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English edition

Mango Ever more volumes

Apples and pears:

Mouthwatering prospects for 2018

Producer country file:

Berries in Morocco

Date:

On a steep and continuous rise

Tropical avocado:

European supermarket
sector really timid



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What can we take away from the 2018 Fruit Logistica trade show? *That is the question that the 77 000 visitors (130 countries) asked themselves once the event closed. For some, the concept is running out of steam. For others, this loss of impetus is due to the bad weather in Europe, which delayed the arrival of the professionals. Whatever the case, every year there is a particular subject that gets the whole industry worked up. These have included the "fresh cut" segment, the environment and corporate social responsibility. This year, there was the organic sector, as expected, but nothing more. We could also note an increasingly strong Chinese presence, as well as the Dole-Greenyard-Total Produce deal, with everyone convinced that they know the next company that will be raided by one of its competitors. In my opinion, the most controversial subject was introduced from France, with some French producers presenting the idea to launch the "Zero pesticides residue" initiative. Desperately seeking a competitive advantage, these producers guarantee the complete absence of residue, i.e. below the detection limit. This raises a number of questions. Indeed it is tantamount to spurning Europe's highly advanced sanitary arsenal, which is already highly oppressive for producers and highly protective for European consumers. Under this initiative, these producers are claiming that the European system is not meeting its objectives of consumer protection. It also shows a degree of hypocrisy, since while we might guarantee to the consumer zero exposure to pesticides, what about the natural and cultivated environments? This private initiative does not say anything about the use of the treatment products. The cropping system is once again sacrificed, or in any case ignored. Environmental protection is just a collateral effect of the label, rather than one of the primary objectives.*



Furthermore, and without doubt the worst part, 90 % of the supply is ostracised, despite for the vast majority complying with public standards and sometimes originating from even more virtuous cropping systems. Finally, although the initiative is for once from upstream rather than downstream, the producers are making a rod for their own backs by embarking on a chemical disarmament race, already being conducted with vigour by ANSES in France and EFSA for the EU, without having some assurance from their customers that this initiative will create value. Which makes it yet another plan doomed to backfire.

Denis Loeillet



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Banana

January/February 2018

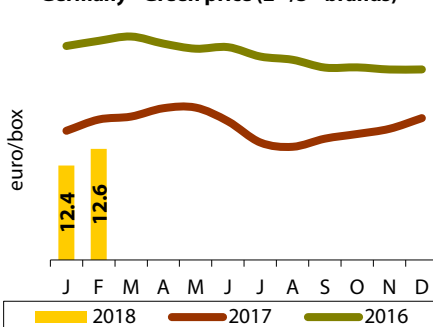
In **January**, the overall supply was bigger than last year (+ 1.7 %) and above average, despite the supply being disrupted by logistical delays and persistent shortfalls from some origins. Hence the very large shortfall in the French West Indies supply was not offset by the African increase, despite higher levels than in 2017 (+ 4 %). Despite the Colombian shortfall and slightly smaller Costa Rican volumes than in 2017, the dollar banana supply remained bigger than last year, thanks to the increase from Ecuador and to the rise from minor origins (Honduras, Panama). However, the market rapidly tightened up due to very lively demand and low stocks. Hence green banana prices on the free market continued to strengthen distinctly.

In **February**, the supply remained bigger than in 2017, in spite of a fall in African shipments and the still marked FWI shortfall. It was dollar banana volumes that were large, with the ongoing Colombian shortfall easily offset by imports from Costa Rica and above all Ecuador, which were bigger than in 2017. Hence tension remained in place, with shipping delays heightening the feeling of under-supply. In addition, sales registered record levels thanks to temperatures favourable for consumption and very weak competition from other fruits (shortfall of apples and pears, citruses ending early, strawberry campaign struggling to get going). In this context spot prices reached historic peaks for the period, with a very wide gap from contract prices. The yellow banana struggled to take up these increases toward the end of the month.

NORTHERN EUROPE — IMPORT PRICE

February 2018 euro/box	Comparison	
	previous month	average for last 2 years
12.60	+ 2 %	- 8 %

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



The banana at Monoprix: organic Fairtrade or nothing!

Monoprix, the first non-specialist chain to offer organic-Fairtrade bananas in 1998, has decided to take a step further. Now all bananas sold by the chain will bear the organic-Fairtrade label. Monoprix promises that the retail price will be based on that of the conventional banana, i.e. 1.99 euro/kg. Monoprix sells approximately 7 500 t of bananas per year at its 640 stores in France.

Sources: Monoprix, LSA

Costa Rican banana: 2017 confirms a return to growth.

Costa Rica continues to see record years. 2016 had provided a clean break from 2015, a year blighted by climate problems relating to El Niño (heavy floods in June and July in particular). As for 2017, it confirms



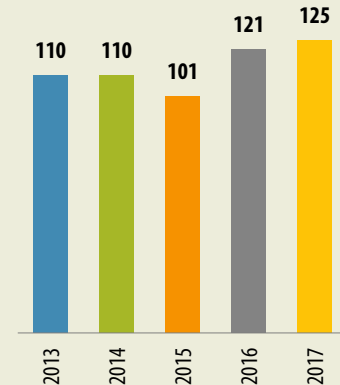
© Régis Commenge

the growth dynamic of the sector, with exports of 125 million boxes (+ 4 % on 2016). It is above all the appetite of US consumers which explains this fine performance. While shipments to the EU-28 and the rest of Europe remained practically stable, those to North America rose by 15 %. The economic balance is rosy too, with the fall in the colon against the dollar helping offset the slight drop in the FOB price (- 2 % on 2016).

Source: Procomer

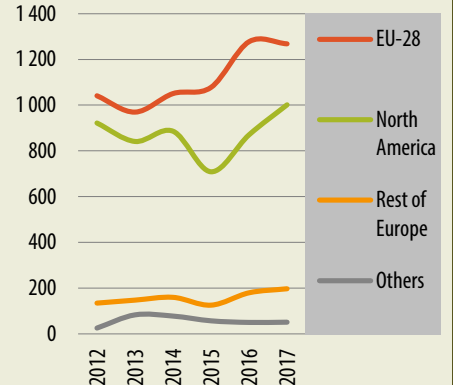
Dessert banana - Costa Rica - Exports

(in million boxes / source: Corbana)



Dessert banana - Costa Rica - Exports by destination

(in 000 tonnes / source: Procomer)



EUROPE - RETAIL PRICE

Country	February 2018		Comparison	
	type	euro/kg	January 2018	average for last 3 years
France	normal	1.68	+ 1 %	+ 4 %
	special offer	1.30	+ 12 %	- 4 %
Germany	normal	1.32	- 1 %	- 3 %
	discount	1.13	- 3 %	- 4 %
UK (£/kg)	packed	1.04	0 %	+ 2 %
	loose	0.80	+ 1 %	+ 8 %
Spain	platano	2.08	- 2 %	+ 1 %
	banano	1.27	0 %	- 3 %



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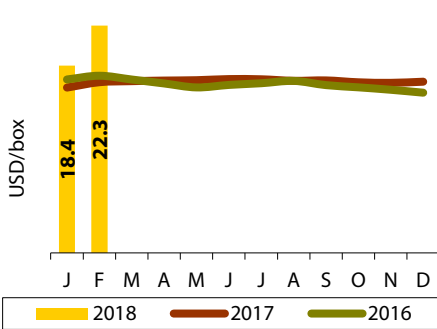
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Banana

UNITED STATES

USA - Green price (spot)

