - Net supply
(in 000 tonnes / source: Eurostat)



Dollar origins: the lion's share

Which origins are contributing to this solid upward trend? For the moment, it is the traditional Latin American origins which are feeding the machine. This zone has demonstrated unrivalled vitality. According to ITC, Ecuador exported more than one million additional tonnes between 2010-11 and 2017, going from 5.5 to 6.6 million tonnes. The performance in terms of absolute value (approximately 1 million additional tonnes to reach 2 million) was the same for Guatemala, though it had a much lower starting point. It is the banana country par excellence, for good but also for ill. On the good side, it has fantastic yields of 3 300 to 5 000 boxes per hectare! But on the bad side, there are the social and environmental conditions of production; it is far removed from agro-ecology and decent living conditions. The performances of Costa Rica (+ 19 % over the period 2011 to 2017) and Colombia (+ 7 %) are less dazzling, though there is growth. These four suppliers exported an additional 110 million boxes between 2011 and 2017, i.e. 2 million tonnes, the exact amount taken in by the major importer countries over this period.

With yields seeing big increases, even in already highly productive zones such as Costa Rica, there is a phenomenal leverage effect. This is demonstrated by Ecuador, where a gain of one tonne in exports per hectare instantly contributes to a surplus of 150 000 to 170 000 tonnes entering the world market. The same applies to Colombia, whose productivity is improving at a rate of knots, in particular through massive implementation of irrigation.

Compliance with the specifications
100 %

Availability
Year-round

Customer satisfaction

Conception : J'articule

GETTING THE MATURITY RIGHT IS QUITE AN ART!

**Our bananas put a smile on our customers' faces all year round,
because we work every day to supply them with the right product at the right time.**

WWW.SOLYIMPORT.COM

Other production zones are also on the move, such as Africa. While Cameroon does not seem to be taking off but rather consolidating a level of between 200 000 and 290 000 t in the long term, Côte d'Ivoire is exhibiting very high ambitions. In a way it is the new African banana Eldorado. However, we need to bear in mind the big picture. While Ivorian exports in the medium term reached half a million tonnes (currently 300 000 t), they represented just 10 % of the additional volumes entering the market from the four dollar suppliers between 2011 and 2017. Ghana is also on the upgrade, though again the orders of magnitude are a long way off the world leaders. As for the Dominican Republic (approximately 340 000 t at its height), it has ambitions but is yo-yoing because of recurrent climate damage curbing its growth. European production meanwhile is not seeking to expand its potential, but rather to maintain a low water mark of around 650 000 t. The rest of the Caribbean is in survival mode, and is no longer counting on the international market. Two ACP origins in Latin America (Belize and Surinam) are trying to maintain production between 150 000 and 160 000 t, but climate, phytosanitary or social difficulties are curbing their ambitions for the time being.

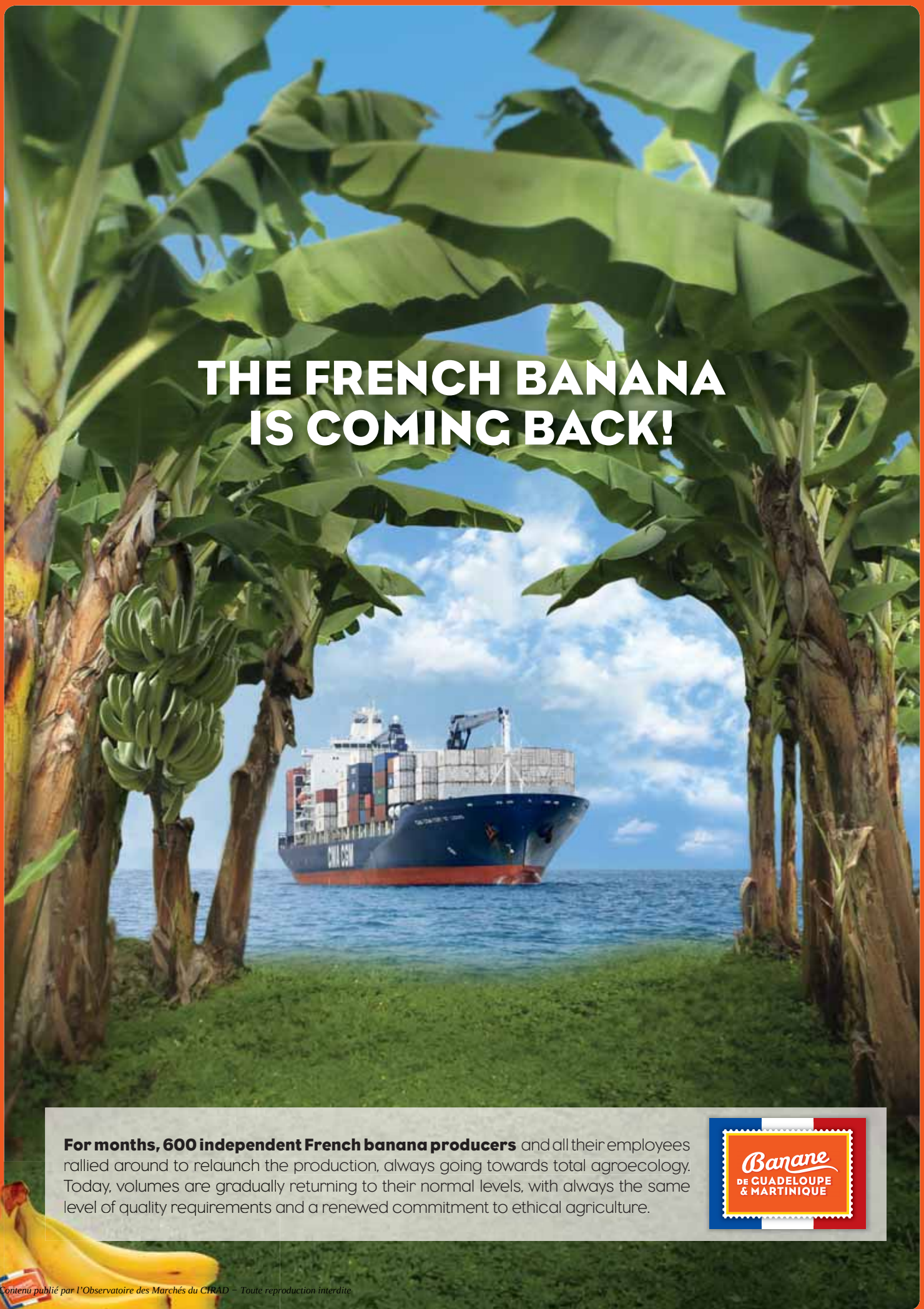
If there is one big loser, it is the Philippines. The production sector, concentrated on the island of Mindanao (south-east of the archipelago) combines numerous handicaps: disease problems (wilt, TR4), climate damage (typhoons) and political unrest. According to the FAO, this caused a fall in exports of one million tonnes between the 2011-2015 average and 2017, down to 1.7 million tonnes. Other sources announced less dramatic results. Yet although there are major difficulties of all kinds, we should make no mistake: the Philippines remains an essential production and supply region for Japan, China and more widely South-East Asia.

Finally, there are the newcomers, which are also old players. Panama, Honduras and Nicaragua have beaten export records (in terms of both volume and value), and big operators are announcing their return to production or expanded projects.

Banana — European Union — Evolution of supply – Tonnes

Year	Banana type or source			Sub-total	Exports	Net supply
	Community	ACP	Others ($)			
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	6 977	4 364 835
2006	641 559	889 176	3 306 538	4 837 273	7 839	4 829 434
2007	554 734	842 959	3 848 266	5 245 959	8 848	5 237 112
2008	567 560	918 923	3 968 269	5 454 752	9 636	5 445 115
2009	608 048	958 162	3 587 737	5 153 947	7 592	5 146 354
2010	659 525	1 023 664	3 492 406	5 175 595	7 151	5 168 445
2011	611 841	978 540	3 628 111	5 218 491	7 508	5 210 983
2012	648 459	982 336	3 559 785	5 190 580	5 236	5 185 344
2013	614 564	1 060 467	3 746 853	5 421 884	5 274	5 416 610
2014	655 980	1 081 268	3 956 190	5 693 438	6 423	5 687 015
2015	669 673	1 076 315	4 116 432	5 862 420	6 162	5 856 259
2016	**692 954**	**1 167 441**	**4 268 613**	**6 129 008**	**6 060**	**6 122 948**
2017	**585 582**	**1 099 695**	**4 706 762**	**6 392 039**	**6 815**	**6 385 223**
	(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: 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 date from 1988 onwards in order to give comparable results.
Source: Eurostat, European Commission / Processed by CIRAD Market News Service / Updated March 2018



For months, 600 independent French banana producers and all their employees rallied around to relaunch the production, always going towards total agroecology. Today, volumes are gradually returning to their normal levels, with always the same level of quality requirements and a renewed commitment to ethical agriculture.

Banane DE GUADELOUPE & MARTINIQUE

www.bananeguadeloupemartinique.com

No questions asked: full steam ahead!

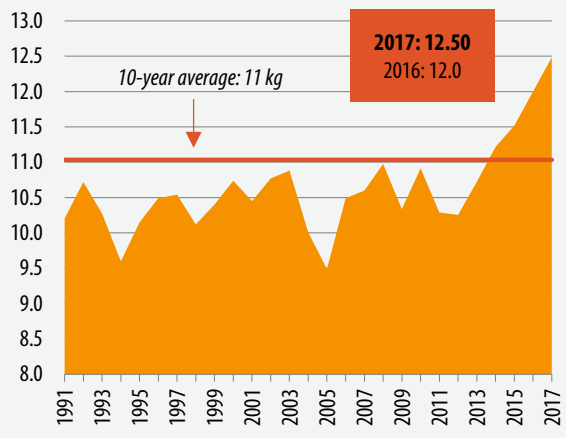
There is no mystery behind the sudden increase in world supply: it is a profitable sector. Local and transnational operators are investing to improve productivity (fertilisers, phytosanitary treatments, irrigation, etc.) and expand surface areas. Cheap labour (local and immigrant) is still available, although the agricultural sector is getting the cold shoulder from labourers across the board. And there is nothing to say that the system will seize up. The inexorable rise in both European and Russian spot prices in Q1 2018, reaching historic levels, reinforces the idea that the production system is under tension from strong demand, hence the massive investments in production.

The banana is an annual plant and its response to investment in production factors (especially amendments and pesticide treatments) is practically immediate, with an additional production volume. We can also observe the same speed of response when investment is withdrawn. We are in an upward phase, a production utopia fuelled by returns on investment universally deemed sufficiently high to feed the development cycle.

In terms of mergers and acquisitions, recent years have abounded in capitalistic manoeuvres, with the concentration phenomenon continuing in 2017. Readers will recall late 2014, which saw Chiquita purchased by Cutrale (a Brazilian orange juice sector operator), while Fyffes was eyeing up the American fruit giant. In late 2016, Fyffes was itself purchased by the Japanese company Sumitomo. In 2017 and 2018, Dole was coveted on all sides. First approached by the Belgian company Greenyard, it was ultimately the Irish company Total Produce which won out to form a giant of the fruit sector, with heavy involvement from both sides of the Atlantic, as well as direct control of its sourcing (as a producer) or via long-term agreements. Once the deal is done and if the pattern is followed, covetous eyes could turn to the last of the giants. We might also believe that intermediate sized companies will be the subject of plenty of attention, either as targets for purchase, or candidates for future acquisitions.

There is also a business strategy aspect in this production development. After partially or completely withdrawing from production, the big operators seem to be coming back in a big way. On the one hand, to respond to the growing contractualisation with the downstream segment, long completed in the USA and burgeoning in Europe, it is essential to control the supply. On the other hand, it is also the way for the challengers to the big transnationals to expand organically, rather than necessarily through merger and acquisition operations alone.

Banana - EU - Consumption
(in kg per capita / provisional data / sources: Eurostat, CIRAD)



Note: incl. EU enlargements

RipeLock™
an AgroFresh solution

Control the ripening progression of bananas during shipping, distribution and display.

The **RipeLock™ Quality System** is a revolutionary fruit quality management system specifically designed for the banana industry. This innovative system, a combination of a new generation MAP Bag and a special ethylene-control formulation (RipeLock Tabs 2.0), gives you perfect colour bananas, every day, and allows you flexible inventory management.

The proven benefits are clearly visible:

- Extended "yellow life" for bananas, less food waste
- Delayed development and reduced incidence of sugar spots
- Improved control on rots and molds
- Consumer preferred colour and taste

TRADITIONAL RIPENING

4 days after scheduled delivery to retailer

RIPELOCK™ TECHNOLOGY

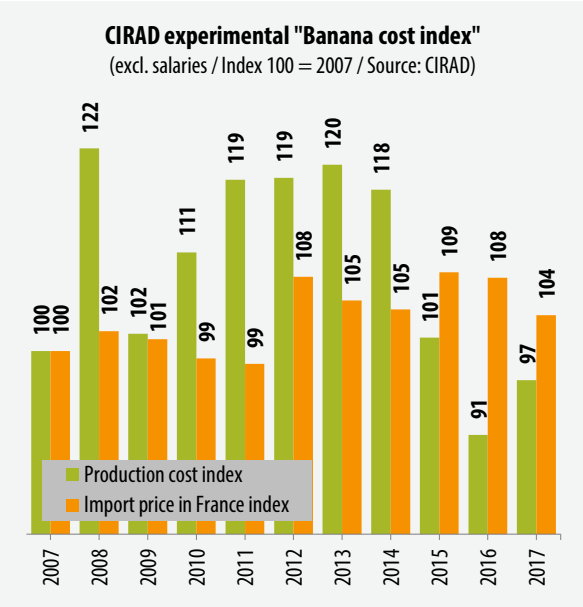
4 days after scheduled delivery to retailer and removal from RipeLock Bag

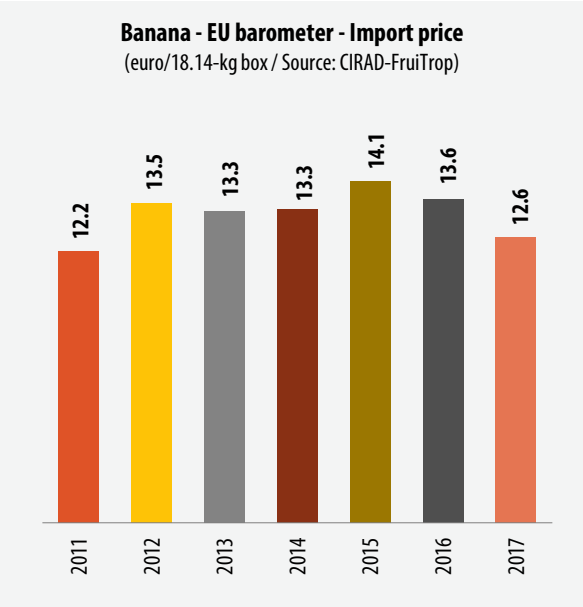
The RipeLock Quality System is now available in most EU countries. For more information visit **www.ripelock.eu** or contact our expert team:

Ivan Van Dessel: ivandessel@agrofresh.com, +32 477 26 23 05
André Vink: avink@agrofresh.com, +31 651 98 74 77

AgroFresh
Advancing the future of freshness

Use plant protection products safely. Always read the label and product information before use.





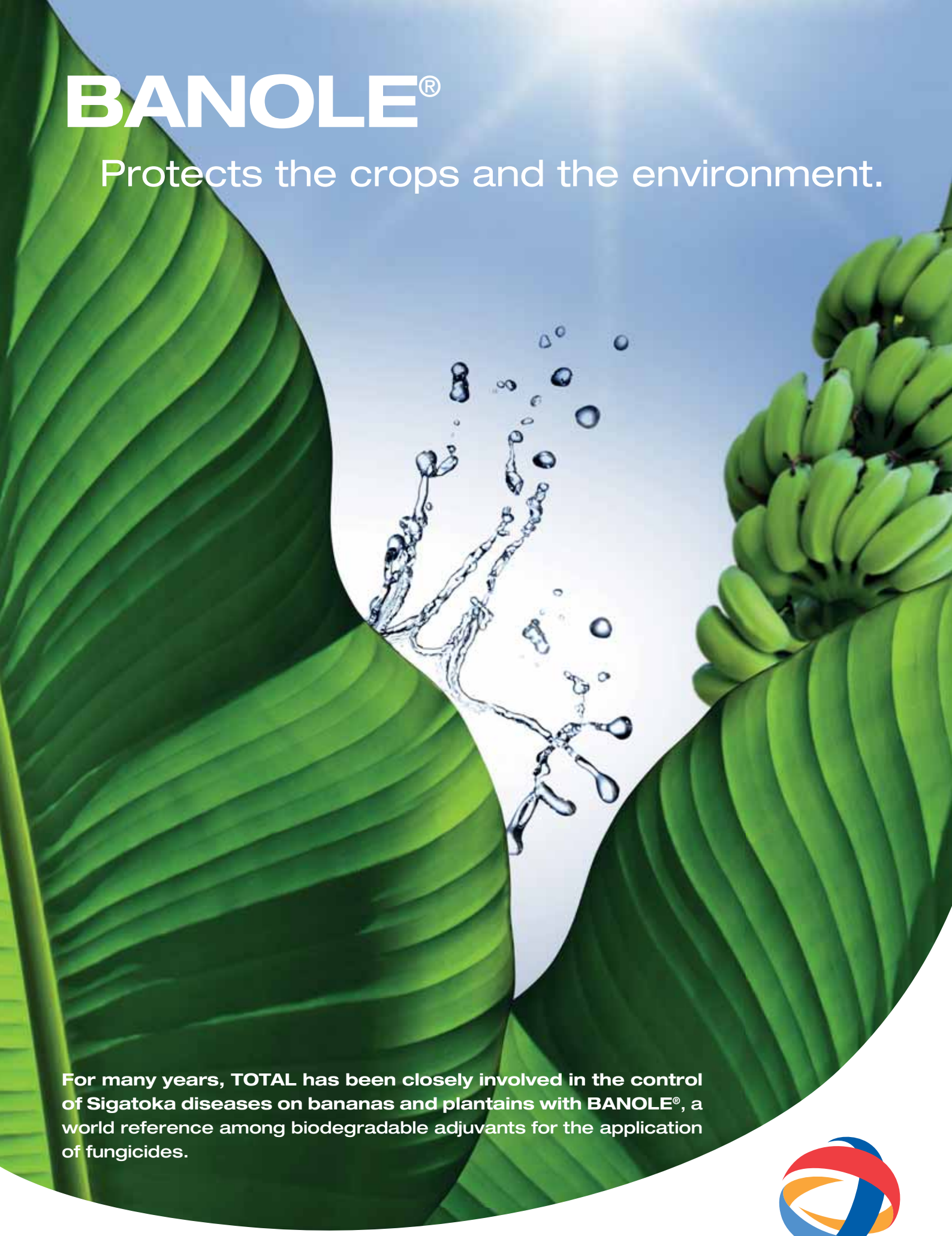
Production regains its spurs

One of the expected results of this business strategy is of course to have greater weight in the negotiations with the downstream segment, by virtue of volumes. Yet it also enable them to become essential players capable of organising the banana flow from one end of the supply chain to the other. Furthermore, the ripening players are exhibiting the same desire for greater control. The fever spike of Q1 2018 completely validates this strategy. Importers bound by contracts with the distribution sector, whose supply was cut off by independent producers which found it more profitable to sell on the spot market, were forced to buy volumes for a higher price to meet their commitments. Without a doubt, this episode definitely validated the upstream strategy of a large number of companies in the sector.


© Denis Loeillet

Finally, it enables some to diversify their geographic risks, offer their customers a complete range in terms of origins but also production modes (organic, conventional, certified, etc.), and so cover demand across the board. It is also the way to avoid being a follower in social and environmental innovations which will revolutionise the sector in the coming decade. The banana world of tomorrow is being built around two concepts, which meet two different demands: minimal production differentiation, with a minimal unit production cost, and innovative production which (re)builds value (social and environmental) and is better integrated into the local fabric. Yet they will still need to manage to earn market value from the new constraints on production, since the supermarket sector has no intention of giving in and increasing its purchase price, except where it can profit as in the highly promising organic sector.

In this context the Anglo-Saxon concept of "fabless" – i.e. a company with no factory – has partly established itself in the banana sector. The construction of a different product is based on a reality of different practices which must have a narrative (importance of the concept of "storytelling"). Nonetheless, let's not be naïve, poor social and environmental practices will not disappear. In certain regions, the banana sector is coming from a long way back, and the switch to a more sustainable system will not happen without the urging from downstream (distribution sector and consumers). In addition, it could be that the technical obstacles quite simply prevent sustainable production in certain zones.



www.totalspecialfluids.com

TOTAL


© Thierry Lescot

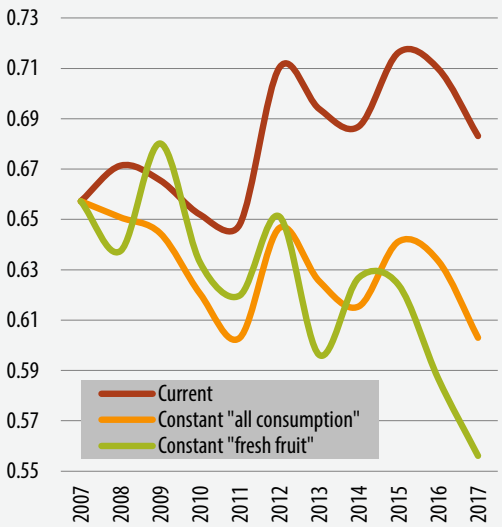
So why worry?

But let's come back to the short-term prospects. The banana market is in fine form, and no-one had imagined that Q1 2018 would go so well. Volumes on the up or maintaining high levels and sky-high prices have led many to forget the setbacks of 2017. Which is good for individual morale, but does not lend itself to rational thinking. **FruiTrop** will once again play the thankless role of party pooper. We would only reiterate the rule that has been proven time and again for more than a decade: the supply is regulated by climate damage. The novelty is when production damage goes unnoticed in terms of price levels. The destruction in autumn 2017 of part of the supplies from the Dominican Republic and Martinique, and the entire supply from Guadeloupe, did not even cause a quiver on the European price curve.

And we should not misjudge the spot price explosion in the 1st two months of 2018. Despite the production problems and cataclysmic announcements from the transnationals, consumption in the USA was up by 2 % over this period from 2017, while European consumption shrank by just 0.9 %. This poor performance by the EU should very much be put into context, since the supply levels were already very high in previous years. The surge in spot prices is due not to a weakness in supply, but to speculative behaviour from some of the upstream segment, and also to an acute and historic shortfall in the campaigns of the competing fruits (pip fruits and citruses).

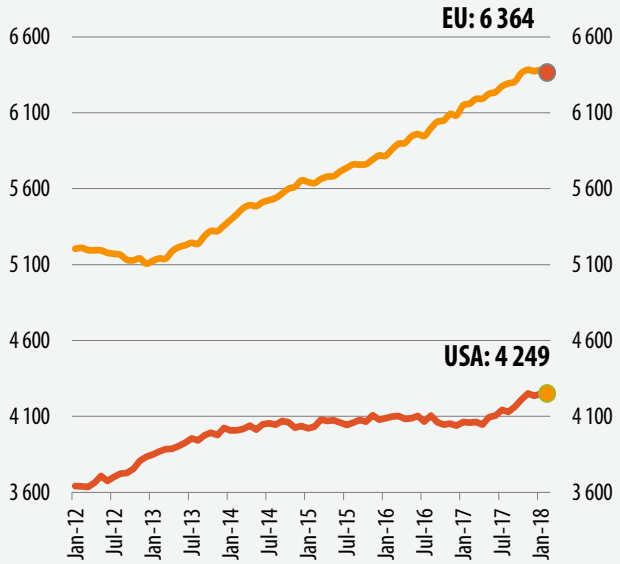
Hence the world production sector emerged from 2017 with full command of its capacities, which are constantly increasing. Thanks to the shortfalls of the other main fruits, to very good export flows to Russia, the EU and the United States, in short to a very positive trend in world demand, the sector is on cloud nine.

Banana - France - Import price on a current and constant basis
(in euro/kg / sources: CIRAD, INSEE)



Note: "all consumption" and "fresh fruit" deflators

Banana - EU & USA - Supply
12-month sliding basis (March to February)
(in 000 tonnes / sources: Eurostat, Customs, CIRAD)



Is there an expiry date for this optimism?

In cyclical terms, as at late April 2018, the sky was starting to cloud over: the Russian market came undone due to a deteriorating macroeconomic environment (US boycott, fall in the rouble, etc.) and without doubt slightly overanticipating consumption. The domino effect was almost immediate, and prices in Eastern Europe (especially in Poland) also came undone under the joint effects of poor anticipation of consumption and highly deteriorated quality of certain batches. Bit by bit, all the markets underwent this reversal in trend, with the contract operators, for their part, protected. Which is the last straw when we recall how they reacted when the European distribution sector, especially in Germany, imposed on them a price reduction during the renegotiations for 2018.

Once again, spring has been a high-risk period. The harvest forecast for stone fruits would have us believe that the season will get off to a light start in terms of volumes, thereby extending a lean strawberry campaign. This will doubtless be more problematic for the mid-season varieties, and so highly hazardous for the banana. The European market nosedived from the second half of April, and there is nothing to indicate that we will emerge from the zone of very high turbulence before the end of the summer, very much a classic tale. Just one question remains: to what level will prices fall?

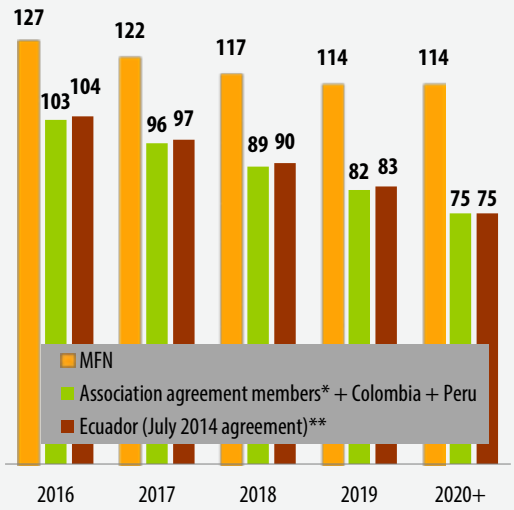
Besides the European supply of summer fruits, and the world supply of apples and pears, the ingredients remain the same: euro/dollar exchange rate still just as attractive for imports, freight cost, energy cost, etc. Talking of high stakes, the serious business will soon get going again. The basement customs duty of 75 euros/tonne on imports from the dollar zones will take effect in 2020, and these origins have no intention whatsoever of leaving it at that: a level of zero is still their ultimate aim. The ACPs understand this very well, and some are preparing for war, despite lacking any support or aid plans (end of BAM programme). European producers declared hostilities early, obtaining certain guarantees from the European institutions.

In summary, to avoid spoiling my image of a jolly inveterate pessimist, we cannot help but observe that we have gone from a market where climate vagaries regulated the banana supply, to a market where this is no longer enough, and we now need to count on a shortfall in other fruit sectors and on cold and rainy weather, for consumers to concentrate their demand on the banana alone. All the while of course banking on continuous market growth of 3 to 5 % per year (for the EU), as has been the case for the past five years.

So we might wonder about where we might go from here to maintain this dynamic. If I might add my two pennies' worth: light candles to Saint Anne, patron saint of carpenters, and ask her to take her time in preparing the four walls of the world banana market's coffin ■

Denis Lœillet, CIRAD
denis.loeillet@cirad.fr

Banana - EU - Customs duty for third countries excluding ACP (euro/tonne)



* Costa Rica, Panama, Honduras, Guatemala, Nicaragua, El Salvador
** Ecuador benefits from the agreement since 1st January 2017
Processed by Cirad-FruiTrop

Banana — EU-28 supply — 2017

in tonnes	AUT	BEL	LUX	GER	DEN	SPA	FIN	FRA	UK	GRE	IRE	ITA	NET	POR	SWE	BUL	CYP	CRO	CZE	EST	HUN	LAT	LIT	MAL	POL	ROM	SLO	SLK	Total
Intra-EU	**128 021**	**117 905**	**5 631**	**785 796**	**76 351**	**147 362**	**38 519**	**416 653**	**109 001**	**2 045**	**17 771**	**55 617**	**196 901**	**93 717**	**44 104**	**4 134**	**2 170**	**41 236**	**192 463**	**19 452**	**37 682**	**34 590**	**31 157**	**1 341**	**236 361**	**130 515**	**8 304**	**76 180**	**3 050 976**
MS-15, incl.	**127 768**	**117 905**	**5 631**	**784 034**	**76 351**	**147 023**	**38 515**	**416 161**	**109 000**	**1 943**	**17 641**	**52 850**	**193 544**	**93 471**	**44 104**	**1 203**	**2 170**	**12 940**	**178 209**	**7 532**	**25 176**	**19 034**	**15 561**	**1 222**	**231 145**	**80 737**	**7 738**	**36 916**	**2 845 519**
Belgium	32 411		5 436	438 557	195	6 978	457	209 644	8 521		994	3 415	78 681	3	12 498		0	1 427	62 421	731	2 391	6 340	2 361		72 872	28 636	156	15 824	**990 949**
Netherlands	47 175	79 282	71	324 576	8 676	3 254	23 871	30 827	3 169	1	25	12 203		1 189	8 524	142	150	5 890	45 969	485	403	5 338	5 157	5	95 677	11 785	1 753	2 411	**718 005**
Germany	41 094	24 269	75		54 045	64	13 809	8 151	1 191	3	1 439	292	97 702	0	10 093	0	0		36 703		2 171	5 318	2 360		44 520	2 594	10	6 689	**352 592**
France	6 984	1 056	40	12 431	0	123 176			3 601	2		33 361	3 603	1 305	39	19			25 858		10 491	1 884	5 552		14 512	24 016	800	7 712	**276 441**
Spain		11 434		5 083	8		2	28 510	22			1 780	3 159	90 607	198			152	217		659	135	128		1 021	538	51		**143 702**
UK		1 676		880	2	1 009		91 742		74	15 184	528	4 582		2 901			0	4 818			0	2		1 888	631	19	2 831	**128 768**
Ireland				1		1			92 216				159																**92 376**
Italy	105		0	58	1	1 247		43 599	81	1 863			2 396	368	26		2	5 099	2 117		24	20		1 217	519	3 019	2 668	1 448	**65 875**
Sweden		49		677	13 423	52	377	3 528					959	0					79						78				**19 220**
Austria		1		851	0							432	452				0	372			9 037				21		2 280		**13 447**
Greece				0	0				200			108	236			1 042	2 017									9 518			**13 122**
Portugal			9			11 240		18				731	671												38				**12 708**
Denmark		2		914				124					515		9 803				27										**11 385**
Finland				1	0								319		21					6 317		1							**6 659**
NMS, incl.	**253**			**1 762**	**0**	**339**	**4**	**492**	**1**	**102**	**129**	**2 767**	**3 358**	**246**		**2 931**		**28 296**	**14 254**	**11 920**	**12 507**	**15 556**	**15 597**	**120**	**5 217**	**49 778**	**566**	**39 265**	**205 457**
Poland	222			1 381	0	0		22	1			59	1 818	245		242			11 714			1 512	10 451			24 682		6 565	**58 914**
Czech Rep.	0			266	0			470					466					78			3 128		83		4 671	15 994	97	32 451	**57 703**
Slovenia	1											2 708	147			2 552		27 741	517		1 559	98			172	5 746		175	**41 417**
Latvia													82							10 685			5 063		142				**15 972**
Lithuania					0								88						240	1 235		13 909			169				**15 641**
Slovakia	13												91					26	753		7 781				21				**8 685**
Hungary	17					338							282					450	1 001						3	2 666		49	**4 806**
Bulgaria				112	0					22			110													690			**933**
Extra-EU	**829**	**1 290 962**	**0**	**628 743**	**5 831**	**158 843**	**75 409**	**317 342**	**1 024 442**	**177 637**	**73 154**	**702 306**	**722 996**	**85 788**	**167 196**	**34 082**	**3 055**	**20 187**	**2**	**1**	**0**	**0**	**22 878**	**8 497**	**210 871**	**2 071**	**73 291**	**0**	**5 806 412**
MFN, incl.	**829**	**958 817**	**0**	**616 886**	**1 473**	**146 362**	**75 205**	**41 151**	**663 267**	**177 637**	**45 019**	**688 425**	**707 504**	**85 366**	**124 368**	**34 082**	**3 055**	**20 187**					**22 878**	**8 456**	**210 392**	**2 071**	**73 291**		**4 706 720**
Ecuador	53	170 235		305 522	244	2 114	14 510	7 645	140 781	134 690	332	293 988	107 723	5 345	70 010	32 349	2 806	19 716					10 426	2 876	143 997	2 051	19 687		**1 487 100**
Colombia	777	495 385		87 810	777	33 680		31 600	275 770	20 282		213 167	148 823	31 195	11 489	1 244	228						39	4 627	20 403		35 199		**1 412 494**
Costa Rica		250 669		116 459	451	95 709	60 433	1 261	187 119	16 392	38 277	140 730	127 117	44 469	42 808	489	21	471					11 046	933	5 245		13 184		**1 153 282**
Panama				1 656			0		35 465	299	1 029	4 172	206 768		22														**249 411**
Peru		38 238		43 540		0	262	256	2 356			2 589	30 232	336															**117 808**
Guatemala		826		6 280		41			6 852	5 699	686	26 951	58 488										1 366		5 037		799		**113 023**
Nicaragua		410		44 949					4 691		114		609												35 710				**86 483**
Mexico		2 829		7 726		14 737			8 634		16	6 349	19 983	4 022	39								1	20		20	123		**64 497**
Honduras		209		2 934				383	1 142	275	4 540	146	3 819														4 300		**17 746**
Brazil		1		0					458				2 624	0															**3 082**
Philippines		16				80						318	530																**943**
China													233																**233**
USA													166																**166**
ACP, incl.		**332 145**		**11 857**	**4 358**	**12 480**	**204**	**276 190**	**361 176**		**28 135**	**13 881**	**15 492**	**422**	**42 828**				**2**	**1**				**41**	**479**				**1 099 692**
Africa		**222 348**		**3 231**	**0**	**8 497**		**274 315**	**139 632**		**0**	**8 696**	**49**	**418**	**1**				**2**	**1**					**0**				**657 191**
Côte d'Ivoire		81 347		3 157		8 457		153 118	68 272			1 506	0																**315 855**
Cameroon		121 835						105 288	36 093			7 090	1																**270 306**
Ghana		19 146						15 857	35 267			101	1																**70 373**
Angola						40							0	418															**459**
S. America		**45 804**				**3 842**			**53 177**		**26 078**		**0**																**128 900**
Belize		1 539				3 842			53 177		26 078		0																**84 635**
Surinam		44 265											0																**44 265**
Caribbean		**63 992**		**8 626**	**4 358**	**142**	**204**	**1 875**	**168 368**		**2 058**	**5 184**	**15 443**	**4**	**42 827**									**41**	**479**				**313 602**
Dom. Rep.		63 992		8 626	4 358	142	204	1 875	160 077		2 058	5 184	15 443	4	42 827									41	479				**305 311**
St. Lucia									8 291																				**8 291**

Note: 0 stands for less than 500 kg / Source: Eurostat, updated April 2018

VITROPIC S.A.

Tissue culture production of tropical fruit plants

Your banana tissue culture plant specialist

A unique range of elite varieties

What we promise you

The most productive selected elite varieties

Prime bunch quality

Optimum homogeneity in the field

The best sanitary guarantees of the market

Unequalled responsiveness

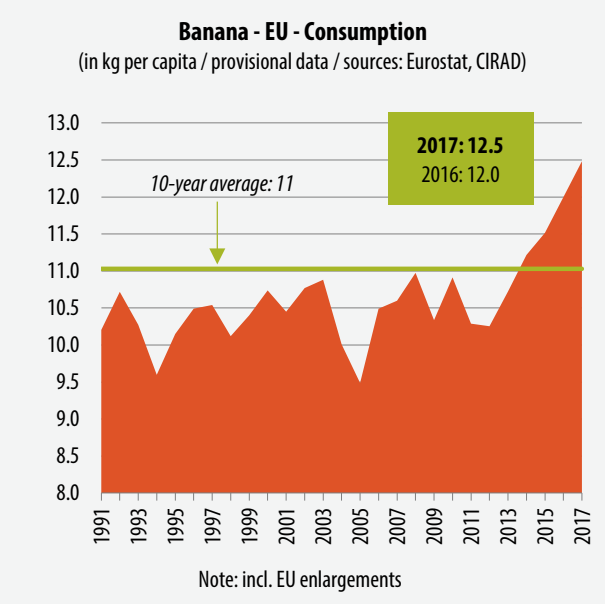
Tel: +33 (0)4 67 55 34 58
Fax: +33 (0)4 67 55 23 05
vitropic@vitropic.fr

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

Banana Consumption in the EU

NMSs leading the charge

by Denis Lœillet



Drawing up an annual review of EU banana consumption is an awfully gratifying exercise, such is the positivity of the terms employed: record, continuous rise, increasing demand, etc. And this is nothing new, things have been going this way for years. The review is perfectly simple: since 2012, the last year when consumption decreased, the EU-28 market has gained between 3 and 5 % per year! Put otherwise, the market grew by 25 % between 2012 and 2017, i.e. by 1 267 000 tonnes!

This performance can only be given a rapturous reception. Especially if we disregard the fall in added value, which has been on an opposite trajectory, losing up to 15 %. This dossier will not go back over the price aspects, a subject abundantly discussed in our January 2018 edition (**FruiTrop** 254).