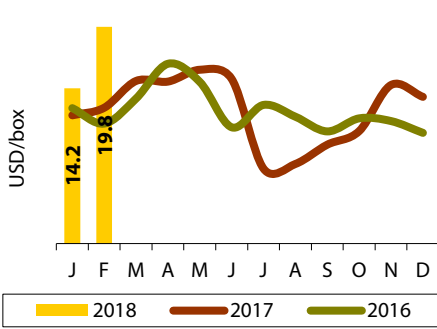


UNITED STATES - IMPORT PRICE

February 2018 USD/box	Comparison	
	previous month	average for last 2 years
22.31	+ 21 %	+ 31 %

RUSSIA

Russia - Green price CIF St. Petersburg

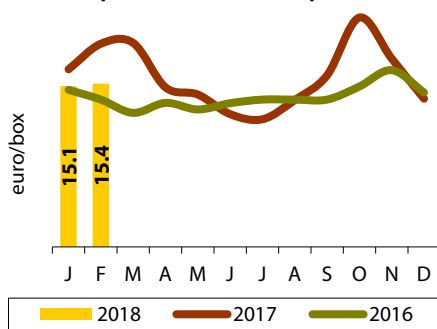


RUSSIA - IMPORT PRICE

February 2018 USD/box	Comparison	
	previous month	average for last 2 years
19.81	+ 40 %	+ 70 %

CANARIES

Spain - Platano - Green price



CANARIES - IMPORT PRICE*

February 2018 euro/box	Comparison	
	previous month	average for last 2 years
15.40	+ 2 %	- 7 %

* 18.5-kg box equivalent

Banana supply in January 2018: above average in the EU, and exceptional in the USA!

Despite the general feeling, the Eurostat figures (and European production figures) corroborate those of Taxud: January 2018 saw a very good supply level. With 545 000 tonnes (+ 1.7 % on January 2017), January was actually the month with the highest European consumption. The performance should be somewhat put into context since December 2017 was a relatively light month; a fairly meagre supply of competing fruits helped the banana pick up market share.

Ecuador and Panama, and to a lesser degree Peru and Nicaragua, contributed to this increase in volumes, while Costa Rica and above all Colombia registered big falls. As for the ACP, it was Côte d'Ivoire which registered the most impressive dynamic, establishing itself as the no. 1 ACP exporter for the long term. Cameroon was stable while the Dominican Republic little by little made up for its delay. Belize saw a heavy fall, while Ghana, Surinam and Saint

Lucia saw impressive rises. Over the past twelve months (February 2017 to January 2018), European consumption rose again to reach 6 380 000 t. Our initial estimates for February 2018 (sources: Cirad and Taxud) lead us to believe that the overall supply was practically identical to that of February 2017, at just under 500 000 t. It was the ACP group which held back the trend, whereas European production and dollar suppliers apparently contributed slightly more volumes.

The USA saw a strong consumption surge in January 2018: 351 000 t, i.e. + 4.2 % on January 2017, which was an absolute record! Ecuador somewhat regained its feet on the North American market, aided by the transient weakness of the number one supplier, Guatemala, and the poor performance of Honduras (strikes). Costa Rica and Mexico also benefitted from the buoyant US market. The organic share (Ecuador, Peru, Colombia and Mexico) was reportedly 9.4%. Over the last twelve months (February 2017 to January 2018), US consumption reached 4 249 000 t.

Source: CIRAD

Banana – EU & USA – Supply in January 2018 (provisional)

000 tonnes	2016	2017	2018	2018/2017 difference
EU-28 - Supply	472	535	545	+ 1.9 %
Total imports, of which	427	496	504	+ 1.7 %
MFN	346	409	416	+ 1.7 %
ACP Africa	48	52	56	+ 6.0 %
ACP others	32	34	32	- 5.9 %
Total EU, of which	45	39	42	+ 5.4 %
Martinique	12	4	4	+ 8.0 %
Guadeloupe	4	4	0	- 100.0 %
Canaries	27	30	35	+ 17.8 %
USA - Imports	358	384	397	+ 3.3 %
Re-exports	46	47	46	- 3.1 %
Net supply	312	337	351	+ 4.2 %

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

EUROPE - IMPORTED VOLUMES - FEBRUARY 2018

Source	Comparison		
	January 2018	February 2017	2018 cumulative total compared to 2017
French West Indies	↗	- 35 %	- 39 %
Cameroon/Ghana/Côte d'Ivoire	↘	- 11 %	- 3 %
Surinam	↘	+ 74 %	+ 56 %
Canaries	↗	+ 16 %	+ 17 %
Dollar:			
Ecuador*	↗	+ 15 %	+ 15 %
Colombia*	↘	- 18 %	- 19 %
Costa Rica	↘	+ 6 %	0 %

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



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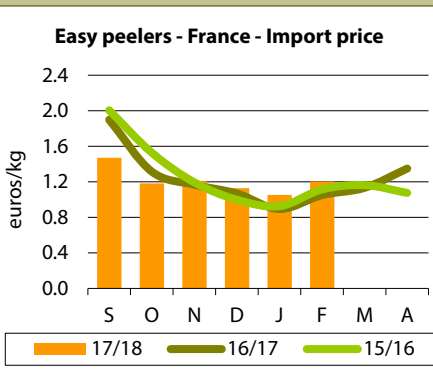


FRUITROP
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Easy peelers

January/February 2018

Consumption was in place at the beginning of the year, stimulated by a context free from competing fruits and cool temperatures favourable for sales. In January, the transition between Nules/Clemenvilla and late hybrids came early: the last short clementine volumes could not be offset by the other varieties (Hernandine, Ortanique, early start by Nadorcott). In February, the transition had taken effect and the market had eased. The late hybrids gained the upper hand with a moderate supply. The Israeli Or shortfall widened (losses due to rain at the production stage), and the Moroccan Nadorcott was scarce in France. Finally, Spanish Nadorcott shipments picked up considerably. Prices remained strong and higher than in previous years.

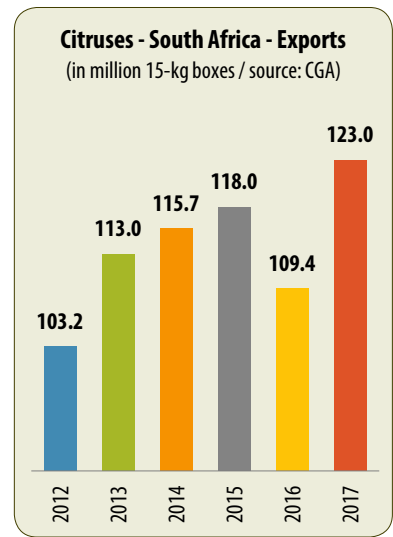


PRICE	Variety	Average monthly price euro/kg	Comparison with average for last 2 years
	Clementine	0.93	+ 17 %
Hybrids	1.49	+ 11 %	

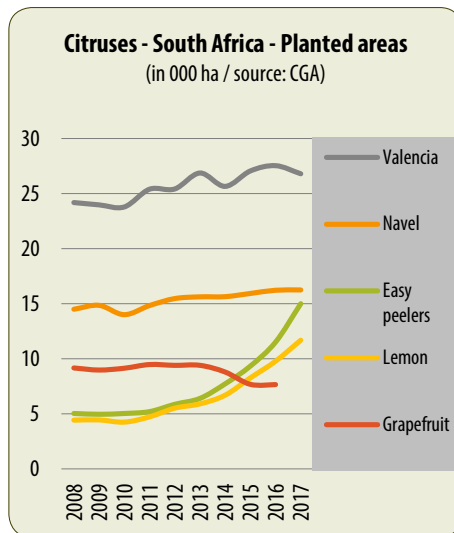
VOLUMES	Variety	Comparison	
		previous month	average for last 2 years
Clementine	↘	0 %	
Hybrids	↘	- 18 %	

VOLUMES	Varieties by source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Spanish Clementine	↘	+ 3 %	Fall in volumes accelerating. Levels back to average before an early end as predicted.	+ 1 %
	Moroccan Clementine	↘	- 27 %	Early end to the campaign.	- 7 %
	Israeli Or	↗	- 42 %	Shipments rising, though volumes well down (initial production shortfall reinforced by losses due to rains in early 2018).	- 43 %
	Spanish Nadorcott	↗	+ 35 %	Shipments on the rise, with bigger volumes than in previous years. Early start, campaign ahead of schedule.	+ 32 %
	Moroccan Nadorcott	↗	- 10 %	Volumes on the rise, though levels still in shortfall.	- 18 %

■ **2018 South African citrus campaign: another fine harvest, and yet...** South African citrus production should maintain a very good level in 2018, after a record 2017 season. True, the Western Cape and part of the south of the Eastern Cape have been afflicted by a very severe drought, which should weigh down on their production. However, these two zones represent less than 15 % of the total harvest. Above all, we should recall the new boom expected in easy peelers and lemon production, due to the explosive growth in surface areas in recent seasons. So while the harvest prospects are rather bright, the campaign is not for all that set to go smoothly. The sanitary restrictions in force in the EU-28 will be more drastic, with the implementation for the first time of False Codling Moth control measures, and the probable hardening of measures relating



to Black Spot after a significant number of interceptions during the end of the 2017 Valencia season. Furthermore, the strengthening of the rand against the main currencies in use on the country's big export markets, is another challenge. According to CGA, an exchange rate loss of 10 % would cause a 35 % revenue loss for the producer.



Sources: CGA, Freshfruit portal



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Orange

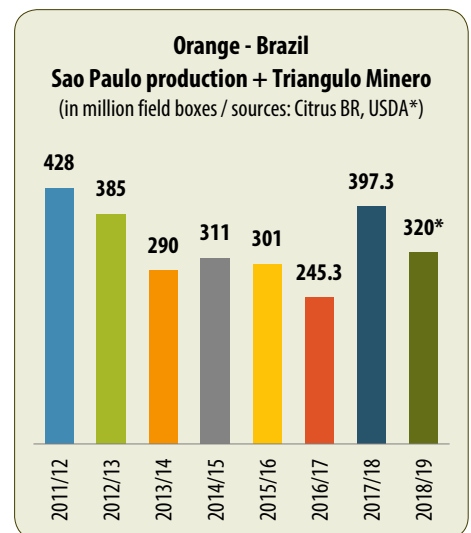
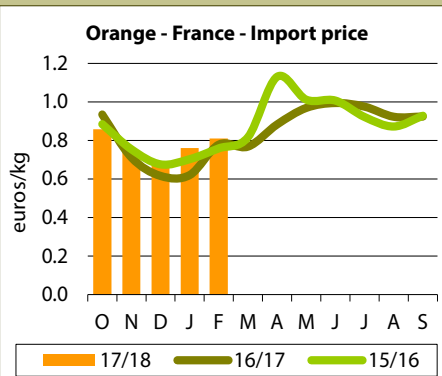
January/February 2018

The transition between varieties proceeded under good market conditions. On the one hand, demand maintained a good level thanks to temperatures favourable for consumption and weak competition from seasonal fruits (shortfall of easy peelers, apples and pears). On the other hand, the Navelina campaign, in shortfall, finished early and the transition with Lanelate and Navelate took effect in early February. Hence despite the acceleration in Navelate shipments, with bigger volumes than in previous years, prices remained strong and above average. In addition, the Tunisian Maltaise came onto the market in mid-January, with limited volumes because of a small harvest (production shortfall of 50 to 60 %). After slow progress, juice oranges saw high volumes from late January and during February. Prices dropped under pressure from shipments.

■ **Brazilian orange: more stocks, but more limited production in 2018-19.** Stocks of Brazilian concentrated juice soared this season, with the return of a massive harvest of nearly 400 million field crates. They should exceed 200 000 tonnes when the 2017-18 closes in late June. Nonetheless, there is no cause for alarm. On the one hand, this level remains well below those seen in 2012 to 2016 (500 000 to 765 000 t from 2012 to 2015, and 350 000 t in 2016). On the other hand, the 2018-19 campaign is set to be much leaner than the previous one, because of unfavourable weather during the first flowering in three of the four major production centres. No official figures have yet been published, yet the USDA was banking on a 20 % fall in its initial estimate. Physical market prices remained stable in late March, at 2 250 USD/t into Rotterdam. However, the first transactions between producers and Brazilian manufacturers were reportedly made on price footings between those of the lean 2016 harvest and those of the bumper 2017 season.

■ **Two new markets for Peruvian citrus.** The Dominican Republic will open its borders to Peruvian citrus from April. Japan will do the same one month later, though only for easy peelers. Exports, which exceeded 150 000 t across all destinations in 2017, could increase by approximately 10 % in 2018. Easy peelers should continue to represent practically all volumes, with late hybrids such as Nadorcott continuing their structural growth trend.

Sources: Reefer Trends, ProCitrus



Sources: CitrusBR, USDA, Food News



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PRICE	Type	Average monthly price euro/15-kg box	Comparison with average for last 2 years
	Dessert orange	12.51	+ 4 %
Juice orange	10.46	- 4 %	

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
Dessert orange	↗	+ 23 %	
Juice orange	⇒↘	+ 15 %	

VOLUMES	Varieties by source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Spanish Navelate	↗	+ 15 %	Early market entry because of the hasty end of Naveline. Supply progressing rapidly, and above average. Campaign ahead of schedule.	+ 11 %
	Spanish Salustiana	⇒↘	+ 15 %	Large shipments in January, fall starting in February with volumes still above-average.	+ 7 %
	Tunisian Maltaise	↘	- 14 %	Gradual fall in volumes, with levels in shortfall (production shortfall of 50 to 60 %).	- 25 %

Grapefruit

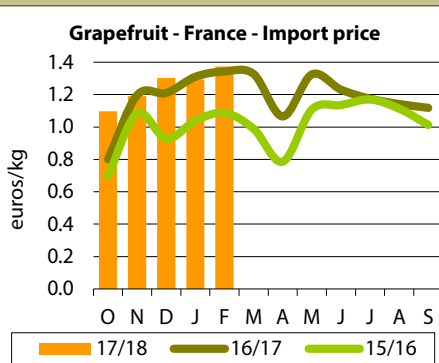
January/February 2018

In January, demand was quiet as per usual, though the supply remained moderate. For the tropical segment, some stocks from Mexico were still present, and Floridian volumes maintained extremely limited levels. Shipments picked up from the Mediterranean origins (Spain, Israel), to reach above-average levels. From late January and above all February, sales rose gradually, and the supply remained moderate, in step with demand. Whereas the big Floridian shortfall remained, and the campaign wound down early, Mediterranean volumes maintained high levels (Spanish production peak, Israeli supply above average, batches of Turkish fruit available). Hence all the origins enjoyed strong, above-average prices, especially Florida because of the rarity of the product and the high cost prices.

■ **Floridian citrus: a helping hand for growers in difficulty.** A handful of Floridian producers are turning to the bamboo to extricate themselves from a citrus industry which is in great difficulty. This crop is being promoted by an Italian company ("Consorzio Bambu Italia"). The sale of shoots from this easily cultivatable plant for human consumption, as well as of the ligneous part as a wood substitute, will supposedly provide good and quick profits. Thus 2 000 ha have reportedly already been planted in Europe (mainly Italy) since 2011, and just over one hundred in the United States since 2014. Some big names in the Floridian citrus growing industry seem to be interested in the project. So which crop will come out on top?