In 2017, the EU-28's some 512 million inhabitants took in 6 378 000 tonnes of bananas. Each European on average consumed 12.5 kg, i.e. two bananas per week. By way of comparison, citrus consumption in EU non-producer countries is around 14.5 kg/capita/year, with 6.7 kg of oranges. The rise in banana consumption per capita is colossal: + 4 % per year, i.e. 500 g more. After a period of stagnation lasting from 2009 to 2012, consumption has seen an annual growth rate of 3 to 5 %. In terms of absolute value, an additional 240 000 tonnes of bananas have gone on the market every year since 2013, i.e. a combined total over the last five years of 1.2 million tonnes.

Yet how is this consumption broken down, and above all, what are the dynamics of each Member State? It is extremely difficult to answer this question, since the EU is an open economic area, where merchandise circulates freely, where statistics on trade of goods between EU members are not always reliable and where, finally, the EU is a banana producer and its produce circulates within the EU like apples from Val d'Anjou to Rungis wholesale market, i.e. without being specifically accounted for unless the professional organisations undertake to do so. In addition, there are relatively few entry points, and so any errors are concentrated. As an example, Belgium apparently consumed 10.4 kg per capita of banan-

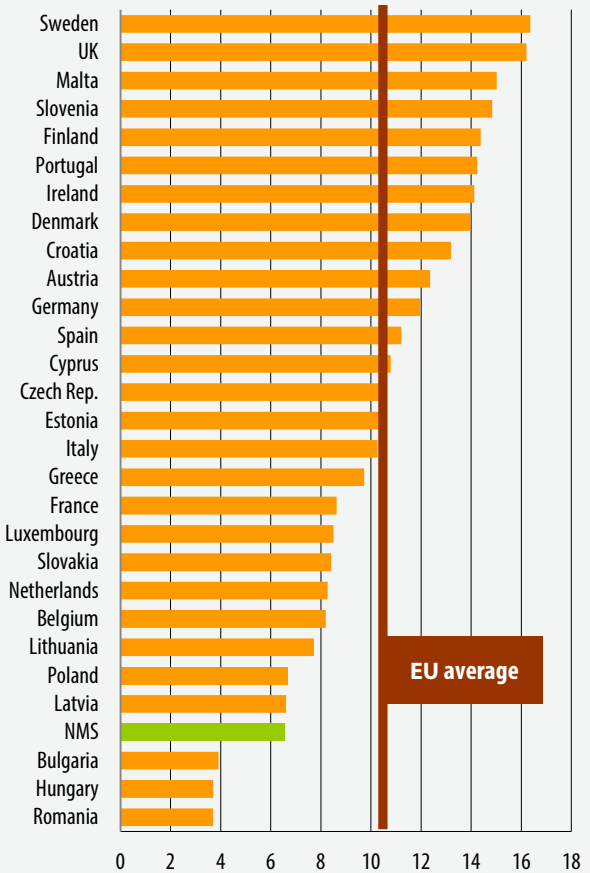
as in 2017, as opposed to 13.3 kg in 2016 and just 6.4 kg in 2015! Finally, the borders in Eastern Europe appear more permeable than others...

Hence the graphs provided are a very rough illustration of the consumption situation for each Member State. However the lesson that emerges confirms what the experts believe. Since 2013, consumption in the NMSs has increased two-and-a-half times faster than for the EU as a whole: + 40 % (+ 2.7 kg) as opposed to + 16 % (+ 1.8 kg) between 2013 and 2017. The differential between NMSs and EU-28 is still 3.2 kg, but it is falling steadily.

In terms of net imports, i.e. disregarding shipments of Community bananas to these countries, the NMSs declared 967 000 t as opposed to 530 000 t in 2012, i.e. not far from doubling their volumes. Poland is the East European country with the biggest rise in volumes and consumption per capita. It is the most populous country (38 million inhabitants), and consumption was over 3 kg higher than in 2016. This is both positive and extremely fragile, since

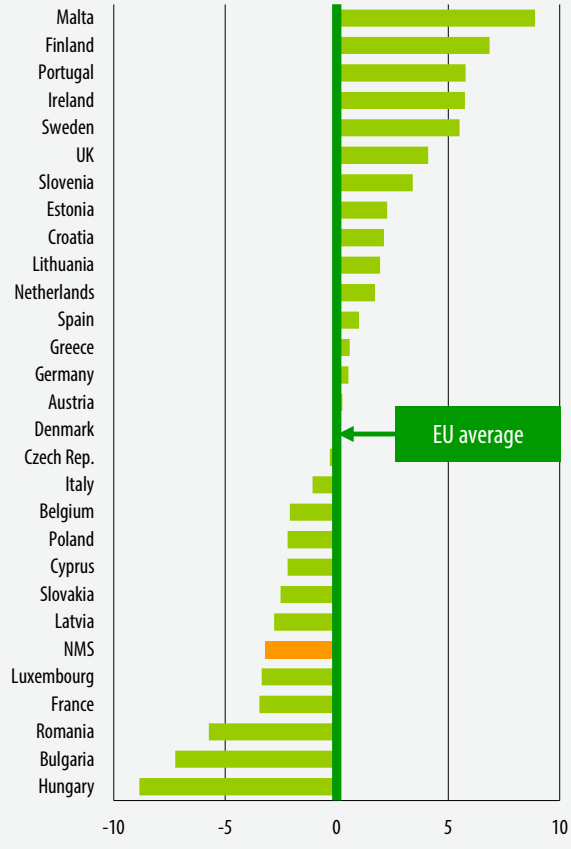
we must remember that the apple had a disastrous campaign throughout Europe. The apple stocks indicator on 1 March every year is revealing as to the prevailing situation in Europe, and particularly Poland which is the number one producer. We need to go back to 2008 to see such a small stock in Europe, and to 2011 for Poland. Besides the upward trend in Poland and the NMSs, there was a definite cyclical spike in 2017. It was doubtless for this reason that Polish (and Russian) operators set up overly ambitious procurement programmes for spring 2018, when the market abruptly turned on its head ■

Banana - EU - Consumption - Estimate using a reduced average (40 %) for the period 2008-2017
(kg/capita/year)



Note: the results are uncertain for some Member States
Source: Cirad-FruiTrop / Experimental work

Banana - EU - Consumption in 2017
Over and under-consuming Member States
(kg/capita/year)



Note: the results are uncertain for some Member States
Source: Cirad-FruiTrop / Experimental work

Banana
Supply to the EU

Dollar: on top form!

by Denis Lœillet

After mentioning in the previous article the increasing consumption levels per capita in the EU, and highlighting that the NMSs were outperforming the market, let's examine the changes in the supply to the EU from each origin and major origin family.

We begin with a general observation: the dollar origins fuelled the market dynamic observed in 2017, and have done so since 2011. In index terms, taking the year 2011 as base 100, the dollar origins are now at 130, the ACPs at 112 and EC production at 96. The market meanwhile has gone from index 100 to 123. So the dollar origins have done a lot better than the market (7 index points more). In terms of market share, the dollar origins now account for 73.6 %, as opposed to 17.2 % for the ACPs and 9.2 % for EC production. The latter two origin families fell in 2017 (by 1.8 and 2.2 % respectively), while the dollar banana went up by 4 %. In terms of volume, the dollar origins delivered some 4 707 000 t to the EU, the ACPs remained above the one million mark with 1 100 000 t, while European production came undone, falling to 586 000 t.

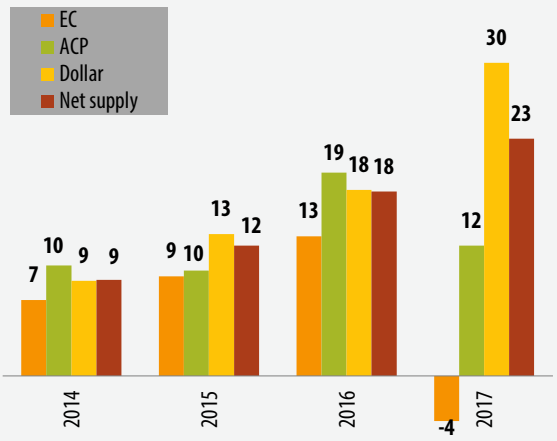
EC production

2017 was a very difficult year for European production. The three main origins fell, in two cases very heavily. Firstly the Canaries, the number one European producer, whose volumes sold went down by 4 % to 399 000 t. However we should be wary of drawing conclusions too soon, as 2016 was a historically high year, when production peaked at 417 000 t (the last record goes back to 2001). The first months of 2018 point to an excellent year. Q1 2018 was a historic best in terms of volume (+ 11 % on 2017). Practically the sole outlet for the Canaries banana is the Spanish mainland market, plus the Portuguese market. Pressure from other origins, especially from the ACP banana, seems increasingly strong on a market which has been able to maintain a very big reserve of affection for its domestic banana.

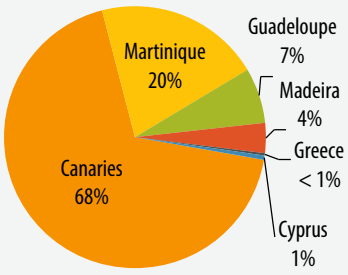
French production from Guadeloupe and Martinique had a very difficult 2017, for the second consecutive year. This was down to climate vagaries, which pushed down the annual supply from Martinique by one third (119 000 t) and the supply from Guadeloupe by more than 40 % (40 000 t). Production was wiped out in Guadeloupe, and the first shipments could not resume until April 2018. It will take at least two years for them to recover their full potential. For 2018, producers planned to manage their return to production to avoid, even partially, the trickiest periods such as the one currently starting. While the natural market for these origins is Mainland France, some of the supply (approximately one quarter) is exported to other Member States, especially in Eastern Europe.

Portuguese production from Madeira rounded off 2017 with a 3 % gain, at 21 800 t. We need to go back to 2000 to find such a level. Its produce was sold locally and shipped to the Mainland Portuguese market. The specificity of the supply restricts this banana to its domestic market only.

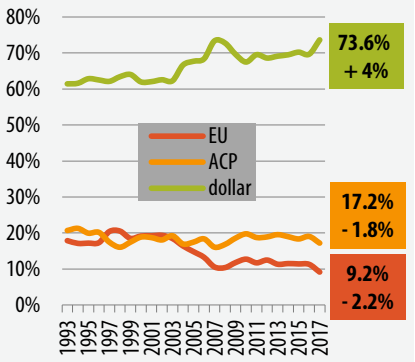
Banana - European Union
Supply dynamics by origin group
(Index 0 base 2011 / sources: Eurostat, CIRAD)



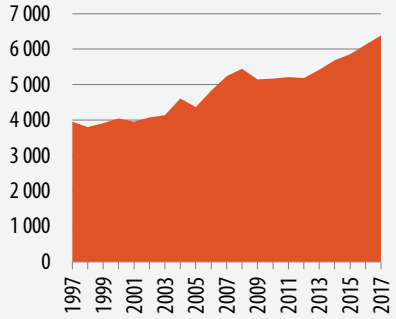
Banana - EU - Community sources
Total 2017: 585 582 tonnes
(source: European Commission)



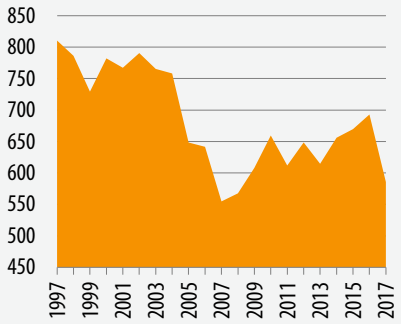
Banana - EU
Market shares by origin
(source: Eurostat)



Banana - EU - Net supply
(in 000 tonnes / source: Eurostat)



Banana - EU - Community sources
(in 000 tonnes / source: European Commission)

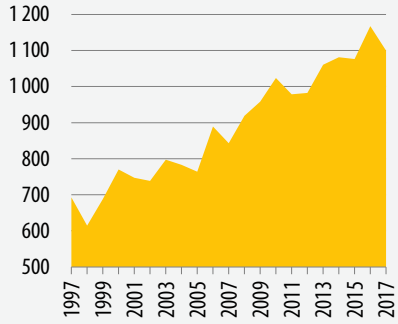


Banana — EU — European production

in tonnes	2014	2015	2016	2017	2017/2016 difference in %	2017/2016 difference in tonnes
Canaries	364 419	381 827	417 176	399 164	- 4 %	- 18 012
Martinique	193 201	199 241	179 888	119 844	- 33 %	- 60 044
Guadeloupe	73 592	63 781	68 608	40 003	- 42 %	- 28 605
Madeira	18 649	18 645	21 167	21 763	+ 3 %	+ 596
Cyprus	3 952	4 384	4 382	3 161	- 28 %	- 1 221
Greece	2 167	1 795	1 733	1 647	- 5 %	- 86
Total	**655 980**	**669 673**	**692 954**	**585 582**	**- 15 %**	**- 107 372**

Source: Eurostat

Banana - EU - Imports from ACP sources
(in 000 tonnes / source: Eurostat)

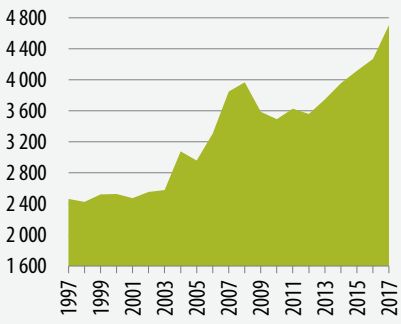


Banana — EU — Imports from ACP origins

in tonnes	2014	2015	2016	2017	2017/2016 difference in %	2017/2016 difference in tonnes
Côte d'Ivoire	252 766	254 218	308 169	315 855	+ 2 %	+ 7 686
Dom. Rep.	342 016	326 587	375 163	305 311	- 19 %	- 69 853
Cameroon	257 152	278 247	297 058	270 306	- 9 %	- 26 752
Belize	100 707	98 969	71 741	84 635	+ 18 %	+ 12 894
Ghana	46 427	50 990	57 873	70 373	+ 22 %	+ 12 500
Suriname	72 593	58 583	49 739	44 265	- 11 %	- 5 473
St Lucia	8 874	8 339	7 364	8 291	+ 13 %	+ 927
Total, incl.	**1 081 268**	**1 076 315**	**1 167 441**	**1 099 695**	**- 6 %**	**- 67 746**

Source: Eurostat

Banana - EU - Imports from dollar sources
(in 000 tonnes / source: Eurostat)



Banana — EU — Imports from dollar origins

in tonnes	2014	2015	2016	2017	2017/2016 difference in %	2017/2016 difference in tonnes
Ecuador	1 474 454	1 361 756	1 299 935	1 487 100	+ 14 %	+ 187 165
Colombia	1 086 273	1 315 399	1 292 212	1 412 494	+ 9 %	+ 120 282
Costa Rica	940 393	947 760	1 126 529	1 153 282	+ 2 %	+ 26 753
Panama	224 879	207 274	200 169	249 411	+ 25 %	+ 49 242
Peru	96 650	102 326	115 472	117 808	+ 2 %	+ 2 337
Guatemala	29 167	79 024	98 448	113 023	+ 15 %	+ 14 575
Nicaragua	-	9 326	34 467	86 483	+ 151 %	+ 52 015
Mexico	70 784	69 102	72 478	64 497	- 11 %	- 7 981
Total, incl.	**3 956 439**	**4 116 432**	**4 268 613**	**4 706 762**	**+ 10 %**	**+ 438 148**

Source: Eurostat

Updated March 2018

ACP group

These highly disparate origins are divided into four production zones: Africa, Caribbean, Central America and South America. They have extremely different, or even diametrically opposite, dynamics. They are developing a highly segmented supply. Finally, their competitiveness levels are heterogeneous to the point of having nothing in common. Overall, in 2017, the ACP group exported 1.1 million tonnes to the EU. This was a fifth year in excess of the one million mark, though there was a 6 % downturn, attributable to the Dominican Republic, Cameroon and Surinam.

We should recall that all ACP bananas are exempt from customs duty on entry to the EU-28 market. The supplier countries will soon lose the competitiveness aid provided under the European programmes (BAMs).

Let's review the origins forming this group in light of the differences listed above. First the Africa zone: Côte d'Ivoire, Cameroon and Ghana form a relatively homogeneous group, in any case compared to the others. While Côte d'Ivoire (316 000 t in 2017 with 2 % growth) is the place in Africa seeing development of new plantations, as well as to a lesser extent Ghana (70 400 t, i.e. + 22 %), Cameroon is in decline (270 000 t, i.e. - 9 %), with the 300 000-t mark fading into the distance. Phytosanitary problems and the ongoing effects of a tornado explain this downturn. The operators and national authorities are still exhibiting big ambitions. To achieve them, reinvestment would be required in the part of the production sector run by the Cameroon Development Corporation, well below world productivity standards. Côte d'Ivoire is a country in boom: while doubtless not all the projects announced will come to fruition, its production capacity is increasing. Half a million tonnes of exports is a perfectly credible medium-term objective. We should note that Ghana is developing a supply of certified organic or Fairtrade bananas. Côte d'Ivoire is also developing an organic supply, though for the moment on a very limited scale. 2018 has started on exactly the same footing. For Q1, volumes on the market were up by 4 % for Côte d'Ivoire and by 14 % for Ghana. In both cases, they recorded their best starts of all time. Cameroon meanwhile was down by 20 %, its worst start to a year since 2014.

The Caribbean zone is the second biggest ACP banana production region, with just one dominant player: the Dominican Republic. It makes nearly 100 % of its exports to the EU, totalling 305 000 t in 2017. This figure was a long way down on 2016, but also on 2015. The production zone (Mao region in the far north-west of the country) was flooded twice, and even worse than in 2017. Large quantities of water were brought by the cyclones circulating in the Caribbean, and the obsolescence of the infrastructures and calamitous management of the dams led to an agricultural disaster. However, the sector very quickly resumed production. In Q1 2018, exports to the EU were only 3% down on 2016.

The sector has great resilience. Production costs are among the lowest in the world, and the climate conditions (semi-arid zone) are favourable for banana production, especially certified organic. However, the future of the Dominican industry is handicapped by the lack of organisation of the sector, which remains highly individualistic, very low productivity (due to low technical level) and poor logistics (limited loading and sea-freight capacity). We might add that the subject of social production conditions is a weighty issue, especially the issue of Haitian (and now stateless) immigrant workers or the tough working conditions for women. Finally, the organic and organic-Fairtrade supply, which made the origin's fortune, is undergoing intense competition from other supplier countries, especially Ecuador. The floods in late 2017 showed up a large part of these shortcomings. While producers cried wolf, announcing massive losses, European demand switched

to other origins, partly turning away from the Dominican Republic, even when it returned to the market sooner than announced.

The other Caribbean ACP origins are in a state of advanced dilapidation. They have all stopped exporting (Dominica, Saint Vincent, Grenada), except for Saint Lucia. The latter exported to the EU, more precisely to the United Kingdom, approximately 8 300 t of certified Fairtrade bananas in 2017, as opposed to 7 400 t in 2016. It peaked a long time ago in 1990, with 127 000 t.

Finally, there are two origins on the American continent: Surinam and Belize. It is hard to paint a portrait of these suppliers, which both exhibit ambitions, but whose results have not been there to match. Belize seems to have reached its maximum potential back in 2014, at 100 000 t. After serious climate damage in 2016, the sector is recovering bit by bit. Belize exported 84 600 t in 2017, i.e. 18 % more than in 2016. There are numerous agronomic handicaps (treatment resistance of strains of black sigatoka, impacts of soil parasites, soil compaction, etc.), and the sector is having recruitment difficulties. Surinam is in a permanent limbo. The recovery of the sector has often been announced, even before it was practically privatised, but the effects have yet to be translated into figures. In 2017, Surinam exported 44 200 t to the EU, down 11 % from 2016, and more seriously down 50 % from 2012. There too, agronomic problems (especially Moko disease) and social problems (complexity of labour management) are curbing development. An expansion in surface areas has long been announced.

© Denis Loeillet

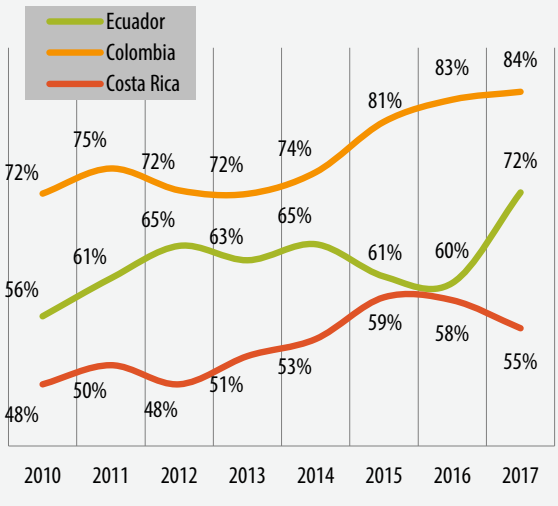
Dollar group

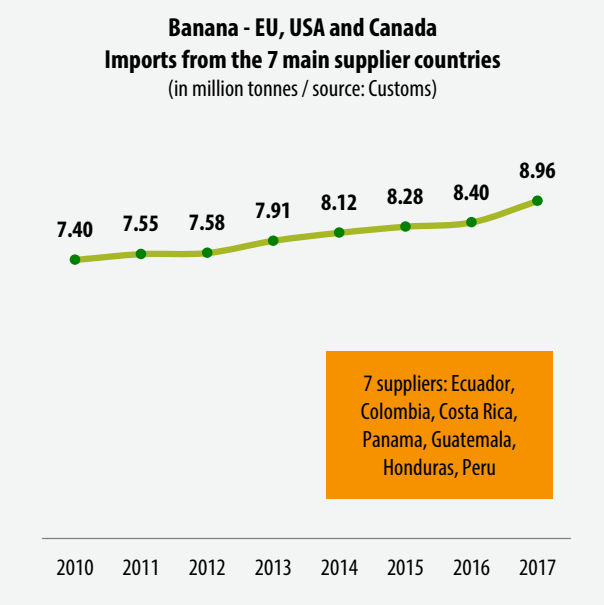
The big winner on the European market, year after year this group has strengthened its presence, in terms of both volumes and market share. It is hard to say whether the dollar supply has boosted the market, or whether red-hot European demand has opened wide the doors of the market to the dollar origins: doubtless a bit of both. Nevertheless, the quality (in fine form most of the time), service (highly flexible and reliable) and the legendary competitiveness of the dollar supply make it the world banana champion.

Ultimately, the group is a fairly small one. Eight origins make up 100 % of the supply, i.e. 4.7 million tonnes. Just four (Ecuador, Colombia, Costa Rica and Panama) provide 90 % of the supply. Yet Panama weighs in five times lighter than Costa Rica (250 000 t as opposed to 1.150 million tonnes).

Overall, the dollar group controls nearly 74 % of European demand for the dessert banana. Aided by the various EU enlargements, the upward trend in consumption, the fall in Customs duty, but also more cyclically the more or less tran-

Banana - Share of exports to the EU
(in % of total exports to EU + USA + Canada / source: Customs)





© Denis Loeillet

sient weakness of some ACPs or some European production regions, the dollar origins have placed more than a million additional tonnes on the EU market since 2013. Expanding surface areas, improved productivity, trading in favour of the EU, etc., are some internal factors explaining this surge in volumes. In 2017, only Peru and Costa Rica were slightly disappointing, with growth of just 2 %. The rest saw extravagant growth rates: + 25 % for Panama (249 000 t), + 14 % for Ecuador (1.487 million tonnes), + 15 % for Guatemala (113 000 t), + 9 % for Colombia (1.412 million), etc.

In terms of dynamics, since 2010 Costa Rica has clearly led the way, although 2017 was an off year. This country is performing much better than the market, with an index of 148 (base 100 in 2010), while the index for the dollar group is a "mere" 133. Panama is also on a very positive dynamic, with an index of 135 in 2017. The others (Colombia and Ecuador) range between 112 and 118. Guatemala is in a race of its own, on a vertiginous development curve. Starting from scratch in 2012 (5 200 t), it sold some 113 000 t in 2017, i.e. a monstrous index of 3 409!

Besides the giants of the sector, we can note the reappearance of Nicaragua with 86 000 t in 2017 (+ 150 %), or Honduras with 18 000 t (+ 132 %) and the under-performance of Mexico at 64 500 t (- 11 %), while many thought that the origin would come to the fore very strongly. We need to bear in mind that whatever the status of these origins, major or minor, they all have development plans underway, especially through transnational initiatives, as in Nicaragua and Panama.

The initial data for 2018 show a Community market supply at particularly record levels: 1.2 million tonnes for Q1, i.e. 1 % growth. The rumour that the Central American zone would be in shortfall at the start of this year has been disproven. While Colombia had a big trough at the beginning of the year, this was not the case for Costa Rica. Furthermore, Ecuador had such big export volumes that it was readily able to offset the shortfall from its competitors.

We might also take the opportunity to take a closer look at the trade-offs made by these suppliers between the EU and USA. In 2017, Colombia continued to favour the EU, with 84 % of its total exports going to this economic zone. Ecuador, which of course has more than just these two catchment areas, sent 72 % of its supply to the EU, as opposed to just 60 % in 2016. Costa Rica meanwhile fell back to 55 %.

As regards regulations, practically all of the dollar supply was subject to a customs duty of 96 euros per tonne in 2017 (+ 1 euro for Ecuador), which fell to 82 euros in 2018 (+ 1 euro for Ecuador), and which will be reduced to 75 euros from 1 January 2020. Meanwhile, in the short or medium term, we wait to see whether these suppliers will ask for and receive zero duty ■

Stabilisation mechanism

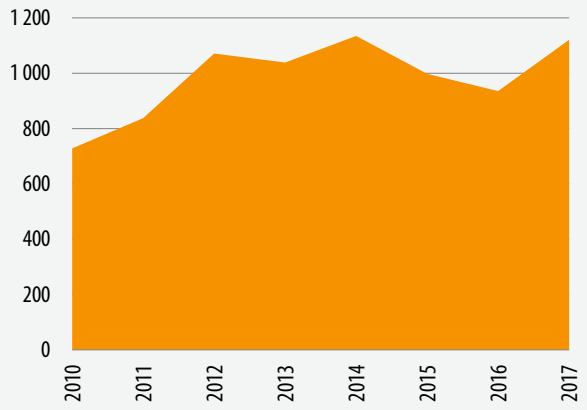
Brand new system for sale, never used

The European monitoring system and stabilisation mechanism for the banana is like the road to hell: paved with good intentions. Yet that would mean attributing good intentions to the negotiators who came up with the European text in 2012. Given the set-up of the system, we might wonder whether it really was designed for any purpose!

Let's just reiterate the principle. The nine dollar origins involved (the so-called MFNs, according to their WTO status), which represent 100 % of the group's supply, each have an annual import threshold into the EU. A sort of maximum level above which preference suspensions (for example) might be taken against an overly greedy supplier. While the principle is clear, raising hopes upon the signature of the agreements, it is never applied, nor will it ever be. Hence the various over-supplies observed (every year for Peru since 2013, i.e. six times, three times for Guatemala and twice for Nicaragua) have made no difference. It is true that these are still for the moment minor origins, or origins developing a specific supply such as organic-Fairtrade. Worse, the system was designed to prevent the biggest suppliers (Ecuador, Costa Rica, Colombia, etc.) from being penalised. Indeed, and this is the root of the problem, the threshold (1) increases every year, and (2) was set very high from the outset, well above historic levels. Hence the guillotine is nothing more than a replica to look good in an international treaty. Other elements make the system inefficient, such as the analysis of import prices via Eurostat unit prices or wholesale prices alone. Both these figures are either false (Eurostat unit value), or unsuitable for analysing market disruption at the import stage (wholesale).

Rest easy good people, it's all under control. The mechanism will expire on 1 January 2020, only to be repackaged as an as-new mechanism, never used and still in its original box. Its only advantage, which it will absolutely need to retain after 2020, is the statistical monitoring developed in support of this mechanism and which could trigger the alarm signal, practically in real time, in case of market destabilisation over the coming years.

Banana - EU - Stabilisation mechanism
Unused import potential of the 9 pays signatory countries (Ecuador from 2017 only)
(in 000 tonnes / sources: Eurostat, CIRAD)



Banana Market in France

Good news at last!

by Denis Lœillet

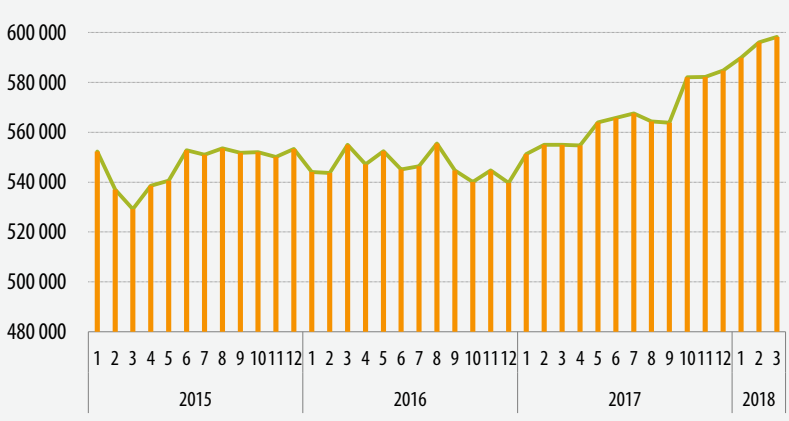
© Léa Benoit

France had an excellent year for banana consumption in 2017, finally reaching 9 kg/capita/year (+ 8 %). The previous record goes back to 2002. France remains well below the European average of 12.5 kg, which is also rapidly rising.

In absolute value, the size of the French market reached 585 000 t, up by 8 % from 2016. This might seem a surprisingly powerful surge, since it is nearly twice that of the EU-28. However, it does have an accumulated growth delay going back the past few years.

One of the essential characteristics of this market is that France is an import and redistribution hub, with 835 000 t gross passing through. Although the capacity of its unloading ports are not on the same scale as the length of its coastline, France is the doorway for many banana suppliers. Hence volumes from Guadeloupe (39 000 t in 2017) and Martinique (127 000 t) arrive in Dunkirk. France is also the traditional unloading zone for African bananas (Côte d'Ivoire, Cameroon and Ghana), ACP bananas more generally, but also dollar bananas. Without knowing exactly what arrives in a Member State and what returns to France under free pratique, and what is unloaded directly at French

Banana - Metropolitan France - Net supply over a 12-month sliding basis
(in tonnes / source: CIRAD-FruiTrop)



Banana — France — Supply

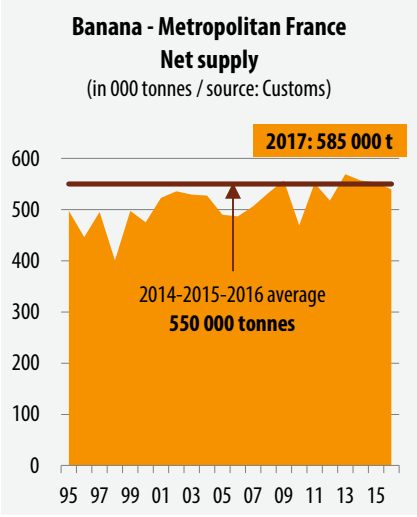
in tonnes	2011	2012	2013	2014	2015	2016	2017
Supply, of which	**805 979**	**783 132**	**851 920**	**863 414**	**839 955**	**793 805**	**835 243**
French West Indies, of which	234 904	251 165	232 356	265 001	260 124	239 017	166 288
Guadeloupe	58 634	65 998	71 182	72 893	62 148	66 742	39 296
Martinique	176 270	185 126	161 082	192 099	197 975	172 271	126 980
ACP	397 947	405 913	440 655	457 130	443 103	415 111	435 028
Dollar	76 533	63 756	86 664	74 735	97 880	108 625	194 869
Through an MS*	96 595	62 297	92 245	66 548	38 849	31 051	39 058
Exports to an MS or outside EU	254 094	265 374	282 656	306 358	286 643	254 150	250 414
Net supply	**551 885**	**517 759**	**569 264**	**557 055**	**553 312**	**539 655**	**584 829**

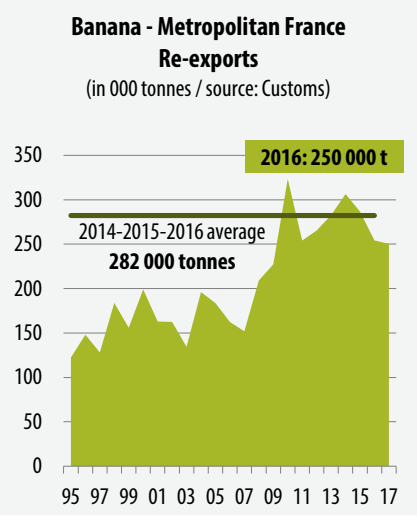
*MS: Member State / Source: Customs / Processed by CIRAD-FruiTrop

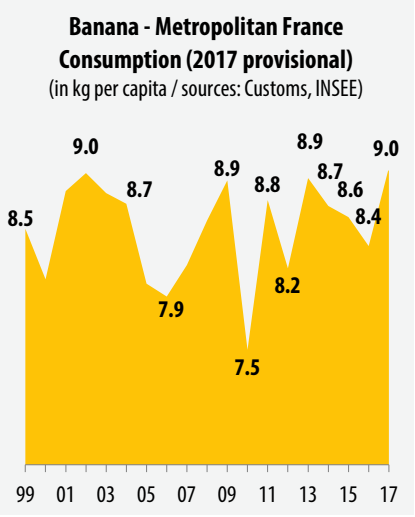
ports, in 2017 France imported 435 000 t from the ACP origins (+ 5 %), 194 000 t from the dollar origins (+ 79 %) and 39 000 t for which Customs could not determine the origin (+ 26 %) and which transited via another European port. In 2017 re-exports were 250 000 t, down very slightly from 2016 (- 1 %).

The increase in incoming dollar bananas and bananas of no definite origin (which can largely be assumed to be dollar) is mainly (two-thirds) due to the impact of the cyclones on the supply from Guadeloupe and Martinique (BGM). Yet this goes beyond merely offsetting, there has been a distinct increase in consumption. There is also the organic (and organic-Fairtrade) banana effect. All observers agree that these segments are not eating into the conventional banana's share, but conversely are generating additional demand. There are also market segmentation efforts by the BGM industry via the "Francité" [Frenchness] concept, generating interest among many supermarkets (approximately 12 000 t in 2017, with the objective of doubling this figure by 2018).

The market supply tempo was extremely high in May (return of French West Indies production and surge in volumes from Côte d'Ivoire in particular) and in October (ongoing surge from Côte d'Ivoire, as well as Colombia), bearing in mind that the BGM supply fell by nearly two-thirds between October and the end of the year ■







Banana US market

US market back on the move

by Denis Lœillet

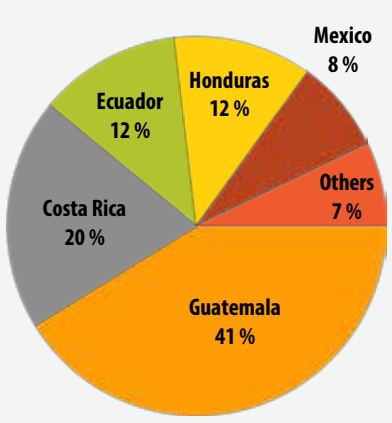
The US market leapt up by 5 % in 2017 to reach 4 235 000 tonnes, i.e. a consumption increase of 197 000 t. We need to go back to 2012 to find a similar rise. Consumption per capita set a historic record of 13 kg, i.e. 500 g more than in 2016.

One of the highlights of this year was the extremely big surge (+ 18 %) by Costa Rica to near the one-million tonnes mark, a figure it had not reached for a decade! The weakness in the USA of Ecuador as an origin (- 31 %), whose exporters clearly traded in favour of the EU and Russia, paved the way for Costa Rica, especially since Colombia made the same choice, falling by 11 % on the North American market in 2017. Guatemala continued to race ahead unchecked, with a two-digit growth figure (+ 17 %) again this year. Mexico also made its mark, registering a leap of 50 % to 381 000 t, moving well ahead of Colombia, and thereby becoming the no.5 supplier to the North American market. The USA re-exported between 530 000 and 580 000 t of bananas to Canada.

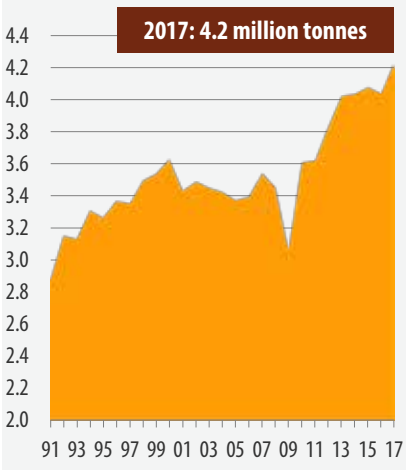
The United States is alone in distinguishing certified organic bananas from conventional bananas. Hence we can estimate the gross imports of the USA and Canada at 430 000 t, i.e. a market share of 9 %. This is 60 000 t more than in 2016, and more notably more than double the 2014 figure (211 000 t), the first in the data series. Ecuador provided half of this volume, and was followed by Colombia, Mexico and Peru with equal shares. Neither Guatemala nor Costa Rica export significant volumes of certified organic bananas. Going by the US Customs values, the premium on the organic banana is falling year on year. It was 2 USD/box in 2017, as opposed to 2.26 in 2016 and 3.1 in 2015.