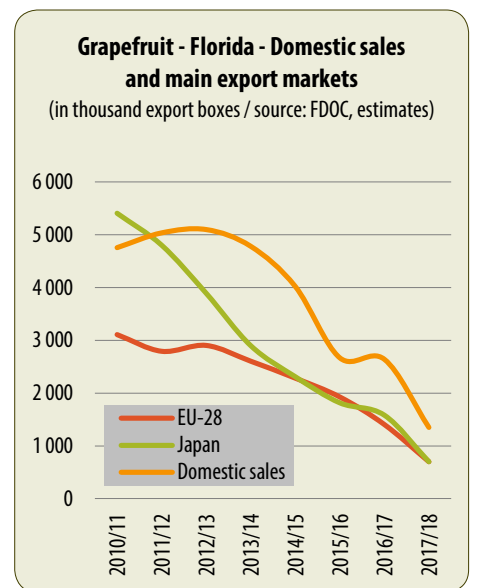


Source: Reefer Trends



■ **2017-18 Floridian grapefruit campaign: volumes to Europe halved from 2016-17.** According to the very first professional figures, Floridian grapefruit exports to the Old Continent should barely reach 700 000 boxes this season (i.e. just over 10 000 t). This figure equates to half the volumes received in 2016-17. While the sanitary context continues to weigh down on the industry, the major downturn registered this season is above all due to Hurricane Irma, which ravaged Florida in autumn 2017. The 2018-19 season should be more abundant.

Source: FDOC



PRICE	Source	Average monthly price euro/17-kg box equivalent	Comparison with average for last 2 years
	Mediterranean	13.56	+ 14 %
Tropical	28.20	+ 28 %	

VOLUMES	Source	Comparison	
		previous month	average for last 2 years
Mediterranean	=↗	+ 14 %	
Tropical	=	- 61 %	

VOLUMES	Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
Florida	=	- 61 %	Incoming shipments stable and well below-average.	- 60 %	
Israel	=↗	+ 14 %	Upward trend, above-average levels.	+ 4 %	

Mango

January/February 2018

The European mango market had a very difficult January. The big deterioration in rates in December intensified in early January. The overlapping of the Brazilian campaign, with the last of its Kent, and the Peruvian campaign resulted in shipments overwhelming the restrained demand. The fruit accumulation created massive market congestion, accompanied by a considerable fall in prices. Numerous clearance sales were made at prices lower than those indicated below. European operators sought market opportunities throughout the period. At the end of the month, the qualitative deterioration of certain batches aggravated the stupor of the market. Hopes of rates picking up at the end of the month came to very little. The only positive aspect was that consumers were offered fruits at attractive prices through multiple promotions in the supermarket sector.

The air-freight market, still dynamic at the beginning of the month, collapsed thereafter due to more reserved demand and rising imports, either directly or via other European countries. Poor sales led to a qualitative deterioration in the fruit, which caused a fall in rates. While certain good-quality batches were still trading at 5.00 euros/kg at the beginning of the month, this was no longer the case in the second half-month. Batches of advanced maturity sold from 2.00-2.50 euros/kg, and sometimes lower. This trend lasted until the end of the month.

In February, the stagnation set in the market was choked by overabundant volumes from Peru, compounded by the resumption of Brazilian shipments. In addition, qualitative problems with the Peruvian fruit occasionally intensified marketing difficulties. Demand was particularly slowed down by the winter holidays and cold spells. The prices below correspond to sales of superior quality merchandise, and for the most sought-after sizes. Meanwhile, sales at lower prices helped maximise quantities sold, with a view to avoiding prolonged storage, always detrimental to quality. Though scarce on the French market, Tommy Atkins and Keitt from Brazil experienced more or less the same market situation in Northern Europe. Their prices, greatly affected by the omnipresence of Peruvian fruits, settled at around 4.00-4.50 euros/box for Tommy Atkins and 3.50-4.00 euros/box for Keitt in the first half of the month. The Keitt rate then fell into line at 4.00-4.50 euros/box.

The air-freight market fared no better. Flat demand and over-supply kept rates at a fairly low level. The prices shown here relate to sales of superior quality produce. Many batches sold from 3.00 euros/kg, or even less. The influx of batches of advanced maturity, plus the marketing of sea-freight fruit of air-freight quality, also contributed to the sluggishness of the market.

■ **A new SIIM warehouse at Rungis.** On 15 February, SIIM inaugurated a new warehouse in the heart of Rungis market. This 3 000 m² facility, intended for maturing and pre-packing bananas and other tropical fruits, and equipped with the latest technologies in the field, represents another step boosting the company's rise. Vincent Omer Decugis, its Managing Director, took the opportunity to announce that another building, currently under construction in Rungis and available in 2019, would bring together the company's activities. These infrastructures will be scaled to the volumes handled, and provide employees with better working conditions.

Source: Pierre Gerbaud



MANGO - INCOMING SHIPMENTS (estimates in tonnes)							
EUROPE	Weeks 2018	1	2	3	4	5	
	Air-freight						
	Brazil	20	20	20	10	-	
	Peru	80	80	120	150	100	
	Sea-freight						
	Brazil	2 530	1 470	920	660	660	
Peru	5 340	6 530	6 140	6 530	6 580		
Ecuador	40	20	20	-	-		

MANGO - INCOMING SHIPMENTS (estimates in tonnes)						
EUROPE	Weeks 2018	6	7	8	9	
	Air-freight					
	Peru	80	80	150	100	
	Sea-freight					
	Brazil	460	880	1 280	1 400	
	Peru	8 560	8 250	8 000	7 950	

MANGO - IMPORT PRICE ON THE FRENCH MARKET								
Weeks 2018		1	2	3	4	5	Jan. 2018 average	Jan. 2017 average
Air-freight (euro/kg)								
Brazil	Kent	4.00	3.50-4.00	3.00-4.00	3.00	-	3.25-3.75	3.00-4.00
Peru	Kent	4.00-5.00	4.00-4.50	3.00-4.00	3.00-4.00	3.00-4.00	3.40-4.30	3.25-4.60
Sea-freight (euro/box)								
Brazil	T. Atkins	5.00	4.00	-	-	-	4.50	4.00
Brazil	Kent	2.50-4.00	2.50-3.50	3.00-4.00	3.00-3.50	-	2.75-3.75	2.25-4.10
Peru	Kent	2.50-4.00	2.50-4.00	3.00-4.00	3.00-4.00	3.00-4.00	2.80-4.00	2.25-4.10

MANGO - IMPORT PRICE ON THE FRENCH MARKET							
Weeks 2018		6	7	8	9	Feb. 2018 average	Feb. 2017 average
Air-freight (euro/kg)							
Peru	Kent	3.50-4.30	4.00-4.50	4.00-4.50	3.50-4.50	3.75-4.45	3.80-4.65
Sea-freight (euro/box)							
Brazil	T. Atkins	-	-	-	4.00	4.00	-
Peru	Kent	3.00-4.00	3.00-4.00	4.00-4.50	3.50-4.50	3.35-4.25	4.00-4.80

Avocado

January/February 2018

In January, incoming shipments remained above average, despite Chile beginning to wind down. Sales were lively and the market started to tighten up. In February, the supply continued to rise. However, the Chilean fall intensified with levels in shortfall, and Israel attained its peak with below-average volumes. These troughs were offset by Spain and Mexico, which registered impressive rises. The supply was also topped up by batches from Morocco and Colombia. Despite this record supply level and rising prices historic for the season, demand remained lively, especially under programmes and on the wholesale segment. For the green varieties, the Israeli Pinkerton supply waned throughout the period, with levels in shortfall. The first Peruvian Fuerte batches were available in early February, though they could not offset the end of the Israeli campaign. Prices strengthened throughout the period.