The data for the 1st two months of 2018 confirmed the good volume trend of the US and Canadian markets, though with a lower growth rate of around 2 % as opposed to 5 % for the whole year (2017). Positions changed drastically at the beginning of this year, with Guatemala plummeting due to climate vagaries, as well as Costa Rica (- 4 %) and Honduras (- 23 %). Ecuador (+ 39 %) immediately made up for this very short-lived scarcity ■

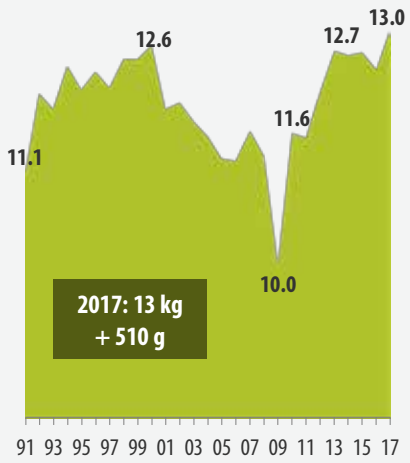
Banana - USA/Canada - Imports in 2017
(source: national Customs)



Banana - USA - Net supply
(in million tonnes / source: Customs)



Banana - USA - Consumption
(in kg per capita / source: Customs, 2017 provisional)



Banana Market in Russia

Surpluses not all bad

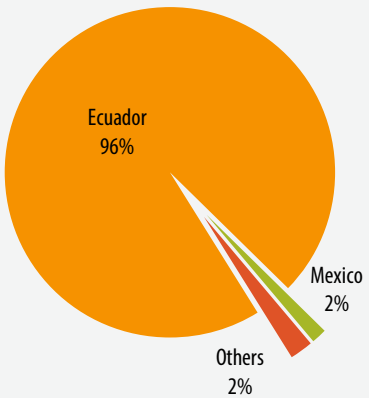
by Denis Lœillet

© Régis Domergue

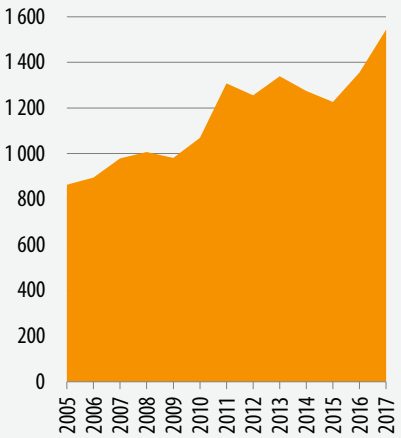
Banana consumption in Russia boomed in 2017, for the first time exceeding the 1.5-million tonnes mark at 1 544 000 t. In fact this was a 12 % increase in one year, and above all confirmation that the Russian market has emerged from its lethargy. There had been no significant increase since 2011. Demographic shrinkage and the increased supply sent consumption per capita soaring: 10.8 kg as opposed to 9.5 in 2016. There was nothing new regarding the origins, with Ecuador seizing 96 % of the market, leaving the crumbs to Mexico and Costa Rica.

The initial data from 2018 exceeded expectations in a big way. Cumulative deliveries since the beginning of the year were in excess of 30 million boxes, i.e. 6 % better than in 2017, which as we have emphasised was an exceptional year. Prices went a completely different way: as proof, between week 16 and week 17 2018, the CIF St. Petersburg green banana price quite simply halved, going from 13.25 to 8.25 USD per box. As a reminder, it had climbed to nearly 22 USD in March! And the crisis is creating ripples throughout Europe ■

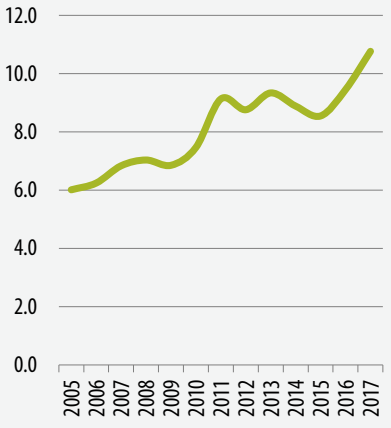
Banana - Russia - Imports by source in 2017
(source: Customs)



Banana - Russia - Annual imports
(in 000 tonnes / source: Customs)



Banana - Russia - Consumption
(in kg per capita / sources: Comtrade, Eurostat, CIRAD-FruiTrop)



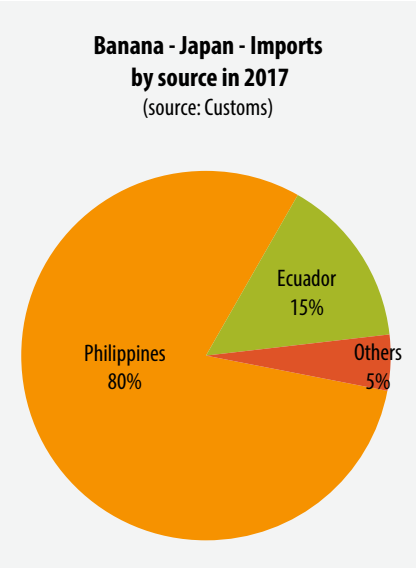
Banana Market in Japan

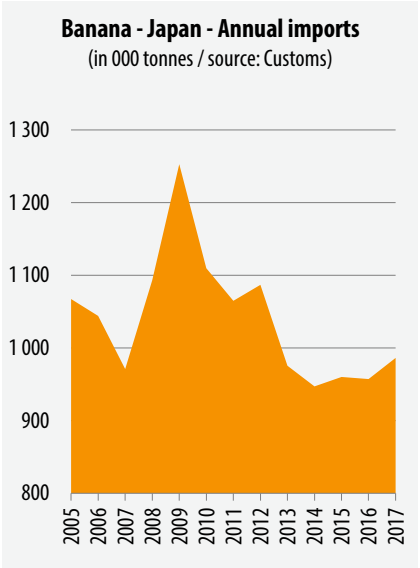
Growth weak, yet truly exceptional

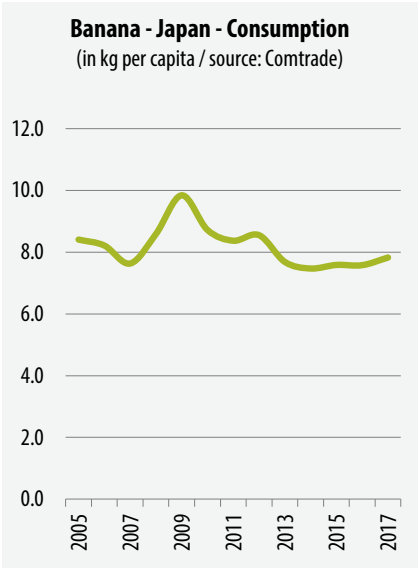
by Denis Lœillet

© Régis Dormegue

Japan is not what it used to be. 2017 saw its banana consumption increase to near the one-million tonnes mark, at 986 000 t, i.e. growth of 3 %. This is still a long way off the 1 253 000 t registered in 2012. Due to demographic shrinkage, the consumption per capita also climbed by 3 % (+ 250 g). There were no surprises on the suppliers side, with the Philippines (80 %) dominating on the Japanese market, leaving 15 % to the world no.1 Ecuador. Nonetheless this was the Philippines' second worst performance after 2016 (79 % market share). As a reminder, the Philippines' market share peaked in 2011 and 2012 at 94 %! ■







Weekly banana market report

Comprehensive and relevant European market monitoring

- Production trends
- Detailed review of the main European markets
- Detailed import prices for each market
- Supply levels

Annual subscription price: €3 000 pre-VAT

(approx. 48 editions per year)

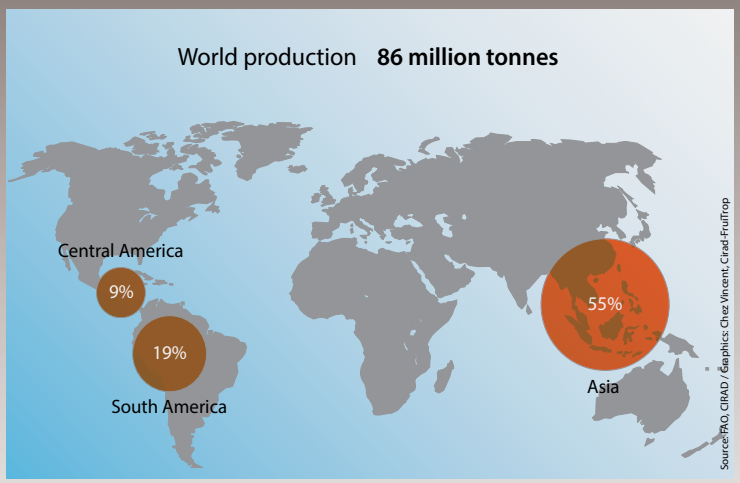
E-mailed out on Thursdays

Contact: info@fruitrop.com

or www.fruitrop.com/en/ciradshop/subscribe

FRuiTROP weekly

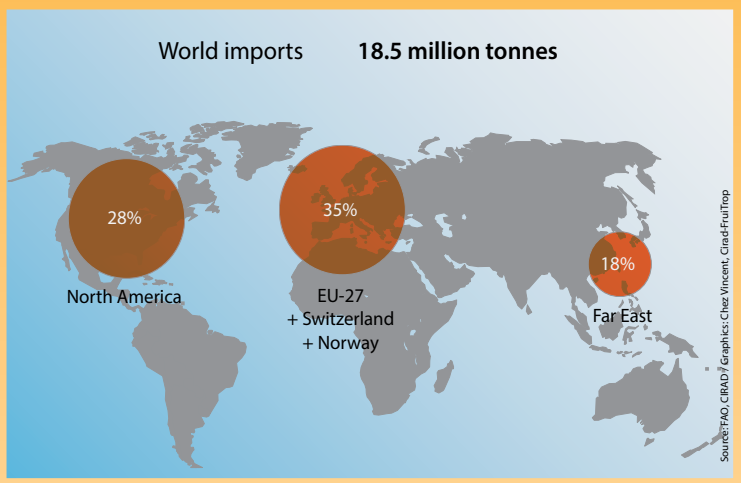
BANANA - Production (2016)



Banana - Top ten producer countries	
in tonnes	**2016**
India	29 124 000
China	26 391 115
Indonesia	7 007 125
Brazil	6 764 324
Ecuador	6 529 676
Philippines	5 829 142
Angola	3 858 066
Guatemala	3 775 150
Tanzania	3 559 639
Rwanda	3 037 962

Source: FAO

BANANA - Imports (2016)



Banana - Top ten importer countries (gross imports)	
in tonnes	**2016**
United States	4 811 083
Germany	1 401 111
Russia	1 355 988
Belgium	1 285 782
United Kingdom	1 147 787
China	958 035
Japan	956 410
France*	793 805
Italy	711 985
Spain*	690 833

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

BANANA - Exports (2016)

Banana - Top ten exporter countries	
in tonnes	**2016**
Ecuador	5 974 366
Costa Rica	2 365 000
Guatemala	2 239 271
Colombia	1 841 918
Philippines*	1 363 543
Honduras	659 089
Mexico	448 311
Canaries	417 176
Dominican Rep.	368 000
Côte d'Ivoire	363 932

Sources: Trademap, professionals, *Sopisco

USA - Gross imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	**4 349 715**	**4 556 755**	**4 577 135**	**4 609 774**	**4 593 453**	**4 811 083**
Guatemala	1 458 567	1 612 544	1 671 878	1 725 653	1 690 695	1 982 602
Costa Rica	848 132	797 971	820 016	668 019	805 504	952 251
Ecuador	719 703	763 013	782 683	860 858	849 727	583 397
Honduras	535 699	603 285	572 944	627 417	594 503	569 921
Mexico	223 294	256 503	259 282	306 206	291 273	381 478
Colombia	440 176	455 509	374 591	314 606	255 274	259 923
Peru	25 900	22 537	40 376	67 742	64 165	65 790
Nicaragua	36 324	35 496	52 041	50 443	39 510	12 346
Dom. Rep.	2 706	5 848	7 474	8 103	2 602	3 119
Panama	59 195	4 043	853	0	0	0

Source: US Customs

Canada - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	**512 845**	**542 502**	**555 200**	**562 221**	**569 726**	**578 564**
Guatemala	157 569	151 030	171 272	186 085	211 242	262 231
Costa Rica	110 186	126 633	113 986	101 724	122 419	127 821
Colombia	87 788	84 725	80 396	66 289	60 429	59 829
Ecuador	103 540	123 959	114 599	126 322	102 765	59 798
Honduras	40 618	39 331	49 655	49 993	44 737	36 602
Mexico	6 755	9 823	17 429	18 712	19 674	25 290
Peru	2 298	2 792	5 809	9 140	5 714	5 970
United States	572	774	715	1 168	513	291

Source: Comtrade

Central and South America - Main markets						
tonnes	2012	2013	2014	2015	2016	2017
Total	**635 386**	**695 933**	**749 508**	**815 108**	**843 383**	**958 489**
Argentina	374 484	392 488	411 294	427 100	433 442	487 816
Chile	134 860	177 246	175 315	199 276	205 512	257 760
El Salvador	49 770	52 110	56 612	60 832	64 761	66 047
Honduras	11 195	5 333	36 107	50 839	63 085	65 000
Uruguay	39 164	44 499	46 525	51 560	45 989	51 399
Guatemala	6 822	11 369	11 149	12 529	10 030	11 000
Costa Rica	9 716	1 181	349	1 370	8 192	6 995

Source: Comtrade

European Union - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	**5 190 580**	**5 421 884**	**5 693 688**	**5 862 420**	**6 129 008**	**6 392 039**
Total EU prod. including	**648 459**	**614 564**	**655 980**	**669 673**	**692 954**	**585 582**
Canaries	371 013	360 981	364 419	381 827	417 176	399 164
Martinique	184 810	159 015	193 201	199 241	179 888	119 844
Guadeloupe	66 923	71 511	73 592	63 781	68 608	40 003
Madeira	17 742	15 775	18 649	18 645	21 167	21 763
Cyprus	5 746	5 082	3 952	4 384	4 382	3 161
Greece	2 225	2 200	2 167	1 795	1 733	1 647
Total dollar prod., incl.	**3 559 785**	**3 746 853**	**3 956 439**	**4 116 432**	**4 268 613**	**4 706 762**
Ecuador	1 343 534	1 316 685	1 474 454	1 361 756	1 299 935	1 487 100
Colombia	1 136 523	1 150 980	1 086 273	1 315 399	1 292 212	1 412 494
Costa Rica	774 732	839 804	940 393	947 760	1 126 529	1 153 282
Panama	148 832	207 855	224 879	207 274	200 169	249 411
Peru	80 698	112 396	96 650	102 326	115 472	117 808
Guatemala	5 215	13 656	29 167	79 024	98 448	113 023
Nicaragua	-	-	-	9 326	34 467	86 483
Mexico	20 439	53 971	70 784	69 102	72 478	64 497
Honduras	5 749	6 472	4 495	4 608	7 651	17 746
Total ACP prod., incl.	**982 336**	**1 060 467**	**1 081 268**	**1 076 315**	**1 167 441**	**1 099 695**
Côte d'Ivoire	224 943	252 165	252 766	254 218	308 169	315 855
Dom. Rep.	294 589	322 839	342 016	326 587	375 163	305 311
Cameroon	213 868	250 334	257 152	278 247	297 058	270 306
Belize	99 288	96 763	100 707	98 969	71 741	84 635
Ghana	50 691	42 729	46 427	50 990	57 873	70 373
Surinam	83 126	80 956	72 593	58 583	49 739	44 265
Saint Lucia	12 145	12 367	8 874	8 339	7 364	8 291
Angola	-	-	-	-	11	459

Source: Eurostat

Other West European countries - Main markets						
tonnes	2012	2013	2014	2015	2016	2017
Total	**157 820**	**166 329**	**172 274**	**175 447**	**177 060**	**182 361**
Switzerland	77 531	81 626	84 110	87 168	89 847	92 378
Norway	76 803	81 266	84 570	84 613	83 634	86 249
Iceland	3 486	3 437	3 594	3 666	3 579	3 734

Source: Comtrade

Russia - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	**1 255 055**	**1 338 563**	**1 232 601**	**1 205 314**	**1 355 988**	**1 544 057**
Ecuador	1 121 590	1 279 202	1 237 075	1 209 044	1 331 661	1 485 547
Costa Rica	124	2 898	1 575	3 030	5 641	22 790
Philippines	79 930	16 793	14 387	9 591	15 281	20 429
Colombia	13 951	13 655	674	38	415	5 032
Vietnam	37 631	23 790	17 601	3 597	1 698	2 709

Source: Comtrade

Ukraine - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	**242 579**	**265 648**	**215 109**	**145 849**	**153 017**	**198 804**
Ecuador	203 178	229 881	198 005	133 775	129 438	119 920
Costa Rica	23 720	21 104	15 676	10 209	17 448	58 705

Source: Comtrade

Other East European countries - Main markets						
tonnes	2012	2013	2014	2015	2016	2017
Total	**164 768**	**205 102**	**201 511**	**221 724**	**234 471**	**252 137**
Belarus	58 813	74 459	66 450	71 955	64 409	*70 000*
Serbia	36 968	48 261	45 949	49 180	58 187	66 376
Bosnia	17 399	24 831	31 156	40 106	44 953	47 761
Albania	17 079	19 886	17 134	20 310	22 809	24 000
Macedonia	16 889	18 482	20 056	20 295	22 629	*22 000*
Moldova	12 193	11 176	10 800	9 821	10 784	*11 000*
Montenegro	5 427	8 007	9 966	10 057	10 700	*11 000*

Source: Comtrade

Oceania - Main markets						
tonnes	2012	2013	2014	2015	2016	2017
Total	**63 199**	**68 889**	**73 908**	**84 456**	**95 479**	**97 460**
New Zealand*	63 199	68 889	73 908	84 456	95 479	97 460

* excl. plantain from 2012 onwards / Source: Comtrade

Japan - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	**1 051 420**	**964 813**	**946 204**	**958 800**	**956 410**	**985 633**
Philippines	993 218	897 122	873 894	824 040	750 961	790 605
Ecuador	35 637	41 719	48 070	100 446	157 672	146 942
Mexico	2 869	3 032	3 052	4 287	8 628	20 236
Guatemala	769	5 954	7 334	14 729	16 911	9 853
Peru	6 310	5 988	4 117	3 568	4 472	4 429
Colombia	2 425	2 682	2 584	2 445	2 480	2 242
Thailand	1 689	1 388	1 429	1 882	1 903	2 080
Taiwan	7 826	6 311	4 053	3 236	1 574	1 054
China	604	524	481	146	2	0

Source: Japanese Customs

Other Asian countries - Main markets						
tonnes	2012	2013	2014	2015	2016	2017
Total	**1 159 087**	**920 720**	**1 666 273**	**1 617 061**	**1 437 539**	**1 651 185**
China	707 425	528 122	1 200 340	1 146 080	958 035	1 110 132
South Korea	367 673	313 604	359 124	363 466	364 580	437 380
Singapore	44 510	47 567	51 201	54 323	56 107	59 417
Nepal	17 000	7 701	24 313	18 913	21 017	20 000
Malaysia	7 812	8 471	21 468	19 955	16 818	16 517
Thailand	14 667	15 255	9 827	14 324	20 982	7 739

Source: Comtrade

Central Asia - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	**130 744**	**105 716**	**171 232**	**144 821**	**228 636**	**123 787**
Kazakhstan	44 832	39 859	41 305	46 154	48 036	35 534
Afghanistan	27 692	16 094	82 363	64 105	142 518	29 730
Azerbaijan	23 090	14 285	8 954	2 666	2 619	22 580
Georgia	12 576	12 116	15 190	17 539	15 985	17 125
Armenia	11 026	12 503	9 875	4 357	10 718	11 773
Kyrgyzstan	11 528	10 859	13 545	*10 000*	*8 760*	*7 045*

Source: Comtrade

Middle East - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	**385 462**	**360 324**	**491 978**	**526 474**	**744 898**	**813 967**
Saudi Arabia	306 173	209 431	192 550	205 809	231 806	196 596
Iran	199 441	107 828	168 608	284 665	163 200	167 000
Un. Arab Em.	119 762	285 409	114 740	123 665	147 269	164 174
Iraq	1 828	2 773	84 351	76 806	87 513	106 636
Kuwait	25 119	83 368	131 038	139 839	132 007	97 644
Qatar	24 779	28 710	21 966	30 898	37 531	39 117
Bahrain	15 651	19 864	12 624	16 738	22 541	21 865

Source: Comtrade

Africa - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	**107 814**	**123 021**	**160 924**	**172 039**	**140 935**	**165 072**
South Africa	52 510	68 000	96 341	108 192	79 218	97 643
Mali	17 412	16 934	18 000	18 000	18 000	23 460
Senegal	14 318	15 569	17 066	15 567	13 561	17 726
Botswana	6 619	4 634	7 755	9 421	9 454	8 565
Namibia	4 577	4 279	4 676	6 038	7 993	5 121
Burkina Faso	2 920	4 243	5 085	5 349	6 904	4 686
Niger	3 700	4 812	4 054	4 883	1 782	3 763

Source: Comtrade

Mediterranean - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	**869 508**	**812 500**	**879 584**	**853 351**	**856 013**	**802 029**
Syria	*240 000*	*240 000*	*240 000*	*240 000*	*240 000*	*240 000*
Turkey	234 633	225 100	235 188	207 171	218 548	209 369
Algeria	245 285	221 668	273 997	263 332	245 652	196 825
Tunisia	41 338	5 905	17 545	36 430	60 126	65 249
Jordan	48 263	49 788	42 911	47 298	50 357	39 254
Egypt	25 626	28 391	30 000	26 000	30 000	30 000
West Bank	9 746	13 509	17 475	13 635	11 330	21 332
Morocco	24 617	28 139	22 468	19 485	15 692	11 159

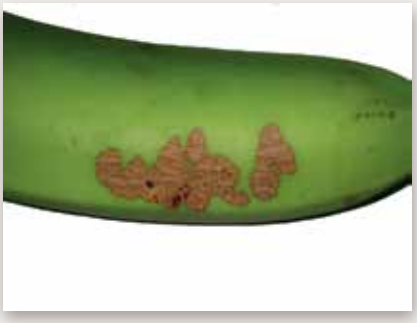
Source: Comtrade

Banana quality defects in the field

Pests

Flower thrips

Red rust thrips



Snail damage

Damage by *Diaprepes* root weevil

Silver rust thrips

Photographs © 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

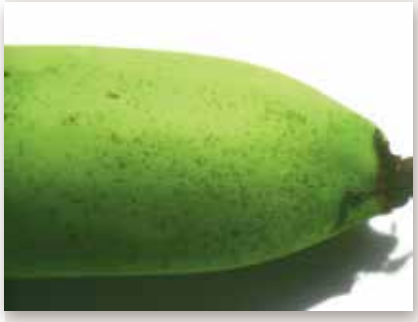
Scarring by a leaf

Scarring by guying cord

Sunscald

Chemical burns

Diseases



Speckling

Red speckling at ripening

Deightoniella

Sooty mould on fruit stalk

Cigar-end rot

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

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

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

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

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

Banana

Genetic diversity

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 (at least 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 cooking and beer bananas (more than 150) and Central and West African plantain (more than 120) 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 ■

Thierry Lescot, CIRAD
thierry.lescot@cirad.fr

Banana — Estimated world production in 2016

in tonnes	Cooking bananas		Dessert bananas		Total
	Plantain AAB group	Highland bananas + ABB group + others	Cavendish	Gros Michel + others	
North America	0	1 000	4 173	100	5 273
South America	5 908 141	577 600	13 264 239	3 229 180	22 979 160
Central America	1 017 039	63 455	8 259 711	86 500	9 426 705
Caribbean	873 547	733 957	1 236 769	273 764	3 118 037
West and Central Africa	9 386 629	1 130 094	3 024 532	443 203	13 984 458
East Africa	914 580	10 463 461	4 012 449	789 674	16 180 164
North Africa and Middle East	36	10 067	2 453 505	74 939	2 538 547
Asia	2 113 680	16 156 897	35 998 120	11 348 754	65 617 451
Oceania	1 069	629 155	739 339	276 299	1 645 862
Europe	2	17	486 155	27	486 201
World total	**20 214 723**	**29 765 703**	**69 478 992**	**16 522 440**	**135 981 858**

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

Production and trade (2016 data and 2015 data in italics) Estimates in tonnes	Production					Exports		Imports	
	Cooking bananas		Dessert bananas						
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB	Total	Cavendish	Plantain	Dessert bananas	Plantain
North America									
Canada					**0**	35	4	569 818	18 133
United States		1 000	4 173	100	**5 273**	698 351	20 834	4 593 337	608 836
Greenland					**0**			600	63
Saint Pierre & Miquelon						3		60	
Total	**0**	**1 000**	**4 173**	**100**	**5 273**	**698 386**	**20 838**	**5 163 815**	**627 032**
	0.0%	19.0%	79.1%	1.9%	**100.0%**	0.0%	2.0%		
Central America									
Belize	5 757	200	76 000	1 000	**82 957**	71 741	2		
Costa Rica	110 000	3 000	2 409 543	25 000	**2 547 543**	2 365 000	5 238	8 192	1 487
Guatemala	347 157	21 000	2 500 000	10 000	**2 878 157**	2 239 271	251 669	10 030	4 394
Honduras	95 125	10 000	707 120	10 000	**822 245**	616 452	554	63 085	22 867
Mexico	230 000	10 000	2 114 778	30 000	**2 384 778**	448 311	14 056	85	2
Nicaragua	120 000	12 000	150 000	4 000	**286 000**	78 408	27 887	2 364	23
Panama	72 000	6 800	300 000	6 000	**384 800**	249 625	6 784	192	52
El Salvador	37 000	455	2 270	500	**40 225**		2 888	64 761	84 978
Total	**1 017 039**	**63 455**	**8 259 711**	**86 500**	**9 426 705**	**6 068 808**	**309 078**	**148 709**	**113 803**
	10.8%	0.7%	87.6%	0.9%	**100.0%**	73.5%	30.4%		
South America									
Argentina			90 000	50	**90 050**			433 442	1 257
Bolivia	100 000	10 000	200 000	50 000	**360 000**	114 743	2 051		
Brazil	560 000	130 000	3 621 702	2 452 622	**6 764 324**	64 361	794	37	
Chile					**0**	1	36	205 512	5 050
Colombia	2 700 000	250 000	2 043 668	320 000	**5 313 668**	1 841 918	118 621		30 005
Ecuador	570 413	40 000	6 379 676	150 000	**7 140 089**	5 974 366	201 903		1
Guiana	8 000	800	6 000	1 000	**15 800**				
French Guiana	2 387	500	2 000	4 208	**9 095**			2 200	
Falkland Isl.								30	
Paraguay		300	71 870	4 300	**76 470**	40 345		258	255
Peru	1 391 339	125 000	437 656	120 000	**2 073 995**	202 408	31	1	
Surinam	18 856	1 000	61 073	7 000	**87 929**	58 000	100		
Uruguay					**0**	1	21	45 902	1 194
Venezuela	557 146	20 000	350 594	120 000	**1 047 740**	1	1 314	58	10 000
Total	**5 908 141**	**577 600**	**13 264 239**	**3 229 180**	**22 979 160**	**8 296 144**	**324 871**	**687 440**	**47 762**
	25.7%	2.5%	57.7%	14.1%	**100.0%**	62.5%	5.5%		
Caribbean									
Anguilla			1					70	12
Antigua & Barbuda	550	25	267	25	**867**			1 805	53
Netherlands Antilles	1	1	10	1	**13**	10		2 928	1 000
Aruba					**0**			2 314	2 209
Bahamas	3 200	150	5 800	250	**9 400**			1 840	421
Barbados	68	40	858	15	**981**			4 478	1 198
Bermuda	400	30	326	5	**761**			760	28
Cuba	200 000	518 069	40 000	248 081	**1 006 150**		42		
Dominica	2 000	400	1 100	100	**3 600**	10	60	2	
Grenada	840	120	1 100	36	**2 096**		7	3	
Guadeloupe	3 300	400	73 000	300	**77 000**	68 608			200
Haiti	244 410	60 000	130 000	18 000	**452 410**	170	100	77	500
Cayman Isl.	21	1	185	8	**215**			794	17
Turks and Caicos Isl.	5	1	15	3	**24**			350	501
Virgin Isl. (USA)	250	50	1 300	100	**1 700**			300	20
Virgin Isl. (UK)	80	10	332	20	**442**			102	49
Jamaica	42 437	1 000	50 000	2 215	**95 652**	300	11		
Martinique	3 000	150	194 067	200	**197 417**	179 888			10
Montserrat	75	10	101	5	**191**			5	10
Puerto Rico	83 520	2 000	75 818	500	**161 838**	3 800		800	500
Dominican Republic	279 055	150 000	647 726	3 000	**1 079 781**	485 000	19 094	573	573
St. Kitts & Nevis					**0**			600	500
St. Vincent & Grenadines	2 410	400	1 500	300	**4 610**	400	500		
St. Lucia	3 000	600	10 000	500	**14 100**	8 000	554		
Trinidad & Tobago	4 925	500	3 263	100	**8 788**			8 000	3 200
Total	**873 547**	**733 957**	**1 236 769**	**273 764**	**3 118 037**	**746 186**	**20 368**	**25 731**	**11 001**
	28.0%	23.5%	39.7%	8.8%	**100.0%**	60.3%	2.3%		

Production and trade (2016 data and 2015 data in italics) Estimates in tonnes	Production					Exports		Imports	
	Cooking bananas		Dessert bananas						
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB	Total	Cavendish	Plantain	Dessert bananas	Plantain
East Africa									
South Africa	20	1 500	306 397	2 200	**310 117**	8 123		97 643	20 931
Botswana					**0**			10 000	6 512
Burundi	64 000	641 697	119 000	86 496	**911 193**	843		1	10
Comoros	3 000	6 600	31 533	3 500	**44 633**		776	6	
Djibouti			1		**1**			5 456	
Eritrea			10	1	**11**			15 000	
Ethiopia	100	1 000	534 702	2 500	**538 302**	9 837			
Reunion Isl.	10	500	6 645	3 361	**10 516**				
Kenya	32 162	872 412	312 000	72 014	**1 288 588**	109	2	1 374	771
Lesotho					**0**			2 387	1 901
Madagascar	42 000	12 000	311 896	8 000	**373 896**	67	53		
Malawi	75 000	20 000	50 000	10 000	**155 000**	50		512	35
Mauritius	10	600	7 731	700	**9 041**	1		100	
Mayotte	640	6 400	6 000	1 000	**14 040**				
Mozambique	30 000	4 000	400 000	1 000	**435 000**	20 000		59	
Uganda	180 000	3 710 010	50 000	352 839	**4 292 849**	763	2 044	30	1 000
Rwanda	320 000	2 347 962	300 000	70 000	**3 037 962**		1	215	149
Seychelles	80	300	1 475	100	**1 955**			6	
Somalia	3 000	800	17 285	700	**21 785**	41	1	8 308	194
Sudan		1 000	908 110	1 000	**910 110**	120 000		256	253
Western Sudan	2	300	153 698	500	154 500			1 222	
Swaziland	5	4	6 207	1	**6 217**	1 000		4 055	2 127
Tanzania	150 700	2 835 826	400 000	173 113	**3 559 639**	1 868	16	1	
Zambia	1	50	677	49	**777**	7		1 415	2
Zimbabwe	13 850	500	89 082	600	**104 032**	821	*492*	14	
Total	**914 580**	**10 463 461**	**4 012 449**	**789 674**	**16 180 164**	**163 530**	**3 385**	**148 060**	**33 885**
	5.7%	64.7%	24.8%	4.9%	**100.0%**	4.1%	0.4%		
West and Central Africa									
Angola	120 000	10 000	550 000	15 700	**695 700**	200		85	64
Benin	12 000	500	16 467	3 000	**31 967**		200	8 000	2 100
Burkina Faso	100	10	15 000	10	**15 120**	1		8 000	4 496
Cameroon	1 700 000	200 000	470 000	200 000	**2 570 000**	300 000	100 000	2	
Cape Verde	10	30	10 373	30	**10 443**			3	
Congo	85 926	3 000	29 000	3 000	**120 926**			11	2 000
Congo (Dem. Rep.)	507 729	600 000	223 000	88 087	**1 418 816**	3	4 000	151	1
Côte d'Ivoire	1 589 643	90 000	650 000	6 000	**2 335 643**	400 000	35 000	4	4
Gabon	80 000	10 000	15 682	2 000	**107 682**	19		165	10 000
Gambia	8	1	180	1	**190**			2 800	
Ghana	1 980 000	50 000	244 000	15 000	**2 289 000**	58 000	800	39	100
Guinea	450 000	19 252	200 000	12 874	**682 126**	2 000	20		
Guinea Bissau	42 234	4 000	7 058	400	**53 692**	1			
Equatorial Guinea	19 749	3 000	4 972	2 000	**29 721**	1	1	2 000	20 000
Liberia	50 259	7 000	30 000	5 000	**92 259**			2	100
Mali	6 500	500	156 371	500	**163 871**			18 000	6 000
Mauritania		1	70	1	**72**			3 543	
Namibia					**0**	2		5 121	1 839
Niger			350		**350**	18		3 763	887
Nigeria	2 580 000	127 000	296 938	85 000	**3 088 938**	75		336	10 000
Central African Rep.	85 251	1 500	24 258	1 800	**112 809**				2 000
St Helena								12	1
Sao Tomé & Principe	3 000	1 000	1 500	1 000	**6 500**				
Senegal	200	100	37 863	100	**38 263**	18		17 726	50
Sierra Leone	46 020	2 000	15 000	1 000	**64 020**			10	
Chad			10		**10**			15 000	1 500
Togo	28 000	1 200	26 440	700	**56 340**	99	*25*	2	100
Total	**9 386 629**	**1 130 094**	**3 024 532**	**443 203**	**13 984 458**	**760 437**	**140 046**	**84 775**	**61 242**
	67.1%	8.1%	21.6%	3.2%	**100.0%**	25.1%	1.5%		
North Africa — Middle East									
Algeria		1	482	10	**493**			250 000	4 494
Saudi Arabia			5		**5**	7 924		320 000	
Bahrain			956	50	**1 006**			15 000	
West Bank		5	2 939	5	**2 949**			15 000	
Egypt	3	3 000	1 273 475	65 000	**1 341 478**	11 788		13 885	267
United Arab Emirates			199	1	**200**	2 953		164 174	
Iraq			10		**10**			97 644	
Iran		3 000	123 687	3 000	**129 687**			196 596	
Israel		1 000	134 000	1 000	**136 000**			11	
Jordan		300	40 000	557	**40 857**			50 000	
Kuwait					**0**	41 437		97 644	
Lebanon	3	400	92 000	740	**93 143**	32 372		121	57
Libya		1	2	1	**4**			1 755	
sub-total (to follow page 101)	**6**	**7 707**	**1 667 755**	**70 364**	**1 745 832**	**96 474**	**0**	**1 221 830**	**4 818**

Production and trade (2016 data and 2015 data in italics) Estimates in tonnes	Production					Exports		Imports	
	Cooking bananas		Dessert bananas						
	Plantains AAB	Highland bananas + ABB + other AAB + AAA + AA	Cavendish AAA	Gros Michel & other AA, AAA, AAB, ABB	Total	Cavendish	Plantain	Dessert bananas	Plantain
North Africa — Middle East (cont'd)									
Morocco		100	332 820	100	**333 020**	41		11 159	2 749
Oman	10	2 000	10 568	4 000	**16 578**	252		20 935	
Qatar					**0**			33 000	
Western Sahara					**0**			2 500	
Syria			110	10	**120**			150 000	
Tunisia		10	55	50	**115**	22		65 249	
Turkey		50	305 926	115	**306 091**	10	1	209 369	23
Yemen	20	200	136 271	300	**136 791**	*25 041*		48	
Total	**36**	**10 067**	**2 453 505**	**74 939**	**2 538 547**	**121 840**	**1**	**1 714 090**	**7 590**
	0.0%	0.4%	96.6%	3.0%	**100.0%**	5.0%	0.0%		
Asia									
Afghanistan					**0**			142 518	
Azerbaijan					**0**			22 580	18
Bangladesh	13 000	120 000	449 012	216 000	**798 012**		200		
Bhutan	70	500	2 845	400	**3 815**				
Brunei		40	841	70	**951**	281		2 822	
Cambodia	2 000	40 000	140 610	12 000	**194 610**	1			
China	1 000	568 000	11 891 540	606 238	**13 066 778**	8 279		1 308 022	
South Korea					**0**	1		364 580	19
North Korea					**0**	3		1 713	
Hong Kong					**0**	2 562		66 360	16
India	1 900 000	8 600 000	11 549 000	7 075 000	**29 124 000**	111 803	2 133		
Indonesia	70 000	2 000 000	3 748 010	1 189 115	**7 007 125**	9 235	10		
Japan			32		**32**			956 410	646
Kazakhstan					**0**	1		35 534	
Kyrgyzstan					**0**	19		7 045	
Laos	1 000	153 000	577 200	65 000	**796 200**	350 000			
Macau					**0**			4 483	
Malaysia	20 000	60 000	159 508	70 000	**309 508**	25 102		16 818	7
Maldives	90	448	1 000	290	**1 828**			1 926	12
Mongolia					**0**			2 447	160
Myanmar	20 000	298 069	560 000	230 000	**1 108 069**	109 340	165		
Nepal	10	20 000	201 185	15 000	**236 195**			21 017	
Uzbekistan					**0**			1 620	
Pakistan	500	3 000	128 171	5 000	**136 671**	50 280	21	20	17
Philippines	1 000	3 073 542	4 419 751	1 409 391	**8 903 684**	3 049 000		21	
Singapore					**0**	191		56 107	182
Sri Lanka	63 000	294 558	242 000	55 000	**654 558**	78	200		
Tajikistan								7 663	
Taiwan		100	257 259	200	**257 559**	10 284		16	
Thailand	20 000	330 000	575 251	150 000	**1 075 251**	24 764	3	20 982	
East Timor	10	40	570	50	**670**				
Turkmenistan								87	
Vietnam	2 000	595 600	1 094 335	250 000	**1 941 935**	100 000	736	1 205	
Total	**2 113 680**	**16 156 897**	**35 998 120**	**11 348 754**	**65 617 451**	**3 851 224**	**3 468**	**3 041 996**	**1 077**
	3.2%	24.6%	54.9%	17.3%	**100.0%**	10.7%	0.2%		
Oceania									
Australia	20	70	314 151	40 000	**354 241**	138		446	95
Fiji	100	500	3 728	300	**4 628**	21			
Guam		100	354		**454**			1 000	
Cook Isl.		20	27	3	**50**				
Marshall Isl.								100	
Solomon Isl.		90	247		**337**				
Kiribati		3 300	3 954	400	**7 654**				
Micronesia	200	308	1 513	13	**2 034**			89	
Nauru	1	20	80	10	**111**			3	
Niue		10	71	2	**83**	1			
New Caledonia	45	1 500	1 169	100	**2 814**			1 000	
New Zealand					**0**	9		95 479	136
Palau								50	
Papua New Guinea	500	600 000	391 553	232 500	**1 224 553**	20		1	
French Polynesia		900	2 100	600	**3 600**			6	
Samoa		13 237	10 417	80	**23 734**	1			
Samoa (USA)	2	250	524	70	**846**				
Tokelau		5	10	1	**16**				
Tonga	100	2 328	705	100	**3 233**	2			
Tuvalu	1	117	155	20	**293**				
Vanuatu	100	6 000	8 281	2 000	**16 381**	4			
Wallis & Futuna		400	300	100	**800**				
Total	**1 069**	**629 155**	**739 339**	**276 299**	**1 645 862**	**196**	**0**	**98 174**	**231**
	0.1%	38.2%	44.9%	16.8%	**100.0%**	0.0%	0.0%		