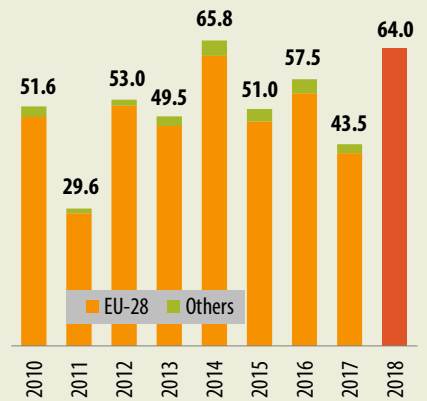
■ Summer avocado campaign in the EU-28: significant volumes!

Production is set for a very good level with the two main suppliers to the European market. A powerful positive alternate bearing effect is expected in South Africa, after a small 2017 harvest. Volumes available for export, practically solely aimed at the European market, should rise by approximately 50 % to near the 2014 record. Peru, with young orchards entering into production and coming into their prime, should generate production growth of 15 to 20 %, following on from a big rise in 2017. Furthermore, the magnitude of Mexican production and the return to a big harvest in California could weight down on growth in exports to the United States, Peru's other big market. The strong consumption growth margins existing in Europe will need to be stimulated. The promotion campaign by the World Avocado Organization, which will be in full swing during this summer season, will provide precious aid.

Professional sources, Freshfruit portal, Reefer Trend,

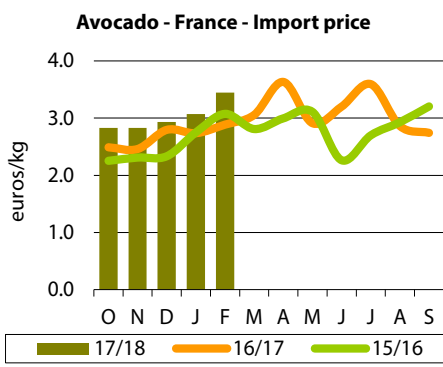
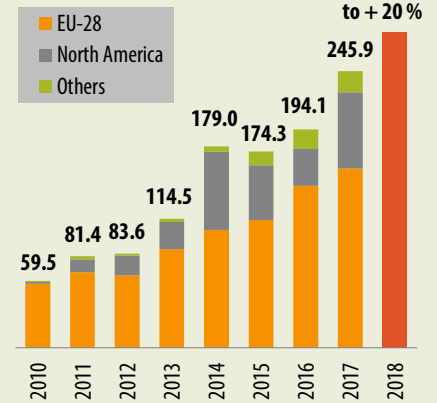
Avocado - South Africa - Exports

(in 000 tonnes / sources: Comtrade, SAAGA)



Avocado - Peru - Exports

(in 000 tonnes / source: SUNAT)



PRICE	Varieties	Average monthly price euro/box	Comparison with the last 2 years
Hass	13.79	+ 12 %	

VOLUMES	Varieties	Comparison	
		previous month	average for last 2 years
Green		↘	- 11 %
Hass		↗	+ 46 %

VOLUMES	Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Chile	↘	- 15 %	After high levels in January, volumes decreased more rapidly in February, with levels falling below average.	+ 32 %
	Mexico	↗	+ 48 %	Mexican supply on the rise.	+ 14 %
	Israel	↘	- 13 %	Imports peak for Hass, with smaller volumes than in 2017 and below average. Ongoing fall for the green varieties, with volumes 13 % below average.	+ 1 %
	Spain	↗	+ 74 %	Significant rise in Hass imports.	+ 9 %



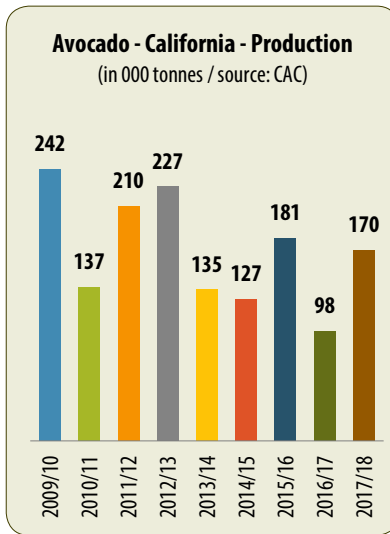
Our global footprint enables us to grow in and source from all major origins.

■ **Avocado: Camposol sets up in Colombia.** In December, the Peruvian giant, which already has several thousand hectares of orchards in Peru (2 700 ha in early 2016), started an ambitious planting programme in Colombia. The objective of this first production investment outside of Peru was to have its own fruits year-round from 2022, taking advantage of the broad market window of this other Andean country. Camposol, which currently has 350 ha in Colombia, is planning to produce 40 000 t of Hass in the country by 2025 thanks to further land purchases. Other foreign groups have gone before it, including world leaders such as Mission (associated with the local producer Cartama) and Westfalia (in association with the Chilean company Subsole).

Sources: Reefer Trends, El Comercio

■ **Avocado: two additional days' in-store shelf life thanks to new packaging.** Greencell has developed, with the packaging specialist Coveris, a new system able to extend the in-store shelf life of pre-ripened avocados by two days. This technique is based on the combined use of a UV disinfection treatment (short-wavelength UV-C), followed by packaging in a controlled atmosphere. Avocados with this innovative system are currently sold by Tesco and Waitrose.

Sources: Reefer Trends, Packaging News



■ **Californian avocado: fine harvest expected.** Which is a nice surprise! Despite being hit by the tremendous "Thomas fire", the biggest in recent history in California, the avocado harvest registered a very good level. With an expected 170 000 tonnes, this is up by more than 70 000 tonnes on 2016-17, and is 25 % above average. The highly pronounced alternate bearing effect has been able to easily offset losses, estimated at approximately 5 % of the total harvest.

Source: California Avocado Commission



Litchi

January/February 2018

In **January**, interest in the litchi gradually faded, with consumers switching their purchase preferences to other more traditional products. However in the first half of the month, the big reduction in shipments from Madagascar helped maintain sale prices. Export markets rapidly closed, leaving the bulk of Madagascar litchi shipments on the French market. Some supermarket chains continued to offer the product on their shelves, though space was increasingly tight. In the second half-month, containerised sea-freight litchis exhibited more fragile quality, highlighting the fall in prices. Meanwhile, the South African campaign too continued with more fragile produce, with some batches requiring sorting. Rates gradually dipped, though they remained higher than for Madagascar litchis due to greater freshness and better sizing. By late January, the litchi marketing campaign could be considered over. Only South Africa was still supplying the market, with declining volumes.

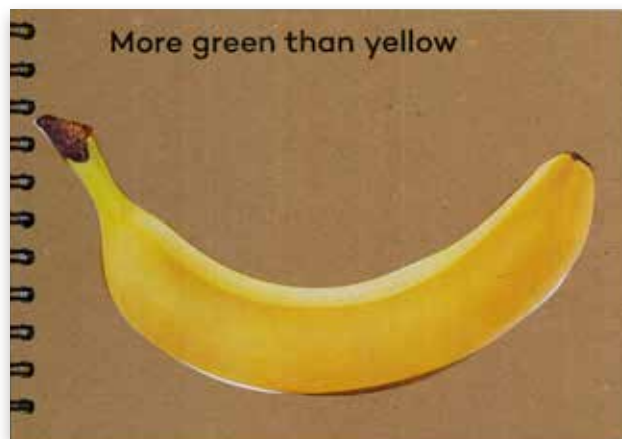
The air-freight litchi market continued in January with the last batches from Reunion shipped in small quantities. In spite of greater qualitative fragility, their sale prices remained particularly high, which contributed to lack of consumer interest. Furthermore, South Africa was shipping on-stem litchis, which sold fairly steadily in the first half of the month. Yet the switch at the beginning of the year from

the Mauritius variety to the less popular Red McLean variety led to a continuous fall in prices and greater difficulty in selling.