Production and trade (2016 data and 2015 data in italics) Estimates in tonnes	Production					Exports		Imports	
	Cooking bananas		Dessert bananas		Total	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**			22 809	553
Germany					**0**	296 676	49 950	1 379 962	51 000
Andorra					**0**			484	2
Armenia					**0**			11 773	
Austria					**0**	10 431	14	127 171	75
Belarus					**0**	33		64 410	109
Belgium					**0**	1 030 000	110 111	1 187 000	115 000
Bosnia Herzegovina					**0**			44 953	2 696
Bulgaria					**0**	800	387	35 307	7 092
Canaries	1	5	450 000	5	**450 011**	417 176			
Cyprus			4 690	5	**4 695**	420		5 485	190
Croatia					**0**	1 376	3	58 780	137
Denmark					**0**	11 334	81	78 407	1 730
Spain			250	5	**255**	136 246	30 000	702 377	39 502
Estonia					**0**	116	1	16 813	1
Finland					**0**	7 118		110 404	133
France					**0**	254 150	37 908	794 778	56 000
Georgia					**0**	182	25	17 125	100
Gibraltar								110	11
Greece		2	3 453	2	**3 457**	9 640	2 000	151 726	2 876
Hungary					**0**	1 446	5 811	37 679	12 630
Faroe Isl.					**0**			195	
Ireland					**0**	13 000	1 507	79 992	7 556
Iceland			1		**1**	6		7 142	300
Italy			354		**354**	78 063	6 803	658 000	17 596
Latvia					**0**	12 165	81	28 140	1 273
Lithuania					**0**	17 682	247	48 272	3 735
Luxembourg								5 967	650
Macedonia					**0**		138	22 629	300
Madeira	1	10	26 203	10	**26 224**	21 167			29
Malta					**0**			8 778	10
Moldova					**0**	60		10 784	990
Montenegro								10 700	500
Norway					**0**	62		83 634	212
Netherlands					**0**	568 683	62 688	769 946	73 309
Poland					**0**	33 471	2 804	304 777	65 082
Portugal			204		**204**	14 682	16	162 729	894
Czech Republic					**0**	61 601	25	192 463	3 386
Romania					**0**	339	184	102 708	74 838
United Kingdom					**0**	63 774	15 442	1 147 787	86 343
Russia					**0**	38 041		1 355 990	2
San Marino					**0**			280	
Serbia					**0**	118		66 376	81
Slovakia					**0**	13 164	301	68 107	8 328
Slovenia					**0**	33 218	10	72 423	852
Sweden					**0**	8 872	3	201 191	2 198
Switzerland					**0**	12		89 847	1 452
Ukraine					**0**	2		152 834	6
Total	**2**	**17**	**486 155**	**27**	**486 201**	**3 155 326**	**326 540**	**10 499 244**	**639 759**
	0.0%	0.0%	100.0%	0.0%	**100.0%**	0.0%	0.0%		313 219
World total	**20 214 723**	**29 765 703**	**69 478 992**	**16 522 440**	**135 981 858**	**23 862 077**	**1 148 595**	**21 612 034**	**1 543 382**
	14.9%	21.9%	51.1%	12.2%	**100.0%**	34.3%	5.7%		

Note 1: for EU members, imports of Cavendish from third countries only, not counting intra-Community trade or European produce supplies.

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 (2015 and 2016) and the experimental nature of this work.

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

Banana

Diseases and pests

Panama disease

Panama disease or Fusarium Wilt was first identified in 1874 in Australia. It is now observed in almost all tropical and subtropical banana production zones. It is caused by 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.


Gros Michel
© Frédéric Bakry


Panama disease
© Thierry Lescot

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, which 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 ground 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

CAs for numerous soil pathogens, control methods are limited and consist essentially of keeping areas containing the outbreaks in quarantine. Not much international 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.

Sigatokas

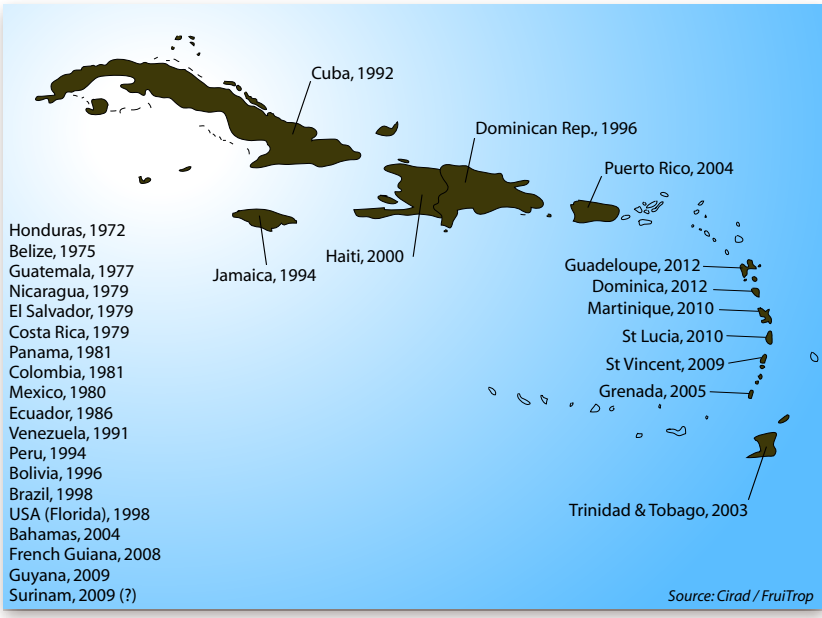
Sigatokas are banana plant foliar diseases caused by pathogenic fungi of the genus *Mycosphaerella*. There are three distinct types of sigatoka: yellow sigatoka, caused by *M. musicola*, black sigatoka (or black leaf streak disease - BLSD) caused by *M. fijiensis*, and a third form still little known and restricted in scope (India, Nigeria) caused by *M. eumusa*.

Due to its geographic distribution and aggressiveness, BLSD is the most worrying form of sigatoka, and one of the main production constraints on the export banana worldwide. Unlike yellow sigatoka, it also affects plantain plants. First detected in the early 20th Century on

the Pacific islands of Fiji, BLSD is now present in all producer countries in Central and Latin America, Africa and Asia (except India), where it has gradually replaced yellow sigatoka. The Caribbean zone was long spared thanks to its insularity. Yet BLSD was detected in Saint Vincent and French Guiana in 2009, and then Saint Lucia in early 2010, in Martinique in September 2010 and finally in Dominica and Guadeloupe in early 2012. So the whole of the West Indies is now affected by the disease. Worldwide, only the Canaries are still free from BLSD, as well as Australia which has eradicated it several times.

BLSD is manifested by lesions on the leaves, which can very rapidly develop into necrotic streaks. The reduction of the foliar surface area of the banana plant before harvesting the cluster can therefore significantly reduce yields. However, the major effect of BLSD in export cultivation is early maturation of the fruits, which become unexportable unless suitable control methods are applied. It is disseminated mainly by wind, over distances ranging up to tens of kilometres, making large-scale control a must in order to be effective.

Distribution of Black Sigatoka in the Caribbean arc



A variety of management strategies

In most export dessert banana production zones, control of the disease is based on regular applications of chemical fungicides by aerial or ground-level application. However the management strategies vary greatly depending on the situations, and can lead to highly variable treatment levels.

In 1970s in the French West Indies, CIRAD alongside professionals from Guadeloupe and Martinique, developed a rational management strategy based on a biological forecasting method based on regular observation of the disease and on analysis of climate descriptors. This strategy makes it possible to monitor the dynamic of the disease and activate the treatments only when they are necessary. Its main benefit therefore is limiting the number of treatments, while ensuring optimum control of the disease. Thus yellow sigatoka has been controlled for more than 40 years, with a limited number of treatments (five to seven on average per year). The lasting success of this method was also based on organisational aspects, since management was centralised by a technical unit responsible both for decision making (application date, product selection), but also execution of aerial treatments over homogeneous treatment zones. This method was then applied to BLSD control in the FWI, but also in other parts of the world, where it ensures rational and effective control of the disease.


Yellow sigatoka
©Thierry Lescot

This strategy is based on using systemic fungicides with a powerful curative effect used in regular rotations between various active ingredient families, and mixed with paraffin oils whose fungistatic effect reinforces the curative effect of the treatments. Three main chemical families of systemic fungicides were employed due to their powerful curative effect: triazoles, strobilurins and benzimidazoles, as well as a new family (SDHIs) which has just come onto the market. Other fungicides with a lesser curative effect (morpholines and pyrimidines) have also been employed in these strategies. Unfortunately, due to their mode of action, these fungicides are particularly sensitive to development of pathogen resistance. Repeated use of these products can therefore promote the progressive emergence of pathogen strains less sensitive to their action, eventually threatening the effectiveness of these strat-

egies. This dynamic depends on whether these products are used rationally, but the very high adaptability of the pathogen means an inevitable eventual loss of effectiveness of these management strategies if they are based solely on fungicide use.

In Guadeloupe and Martinique, losses of sensitivity to benzimidazoles started to appear after ten years of rational use (though with no alternation) by means of a biological forecasting system. Triazoles had a longer useful life (twenty or so years for yellow sigatoka), since they were alternated with other fungicide families as they first came onto the market. However, sensitivity to these fungicides for control of yellow sigatoka rapidly deteriorated when only triazoles could be employed, with the other fungicides taken off the market. Fortunately, the strains of *M. fijiensis* that had invaded Guadeloupe and Martinique were sensitive to all groups of fungicides. Now only two triazoles and one strobilurin are approved in France. Since the risk of resistance is very high for strobilurins (1 treatment per year, 2 at most), triazoles remain the most frequently employed. Four to five years after the arrival of BLSD to the FWI, the sensitivity levels of the fungus to these various fungicide families remain good, although a slight decline in sensitivity to triazoles has been observed in Martinique. In Cameroon and Côte d'Ivoire, the forecasting methods for BLSD were able to limit the number of applications between 12 and 14 per year for a decade, until the progressive emergence of resistant strains in certain zones. Conversely, in Latin and Central America, these declines were much faster. Resistance to benzimidazoles, used on a massive scale when they came onto the market, was observed just two years after they were first used. The same phenomenon was then observed in these production zones when triazoles appeared, and then strobilurins;

hence nowadays they are used very sparingly due to their low effectiveness.

In these situations, the implementation of rational strategies is no longer possible, and a strategy of systematic management has been progressively applied, based on use of contact products with a preventive effect. The main ones include chlorothalonil or mancozeb. They must be applied very regularly to ensure their effectiveness, often in mixture with systemic fungicides, with sometimes more than 50 applications per year. The doses of active substance used have also increased massively, from 2 to 4 kg of active substance per year with forecasting methods, to 30 or even 70 kg in systematic strategies. So use of these strategies represents an economic, logistical and above all environmental cost incompatible with many production zones, especially in the FWI.

The FWI also has to cope with a particularly limiting context in terms of implementing chemical management, even if rational. Current European legislation strictly limits the range of products usable, with only three fungicides used today: two triazoles and one strobilurin. While two new products are set to be approved, the implementation of optimum rational management remains highly constrained. On the other hand, the prohibition of any aerial treatment in Guadeloupe and then Martinique in 2013 has also transformed the organisation of disease management in the FWI, previously centralised around an independent technical unit responsible for generalised treatment. Individualisation of disease management and the lack of ground-based treatment equipment are currently threatening the effectiveness of disease control in these areas: the risk of development of resistant strains is becoming higher, with disease management no longer a collective strategy.

Essential new means of disease management

The sustainability of chemical disease management, whether rational or systematic, is therefore compromised in the long term. We need to be able to develop new management tools and methods to offer viable alternatives for BLSD control in the various production contexts worldwide. These alternatives will be based on the development of integrated approaches, relying on a combination of various tools enabling the disease and/or its damage to be controlled (losses in terms of fruit yield and quality).

The creation of new hybrid banana varieties with long-lasting resistance to the disease is an avenue long contemplated as an alternative to the Cavendish variety, widely used but particularly sensitive to the disease. However the processes of creating and selecting new varieties take a long time, and the list of agronomic and organoleptic criteria that these varieties have to meet makes the task particularly difficult. The variety CIRAD 925 recently developed in the FWI shows promising potential, currently under study and assessment by the researchers and the French export industry.

Moko disease

Whether or not they are BLSD-tolerant, the varieties cultivated must be incorporated in innovative and sustainable cultivation systems, employing optimised cropping management methods (plant management, inoculum management and control of fruit conservation by defoliation, etc.), potentially making use of biocontrol products, or introducing spatial and temporal modifications to the cropping system, thereby enabling a gradual reduction in use of chemical management.

Bacterial diseases

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

Moko disease

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

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

Bacterial wilt

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

The symptoms are observed above all on the emergence of spear leaves, especially at flowering. Flower bracts become discoloured and the male bud blackens and shrivels. The leaves yellow, wilt, blacken, dry and crumble (including the pseudostem). Yellow or brown vascular streaks are observed throughout the plant together with pale bacterial secretion on a section at the base of the pseudostem or at the corm. This causes bunches to wilt, with premature maturation and a reddish brown colour inside the fruit. The plant dies within a month of the appearance of any of these symptoms (one month after infection). The disease is spread by foraging insects, infected plant material (suckers, bunches and leaves), tools and man, and also by animals, run-off, rainwater splashes and wind. There are no resistant varieties. It is controlled 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 was 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%. It spreads either by vector from outbreaks or by the use of infected germplasm—suckers or tissue culture plants—or, in the special case of BSV, from so-called 'silent' bananas with a virus sequence incorporated in the genome of the species *Musa balbisiana* and capable of producing viral particles in particular as a result of stress (abiotic phenomena, weather conditions, intensive in vitro or in vivo propagation of plant material, etc.).

Banana bunchy top disease (BBTV)

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

Mosaic diseases

Banana mosaic caused by the Cucumber mosaic cucumovirus (CMV)

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

Banana streak disease (BSV)

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

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

Banana bract mosaic (BBrMV)

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

The only control method available today to fight these banana virus diseases is control of the vector and the use of healthy plant stock. 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 plantain production regions. The insect (*Cosmopolites sordidus*) is 9 to 16 mm long and 4 mm wide. It moves freely in the soil at the feet of banana plants or in plant debris. It is nocturnal and very sensitive to drying. The pest is spread mainly via infested plant stock. 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 stock (tissue culture plants) used in clean soil (after fallowing) 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 highly susceptible to the banana borer). It seems fairly unlikely that improved varieties can be bred rapidly. Control on plantation 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.

Banana borer on a corm

Nematodes

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


Nematode

Underground enemies

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

Prevention and control

Control methods involving the application of chemicals (mainly organophosphorus compounds and carbamates) that carry substantial sanitary and environmental risks are still used in intensive plantations. For this reason, in spite of their efficacy and very easy application, their use will be increasingly limited in favour of alternative control measures. These include cultural practices improving soil fertility (tillage, irrigation, organic ameliorators, etc.) that indirectly improve plant tolerance to pest pressure. More direct methods such as the use of fallow and the planting of micropropagated bananas are now in common use and lead to a strong decrease in nematode populations (see Phytoma No. 584, July-August 2005). These methods are widely used by producers in Martinique and Guadeloupe, where they have contributed to a reduction in pesticide use of more than 50 % over the past decade.

In the more or less near future, biological antagonists, root symbionts (mycorrhiza) and above all genetic resistance (by hybridisation or clonal selection) will be employed in setting up increasingly effective integrated protection strategies. However, the great complexity of nematode populations makes it tricky to develop these more targeted techniques. To be effective, they will need to be able to take into account the diversity of the cultivation and ecological situations.

Post-harvest diseases

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

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 time of 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 ■

Chilean blueberry

Quality to face off the competition

Chilean blueberry production has boomed in recent years, and is continuing to expand thanks to new plantations in the south of the country. However, the origin is facing a new player on this competitive market, in Peru. Although its traditional outlets are seeing continuing progress, the Chilean industry will need to find new ones to sell off the blueberry volumes available. To this end, it has opted to turn to the Asian diversification markets, as well as the organic and high-quality segments.

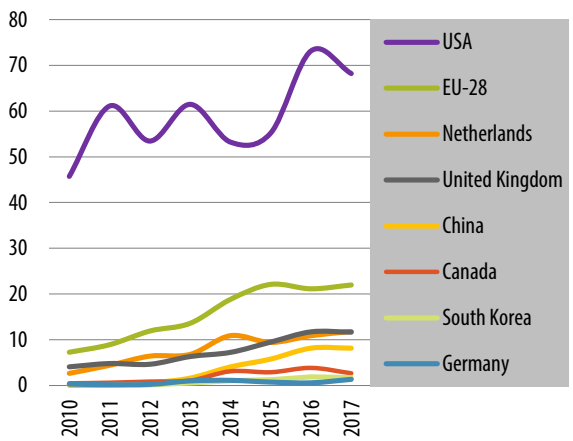
© Chilean Blueberry Committee

On a continuous rise

The 2017-18 season, which finished in March, confirmed the trend of recent years: Chile is continuing to produce blueberries in abundance. Its fresh shipments registered a rise of 6 %, reaching 115 000 tonnes, while the frozen shipments also saw a 14% increase to 40 000 tonnes.

The previous seasons had been rough, with production disrupted by frosts and frozen sales very limited and at low prices to their main market, the USA, which already had large stocks. This season was more favourable, with lower but much more stable prices, thanks to better spread shipments and better forecasting of the calendar. This price stabilisation was also helped by the year-round presence of Peruvian produce on the shelves, helping sustain blueberry consumption and make it an everyday product.

Blueberry - Chile - Exports
(in 000 tonnes / source: Comtrade)



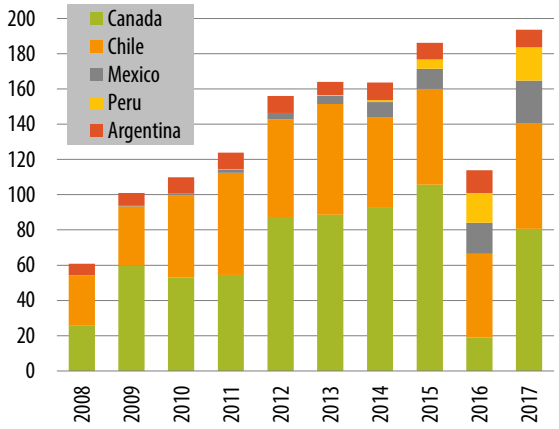
Photos © Chilean Blueberry Committee

Favoured markets highly competitive

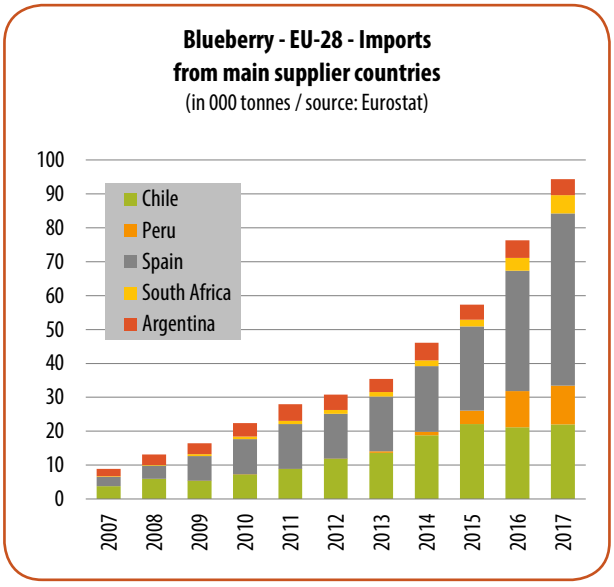
Once again this year, the two favoured markets for Chilean blueberries were the United States and Europe, though with a distinct loss of momentum.

The USA remains by far the number one purchaser, absorbing 64 % of Chilean fresh exports, i.e. 70 220 tonnes last campaign (+ 40 % on 2013-14). On this low-growth but steady market, Chile remains a key player yet is no longer taking advantage of its development: US imports of blueberries are now increasing from Peru and Mexico. As regards fresh, Mexico is capitalising on its proximity, and has the advantage of year-round production. Furthermore, the US public are really into frozen blueberries. Hence in 2016, excessively large frozen blueberry stocks in the USA caused a real paralysis in sales. Since then they have taken an upturn, though they remain hard to predict.

Blueberry - United States - Imports from main supplier countries
(in 000 tonnes / source: Comtrade)



Europe took in 20 % of Chilean volumes (25 896 t) last campaign (+ 50 % on 2013-14). While overall European imports are continuing to see big increases (+ 24 % this year), shipments from Chile have stagnated for the past three years, representing 27 % of volumes. The new market share has been captured by Peru (for the past three years) and Mediterranean origins, taking advantage of their proximity. Hence thanks to this advantage and high-quality fruits, Spain, already the main supplier, is continuing to show impressive acceleration. Morocco, still in a high growth phase (+ 40 % per year for the past 5 years), is offering its fruits at competitive prices (7 000 USD per tonne, as opposed to 9 000 USD for Chile). This rise is not running out of momentum, driven by the "Maroc Vert" plan, which is developing competitiveness and investment in the agricultural sector: blueberry surface areas will expand over 3 000 hectares by 2020, to achieve a production of more than 30 000 tonnes.



Peru, the neighbour with a strong presence

Chile remains a big player in the Southern Hemisphere blueberry sector, representing 62 % of South American exports, as opposed to 27 % for Peru, 10 % for Argentina and 1 % for Uruguay. Peru only achieved second place in the ranking in the past three years with exponential growth of 77 % in exports per year. To do so, blueberry surface areas leapt up from 400 hectares in 2012 to more than 3 200 in 2016. Production has the advantage of being year-round, with a peak in October-November, thanks to well-adapted varieties and technologies.

Hence the market is filling up and the production calendars are starting to pack together. The Chilean and Peruvian calendars overlap, though they remain relatively complementary, with the bulk of Chilean production arriving toward the end of the Peruvian peak. In October and November, the Argentinean and Peruvian production peaks occur at the same time, causing price falls just at the beginning of the Chilean season.

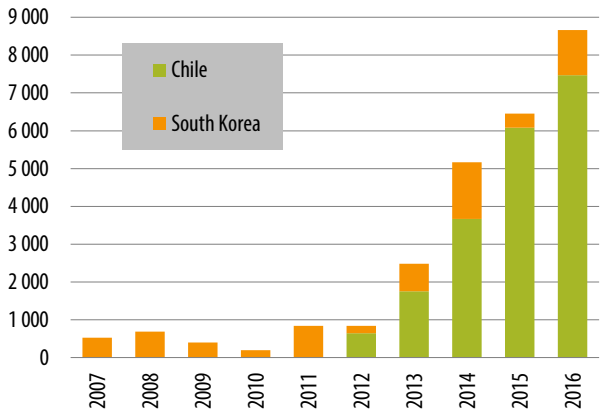
Consequently, in this context of heightened competition on its two essential outlets, the Chilean industry is exploring several avenues to try to stand out.

Setting course for China

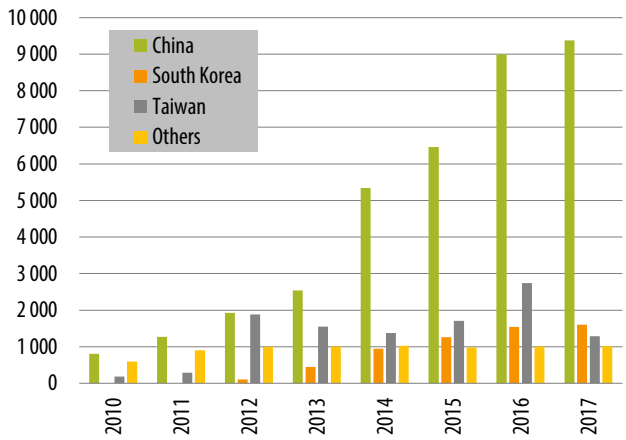
New markets have been opening up, for just the past few years, in Asia: China, South Korea and Taiwan in particular took in 13 138 tonnes of Chilean blueberries, an increase of 120 % on 2013-14. This rise should be attributed mainly to China, whose blueberry imports have followed exponential growth in recent years. Fortunately, Chile has been able to get in quickly. To export its 10 000 t per year, it created a direct express shipping line, thereby reducing the voyage time from 30 to 15 days.

However, there is a market window between the end of the local production season in August and the beginning of the Chilean season in December. We might imagine that it will not be long before Peru covets this choice market.

Blueberry - China - Imports from main supplier countries
(in tonnes / source: Comtrade)



Blueberry - Chile - Exports to Asia
(in tonnes / source: Trademap)



© Chilean Blueberry Committee

ASOEX and CBBC, a plus for the Chilean industry

The goal of ASOEX (the Chilean exporters association) is to facilitate exports of Chilean fresh fruits, and it encompasses 96 % of export volumes, from more than 6 000 producers. The association has multiple missions: negotiating free trade agreements for new products to new markets, monitoring modifications to phytosanitary standards, and above all large-scale promotion actions. For example, ASOEX has funded, in partnership with the US Government, APHIS fruit phytosanitary inspection sites to validate fruit exports to the USA, the number one trading partner. ASOEX is separated into several centres handling a particular fruit, such as the Chilean Blueberry Committee which is responsible for promoting the blueberry.

As the second biggest contributor to national GDP, the fruit export sector enjoys the favour of the Chilean Government, and close cooperation with ASOEX. In this country where more than 90 % of fruit is exported, production decisions are taken according to the market and its demands, by harnessing the competitive advantages of the products.

Organic and quality upgrades

The organic blueberry is a useful avenue to help the Chilean industry stand out. Demand is already in place and growing in the United States, where Chile ships 85 % of its fresh organic produce. However, shipments are limited by phytosanitary authorisations only being granted to certain Chilean regions. To prevent the introduction of EGVM (Lobesia botrana or Eudemis), APHIS is requesting fumigation of fruits from regions VI, VII and VIII, which are the biggest producers. So these fruits are no longer considered organic, and must be sent to other markets, such as Europe where demand needs to be generated by promotional campaigns. Chile's other production regions are authorised to export, subject to reinforced authorisation inspections prior to shipment.

In terms of surface areas, according to this year's official figures, organic represented 20 % of the 15 785 hectares planted area, i.e. 3 230 hectares. Thanks to climate warming, the cultivation area has been able to expand in the south of the country, which while still relatively cool with a dry climate, can technically sustain organic cultivation. To this end, CORFO has initiated and funded a project aimed at developing new varieties adapted to climate change.

Generally speaking, more particular attention to quality will help Chilean exporters earn better value from their blueberries, but also reduce frozen output, of which there are large stocks in the USA, while increasing their fresh output which sells at a higher price. At present part of the production is processed into frozen, not because of the variety, but because of quality defects, especially when the harvest is not carried out at the optimum time. Hence Chile has its sights set on the high-quality fresh segment. Efforts are focused on care measures during harvesting, as well as on packing. Product quality now seems an essential factor for anyone aspiring to survive and stand out on this highly competitive market ■

Manon Pulliat, CIRAD
info@fruitrop.com

Wholesale market prices in Europe

March 2018

					EUROPEAN UNION - IN EUROS				
					France	Holland	UK	Germany	Belgium
AVOCADO	Air	TROPICAL	BRAZIL	Box	13.80				
	Sea	FUERTE	ISRAEL	Box	11.00				
			PERU	Box	10.25	11.00			
			MOROCCO	Box	10.50				
			KENYA	Box	9.50		10.43		
		HASS	CHILE	Box	16.00				
			COLOMBIA	Box	12.75	16.00			
			ISRAEL	Box	12.88				
			MEXICO	Box	12.83	16.00			
			PERU	Box		16.00			
			GUATEMALA	Box	13.13				
			MOROCCO	Box	12.88	18.00		17.00	
			KENYA	Box	12.00				
		NOT DETERMINED	MEXICO	Box			18.81		
		PINKERTON	ISRAEL	Box	11.25	11.00			
		ETTINGER	ISRAEL	Box	10.00				
	Truck	FUERTE	SPAIN	Box	12.50				
		HASS	SPAIN	Box	15.92	20.50		18.00	17.00
		PINKERTON	SPAIN	Box	11.00				
		BACON	SPAIN	Box	9.50				
		REED	SPAIN	Box			8.95		
BANANA	Air	RED	ECUADOR	kg		5.17			
		SMALL	COLOMBIA	kg	6.40				
			ECUADOR	kg		5.25			
	Sea	SMALL	ECUADOR	kg	2.20				
CARAMBOLA	Air		MALAYSIA	kg	5.00	4.71			
CHAYOTE	Sea		COSTA RICA	kg	1.30	1.63			
COCONUT	Sea	NOT DETERMINED	COTE D'IVOIRE	Bag	11.00	12.67	12.54		
			SRI LANKA	Bag			17.10		
		YOUNG	THAILAND	Bag		10.50			
		GREEN	COSTA RICA	Bag		17.50			
DATE	Sea	DEGLET	ALGERIA	kg	4.50	2.19			
		MEDJOOL	ISRAEL	kg	10.50	7.77			
		NOT DETERMINED	ALGERIA	kg		3.10			
			ISRAEL	kg			4.56		
		MOZAFATI	IRAN	kg		3.60			
EDDOE	Sea		COSTA RICA	kg		2.00			
GINGER	Sea		CHINA	kg		1.30	1.30		
			THAILAND	kg	2.50	1.36			
GUAVA	Air		BRAZIL	kg	5.50		5.93		
			VIETNAM	kg	7.66				
KUMQUAT	Air		ISRAEL	kg		4.50			
LIME	Air		MEXICO	kg	4.80				
	Sea		BRAZIL	kg	1.60	1.02	1.33		1.22
			MEXICO	kg		1.77	1.73		
LITCHI	Sea		MADAGASCAR	kg	1.75				
MANGO	Air	NAM DOK MAI	THAILAND	kg		7.20			
		KEITT	BRAZIL	kg	4.00				
			PERU	kg	5.00				
		KENT	BRAZIL	kg	4.75				
			PERU	kg	4.66	4.66			
	Sea	ATKINS	BRAZIL	kg	1.38	1.00			
			SOUTH AFRICA	kg			1.00		
		NOT DETERMINED	BRAZIL	kg			2.03		
		KEITT	BRAZIL	kg		1.25			
			PERU	kg		1.50		1.25	
		PALMER	BRAZIL	kg		1.63			
		KENT	PERU	kg	1.52	1.50		1.25	1.43
MANGOSTEEN	Air		COLOMBIA	kg	9.00				
			INDONESIA	kg		9.00			

					EUROPEAN UNION - IN EUROS				
					France	Holland	UK	Germany	Belgium
MANIOC	Sea		COSTA RICA	kg	1.25	1.25			
MELON	Sea	CANTALOUP	BRAZIL	kg	1.50		1.82		
			HONDURAS	kg		1.40	1.14		
		GALIA	BRAZIL	kg	1.40		1.82		
			HONDURAS	kg		1.60	1.37		
		HONEY DEW	BRAZIL	kg	1.05	0.93	0.97		
			COSTA RICA	kg	0.90	0.85	0.95		
			HONDURAS	kg		0.90			
		WATERMELON	BRAZIL	kg	1.25		1.49		
			COSTA RICA	kg	1.25	1.20	1.00		
		PIEL DE SAPO	BRAZIL	kg	1.25				
		SEEDLESS WATER	BRAZIL	kg	1.15				
		CHARENTAIS	BRAZIL	kg	1.75	1.60			
			HONDURAS	kg		1.50			
PAPAYA	Sea	FORMOSA	BRAZIL	kg		2.78	4.31		
		NOT DETERMINED	BRAZIL	kg	3.80	3.86			
PASSION FRUIT	Air	NOT DETERMINED	COLOMBIA	kg	6.00	5.00	5.42	5.00	5.00
		PURPLE	ISRAEL	kg		5.50			
			SOUTH AFRICA	kg					5.00
			VIETNAM	kg	8.50				
			ZAMBIA	kg	6.00				
			ZIMBABWE	kg					5.00
		YELLOW	COLOMBIA	kg	7.40	9.00			
			ECUADOR	kg		7.40			
	Sea	NOT DETERMINED	COLOMBIA	kg	4.00				
		PURPLE	BRAZIL	kg			3.23		
PHYSALIS	Air	PREPACKED	COLOMBIA	kg	9.50	6.67	7.49		
	Sea		COLOMBIA	kg		6.88			
PINEAPPLE	Air	VICTORIA	MAURITIUS	Box		13.50			
			MAURITIUS	kg	4.10				
			REUNION	kg	4.10				
		SMOOTH CAYENNE	BENIN	kg	2.50				
	Sea	MD-2	BRAZIL	Box			12.54		
			COSTA RICA	Box		9.25		9.00	9.50
			COSTA RICA	kg	1.13				
			COSTA RICA	Piece			1.25		
			COTE D'IVOIRE	kg	1.13				
			PANAMA	kg	1.05				
PITAHAYA	Air	RED	VIETNAM	kg	8.00	7.17			
			INDONESIA	kg		8.17			
		YELLOW	ECUADOR	kg		10.00			
PLANTAIN	Sea		COLOMBIA	kg	1.10				
			ECUADOR	kg	1.00	1.03			
			WINDWARD ISL.	kg			1.52		
POMEGRANATE	Air	WONDERFUL	PERU	kg		4.11			
	Sea	NOT DETERMINED	TURKEY	kg	2.86		1.71		
			INDIA	kg		3.71			
		WONDERFUL	ISRAEL	kg	2.60				
			PERU	kg	3.20				
		HERSKOWITZ	SOUTH AFRICA	kg		3.00			
RAMBUTAN	Air		VIETNAM	Box		12.50			
			VIETNAM	kg	8.00				
SAPODILLA	Air		THAILAND	kg		8.75			
SWEET POTATO	Sea	NOT DETERMINED	BRAZIL	kg	1.50				
			EGYPT	kg	1.00				
			ISRAEL	kg	1.50				
		RED/RED	HONDURAS	kg		1.08			
		WHITE	BRAZIL	kg		1.55			
			HONDURAS	kg	1.55				
TAMARILLO	Air		COLOMBIA	kg		7.20			
TAMARIND	Air		THAILAND	kg		3.50			
TARO	Sea		COSTA RICA	kg	2.30				
YAM	Sea		BRAZIL	kg	1.72				
			GHANA	kg	1.50	1.38			

Note: according to grade

These prices are based on monthly information from Guido Bernardi (consultant). Email: guidobernardi@libero.it

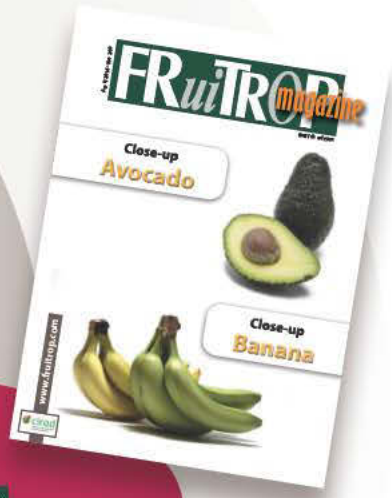
FRuiTROP

understand & decide

A website

FRuiTROP online

All the economic and technical information at a click in English and French at **fruitrop.com**



FruiTrop magazine is specialised in the international fresh fruits and vegetables trade. Recognised for its extremely professional editorial line, it is a sector reference thanks to its original, amply documented analyses.

A magazine

FRuiTROP magazine

Market information

FRuiTROP weekly

Every week, you can access a genuine decision-making tool, thanks to its exclusive information on the **banana** and **avocado** markets: production, exports, markets, etc.

contact: fruitrop.com or info@fruitrop.com

FRuiTROP online · FRuiTROP weekly · FRuiTROP magazine · FRuiTROP focus · FRuiTROP Thema

GREENYARD

Fresh

Profit from the know-how of the European leader in ripening

Take advantage – all year long – of our ready-to-eat avocados from around the world.

The great variety of origins and brands offered by Greenyard Fresh France for your supply in avocados makes it possible to satisfy the request and the segmentation of your clientele all year round.

Greenyard Fresh France SAS
15, boulevard du Delta / Zone Euro Delta DE1 / 94658 Rungis Cedex / France
T +33 1 49 78 20 00 / F +33 1 46 87 16 45 / contact@greenyardfresh.fr
www.greenyardfresh.fr

for a healthier future