In early **February** the Madagascar campaign was winding down. The last batches received in late January had a market footing of 1.70 euro/kg, given lack of customer interest and the often fragile quality of the fruit.

Meanwhile, the South African campaign continued throughout the month with

slowed sales. Prices stabilised at between 1.75 and 2.50 euros/kg depending on the fruit size and quality. The qualitative deterioration and switch to the Red McLean variety made for a sluggish end to the campaign, in spite of the Chinese New Year celebrations (16 February), which temporarily revitalised sales. However, enthusiasm for this product waned at the time of this event compared to previous years, when the supermarkets offered litchi promotions on their shelves.



■ “More green than yellow, AgroFair 1996-2016”.

In this lovely book, AgroFair looks back on the beginnings of the banana, and its own beginnings in the banana. It retraces the road travelled since 1996, to provide small producers with better working and living conditions, and consumers a fairer banana. It also asserts its pioneering vision, always looking to the future, getting to grips with the forthcoming challenges for producers: greater transparency, climate change, banana pricing factoring in all costs (externalities, environment, etc.).

Source: AgroFair

Litchi - 2017-18 provisional review

in tonnes	Air-freight		Sea-freight	
	2016-17	2017-18	2016-17	2017-18
Mauritius	235	80	-	-
Reunion	885	125	-	-
South Africa	160-200	600	1 500	-
Madagascar	370	420	17 600	17 750
Mozambique	105	75	-	80

LITCHI - INCOMING SHIPMENTS (estimates in tonnes)

Weeks 2018	LITCHI - INCOMING SHIPMENTS (estimates in tonnes)				
	1	2	3	4	5
Air-freight					
Madagascar	2	2	-	-	-
Reunion	3	2	-	-	-
South Africa	20	30	25	-	-
Sea-freight					
Madagascar	-	1 100	1 100	40	-
South Africa	nd	nd	nd	nd	nd

LITCHI - IMPORT PRICE ON THE FRENCH MARKET

Weeks 2018	1	2	3	4	5	Jan. 2018 average	Jan. 2017 average
Air-freight (euro/kg)							
Reunion v	12.00-20.00	13.00-20.00	-	-	-	12.50-20.00	5.25-9.00
South Africa v	8.00-10.00	6.00-10.00	4.00-8.00	4.00-8.00	-	5.50-9.00	6.85-7.10
Sea-freight (euro/box)							
Madagascar	2.20-2.40	2.10-2.40	1.80-2.10	1.80	1.70	1.90-2.10	2.05-2.20
South Africa	2.25-2.75	2.25-2.75	2.00-2.50	2.00-2.50	1.80-2.30	2.05-2.55	1.75-2.25
Mozambique	2.00-2.25	-	-	-	-	2.00-2.25	na

s: sulfur treated / v: on the vine

Pineapple

January/February 2018

January was marked by numerous shipping delays due to storms, creating occasional shortages. In the first half-month, they above all helped ease the pressure on the market, while demand remained fairly sluggish. These delays continued in the second half-month, again because of bad weather. On top of that were the fairly low temperatures in Costa Rica, which contributed to reducing the supply. The market was livelier due to this highly disrupted supply. Demand, slightly in excess of supply, was higher, especially from the supermarket sector. Sales on the wholesale markets remained fairly quiet. The market saw a better trend at the end of the month, with rates strengthening.

The situation on the air-freight market was fairly complicated. At the beginning of the month, some promotions eased the pressure on a market which was fairly quiet, not to say lethargic, following on from the festive period. With demand remaining rather low, operators heavily scaled back their imports, though this did nothing to improve market conditions. Nonetheless, a drop in rates was prevented. Several operators lamented lack of purchaser interest in Cayenne, with greater interest in coloured and green Sugarloaf. The air-freight supply was topped up by very limited batches of Sweet from the Dominican Republic and Costa Rica, which sold at between 2.30 and 2.50 euros/kg.

The Victoria market had a fairly difficult time after the end-of-year festivities. During the first half-month, the supply from Reunion, which was predominant, weighed down on the market. Operators had to lower their prices to prevent storage. Following the cyclones, Reunion provided a smaller supply, helping rates to strengthen at the end of the month.

In **February**, the supply was marked by numerous shipping delays and the cold spell which affected all the European markets. At the beginning of the first half-month, the Sweet supply was slightly less than demand, which meant that those batches that were available earned good value. Thereafter, the cold spell greatly disrupted sales, especially on the wholesale markets. Demand in the supermarkets did not seem to suffer excessively. In the second half-month demand was at a standstill, affected by the school holidays, and rates were less high. Only the most coloured fruits, available in small vol-

umes, continued to sell well. At the end of the month, the overall supply was slightly unbalanced, with the most sought-after sizes 7 and 8 scarce, and therefore better valued.

In February, the air-freight market was marked by the school holidays. In anticipation of this fall in demand, several operators opted to greatly scale back their imports. Despite this, sales were slow and difficult during the first half-month, with several batches selling on commission. In the second half-month the supply, now even smaller, had less of a struggle to sell, although in the opinion of most operators, demand for Cayenne was constantly shrinking in favour of coloured or green Sugarloaf. Some air-freight Sweet batches from the Dominican Republic and Costa Rica were available at between 2.20 and 2.40 euros/kg.

Throughout the month, the Victoria market maintained a rather positive trend thanks to a supply shortfall, especially from Reunion. Those batches that were available sold quickly and well. Given the paucity of the Reunion supply, several operators switched to Mauritian fruits, which in this way earned better value.



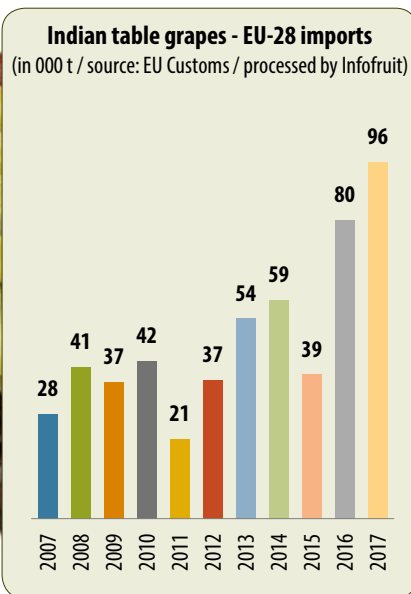
PINEAPPLE - IMPORT PRICE IN FRANCE - MAIN SOURCES						
Weeks 2018		1	2	3	4	5
Air-freight (euro/kg)						
Smooth Cayenne	Benin	1.90-2.00	1.70-2.00	1.80-2.00	1.80-2.00	1.80-2.00
	Cameroon	1.90-2.00	1.80-2.00	1.90-2.00	1.80-2.00	1.80-2.00
	Ghana	2.00-2.30	2.00-2.30	2.00-2.30	2.00-2.30	2.00-2.30
	Côte d'Ivoire	1.90	1.90-2.00	1.90	1.90	1.90
Victoria	Reunion	3.00-4.00	3.00-3.80	3.00-3.60	3.00-3.60	3.00-4.00
	Mauritius	3.00-3.30	3.20-3.30	3.20-3.30	3.00-3.30	3.00-3.50
Sea-freight (euro/box)						
Smooth Cayenne	Côte d'Ivoire	5.00-7.00	5.00-7.00	6.50-7.50	6.50-7.50	8.00-9.00
Sweet	Côte d'Ivoire	7.00-8.50	7.00-8.50	7.00-9.50	8.00-9.50	8.00-9.50
	Ghana	7.00-8.50	7.00-8.50	7.00-9.50	8.00-9.50	8.00-9.50
	Costa Rica	5.00-8.00	5.00-8.00	6.50-8.50	6.50-9.00	8.00-9.00

PINEAPPLE - IMPORT PRICE IN FRANCE - MAIN SOURCES					
Weeks 2018		6	7	8	9
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	1.90
Victoria	Reunion	3.00-4.00	3.00-4.50	3.00-4.50	3.50-4.50
	Mauritius	3.00-3.50	3.20-3.60	3.20-3.60	3.50-4.00
Sea-freight (euro/box)					
Smooth Cayenne	Côte d'Ivoire	8.00-9.00	8.00-9.00	8.00-9.00	6.00-7.00
Sweet	Côte d'Ivoire	8.00-9.50	8.00-9.50	8.00-9.50	8.00-9.50
	Ghana	8.00-9.50	8.00-9.50	8.00-9.50	8.00-9.50
	Costa Rica	8.00-10.00	8.00-9.00	7.00-9.00	7.50-9.50

Temperate fruits & vegetables



© Guy Brehinier



■ **Impressive recovery for Indian grape exports.**

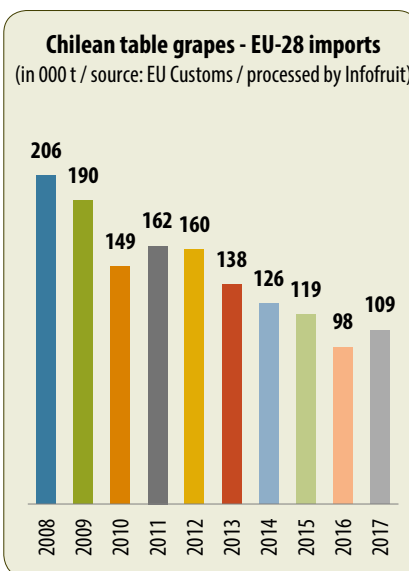
This year's potential is good, although it may have been reduced by the cyclones which hit the west coast regions of India. Production is still growing in this country (initial forecast of 3 million tonnes). So exports are constantly on the rise (more than 230 000 tonnes in 2016-17) and should logically increase this year. The USDA initially predicted an increase of 18 % on 2016-17, and a total of 272 000 tonnes. Europe remains the main outlet, and represented 40 % of export volumes in 2017 (95 500 tonnes, i.e. + 19 % on 2016). Russia received 27 000 tonnes (+ 96 %). Other destinations are gaining importance in the Indian exporters' customer portfolio, such as the Middle East or Asia. However, like Europe, other countries importing table grapes from India, especially China, Indonesia and Russia, have decided to introduce stricter regulations concerning residue monitoring.

Sources: USDA, Eurostat

■ **Stabilisation of Chilean grape shipments.**

This year should bring a good Chilean production level, thanks to rather favourable climate conditions which are raising hopes of good yields, not to mention planting of new varieties. In addition, water availability is proving to be high after the heavy rain due to El Niño. Producers in the Copiapo valley are indeed hoping for a production level 20 % higher than in 2016-17. Exports should hold up at just over 730 000 tonnes, a forecast around average for the past three years. Exports saw a good level last year, especially to Europe (109 000 t, i.e. + 11 % on 2015-16) and to Russia (15 200 t, i.e. + 27 %), yet nonetheless below the three-year average (- 5 % and - 11 % respectively). Shipments rallied to the United States (344 000 t, i.e. + 10 % on 2015-16 and 4 % above the 3-year average) and fell slightly to Asia (142 200 t, i.e. - 13 % on 2015-16 and 10 % below the 3-year average).

Source: Infofruit



© Guy Brehinier



■ **Pink Lady launches its bee protection programme Beepink.**

The Pink Lady Europe association was at pains to promote its collective commitment to sustainable development at the 2018 Fruit Logistica trade show. Hence, besides the exchange forum which promotes pooling of experience and expertise, open to producers and certified packing stations, the association has worked closely with industry partners as part of its commitment to environmentally friendly agriculture. So French apple growers have teamed up with beekeepers, but also INRA and CTIFL, to draw up a good practice guide aimed at protecting bees and safeguarding biodiversity in orchards. This programme, dubbed Beepink, is part of the Pink Lady CSR programme, and beside this technical guide, it should also involve producer training. An application should be launched in late February, and the concept should be extended to the association's Spanish and Italian partners, which will put these techniques into practice this year.

Source: Pink Lady

Sea freight

February 2018

The first three weeks of February continued where January had left off: despite the bad weather in the Caribbean that disrupted carrier schedules and caused a shortage of reefer equipment, there was no dividend for the reefer – indeed there was little charter market activity in either the large or small segment.

The position for operators had improved by the end of the month, also for weather-related reasons: warmer weather in Ecuador led to a greater abundance of bananas, which caused the exit price to drop sharply. This led to greater demand from charterers, while banana pricing in the EU, Russia and the Eastern Med remained strong. In Europe, shipping schedules were disrupted by the impact of the polar vortex, which impeded port operations and inland logistics on the N Cont as well as causing damage to crops as far south as eastern Spain.

In the isolated terms of fleet deployment, as March began the reefer business looked in decent shape: the supply of capacity was reduced as vessels had either been demolished or sold into China, from where they do not interfere with the traditional reefer trades. Meanwhile on the demand side, the Open List was short and with more tonnage destined for Chile coinciding with greater availability of bananas and the start of the squid and kiwifruit seasons, a mini-peak in the TCE average looked more than possible.

However hidden behind the headline numbers and every day closer to the surface is the realisation that at current liner and COA rates, the mode is unsustainable. Vessels approaching their special survey deadlines will

continue to be sold on or demolished as the likelihood of a return on the average US\$1m investment required for units to retain Class is ever more problematic. Seatrade in particular has suffered: at the start of the year, once the world’s largest reefer operator saw its position usurped by Baltic Shipping as it cut its coat to suit its cloth. In mid 2016 Seatrade operated in the region of 100 vessels; the figure is now fewer than 40. In contrast, expectations in the small/handysize segment are almost the polar opposite.

Although it hasn’t by any means been a spectacular start to 2018, at 70/cbft, the TCE average for the first two months is well above the corresponding 53c/cbft average of 2017. While short and medium term prospects look positive for operators, there is also a realization that more capacity needs to be built to satisfy future demand. The added urgency is that unless more tonnage comes onto the market, certain core trades may be forced to containerize or, in extremis, disappear!



■ “Le manioc, entre culture alimentaire et filière agro-industrielle”

[Cassava, between food crop and agribusiness], by Philippe Vernier, Boni N’Zué and Nadine Zakhia-Rozis. The cassava industry plays an essential role in the food security and the economies of Southern countries, especially in rural areas and increasingly in cities. With climate change, it should see increasing importance in world agriculture. This book compiles all the knowledge available on cassava, and highlights the agronomic and commercial challenges of this crop. It presents cassava production worldwide, addresses all aspects of the plant (botany, genetics), the main types of crop, diseases and pests. It describes modes of use, consumption and processing of cassava.

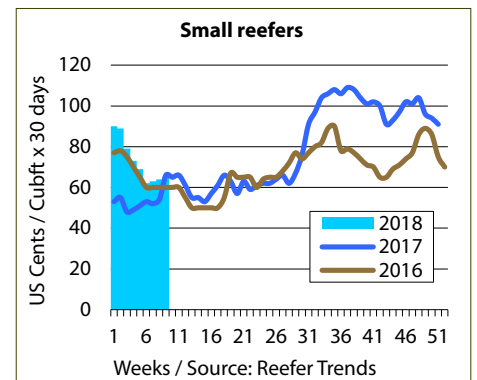
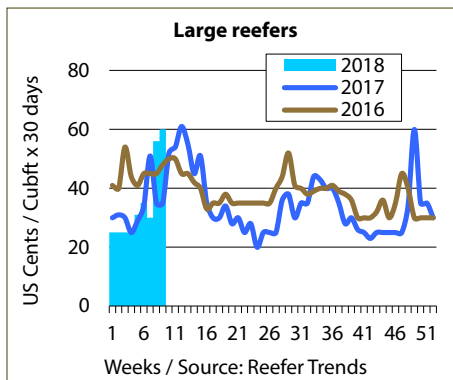
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The independent news and information service for the reefer and reefer logistics businesses

EUROPE	MONTHLY SPOT AVERAGE		
	USD cents/cubic foot x 30 days	Large reefers	Small reefers
	February 2018	45	64
	February 2017	39	53
	February 2016	46	61



Southern Hemisphere apples and pears

Mouthwatering prospects for 2018

The prospects are particularly clear this year due to a production shortfall in the Northern Hemisphere, bearing in mind that the European market is expected to exhibit strong demand for the apple and certain pear varieties. Hence there could be strong prices, especially with competition intensity expected to be low because of the production shortfall in Argentina and South Africa, although the favourable parity with the dollar could encourage exporters to target the European market.

Openings in Europe for the apple

Prospects for Southern Hemisphere apples and pears are rather rosy this year, given the shortfall in the Northern Hemisphere. As a reminder, the European apple harvest was 21 % down on 2016 (9.43 million tonnes, i.e. 17 % below the 5-year average), while the pear harvest was 1 % down (2.18 million tonnes, i.e. 4 % below the 5-year average). This follows on from the frosts in April and May, which hit Northern and Eastern Europe particularly hard, as well as high-altitude Alpine zones. The USA registered an average apple and pear harvest (3 % down on 2017).

However the beginning of the season seemed to bring a gloomy start for the fresh market, given the shortfall in European production and in Southern Hemisphere leftovers bound for the big export destinations. Conversely, the industrial market was very lively, with prices soaring in order to maximise the volumes captured to supply the processing factories (juice, purées). Hence the apple shortfall, still barely noticeable in the autumn, started widening from January. Stocks melted away, with just 2.4 million tonnes left on 1 February 2018 (32 % down on 2017, as opposed to 28 % down for January, i.e. 31 % down on the 2014-2016 average), with a marked shortfall in Northern Europe and the Alps (- 78 % in Belgium, - 41 % in the Netherlands, - 44 % in Germany, - 39 % in Italy and - 41 % in Switzerland), but also in Poland (- 33 %). Stocks are now below normal in France (- 5 % as opposed to + 5 % in January), with export levels still very good to Germany, Benelux, Scandinavia and the United Kingdom.

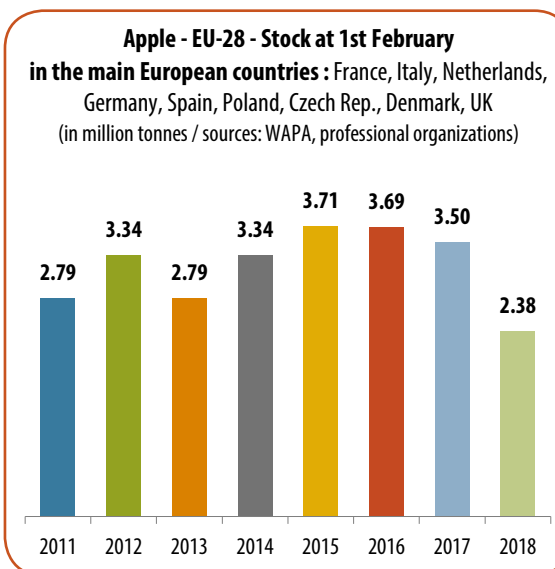
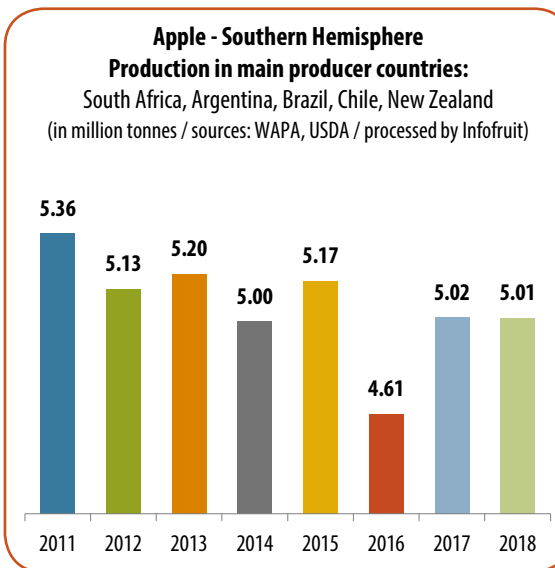
Conversely, although North European production is in shortfall, there are still decent stocks of pear due to an abundant harvest in Southern Europe. Stocks were still similar to last year on 1 February 2018 (- 1 %), in the absence of the Portuguese figures. However stocks are lighter throughout Northern Europe and the Alps (excluding Italy), as well as Eastern Europe. Belgium, for example, registered a 19 % fall from 2017, and the Netherlands a 14 % fall, though the stock was up by 28 % in Italy, with probably a good level too in Portugal, since it was up by 19 % on 1 January 2018.

Hence certain apple varieties are already coming to the end, since they were taken out of storage on a priority basis this year due to specific demand from Northern Europe for Braeburn and most bicoloured varieties except for Gala. European stocks are particularly light in terms of Jonagold/Jonagored (61 % down on 2017), Elstar (- 71 %) and Braeburn (- 35 %), whereas there are good volumes for Gala (- 4 %) and Pink Lady (- 12 %), whose sales should pick up as availability of other bicolored varieties dwindles. Golden has a very clear market (- 34 %). Only Granny stocks are bigger than last year (+ 8 %).

For the pear, the pressure could fade earlier for certain varieties such as Conference, stocks of which for the moment are down by 9 %. There are still good volumes of Rocha (+ 19 % on 2017 on 1 January 2018), and above all of Abate (+ 33 % on 2017 and + 6 % on the 3-year average).



© Régis Domergue





© Régis Domergue

Chile, Brazil and New Zealand in the starting blocks for the apple

So exporters are gearing up in certain Southern Hemisphere countries, especially Chile where production is set for a good level (+ 4 % on 2017 and 5 % above the 3-year average according to sources) and above all in Brazil (+ 16 %). The same is true for New Zealand, where production is continuing to progress (+ 6 %), while a fall is expected in Argentina (- 19 %) and South Africa (- 6 %). The harvest forecast unveiled by WAPA at the Fruit Logistica show in Berlin indicated that the apple harvest should be similar to last year in the Southern Hemisphere (5 million tonnes, i.e. + 2 % on the 3-year average).

So in 2018 Chilean and Brazilian exporters are hoping for another year of good export potential. Brazil should be back to its 2015 level with approximately 60 000 t, although the sizing is set to be on the small side. Chilean exports could reach 780 000 t given the prospects in Europe, especially since the climate conditions were highly favourable in this country, with abundant rainfall during the autumn and winter. In New Zealand, the harvest could be particularly abundant and reach a record level, between expanding surface areas in recent years with the planting of modern varieties and some very good climate conditions. The Kiwis are expecting an 11 % increase in their exports (376 000 t), thanks to good demand in Europe and to continued growth in shipments to Asia. On the varieties side, the market should be well supplied with bicoloured varieties; especially for Gala, with the potential now actually rising to in excess of 2 million tonnes (+ 6 % on 2017); but also for Cripps Pink (400 000 t, i.e. + 4 %) and Fuji (757 000 t, i.e. + 3 %). Conversely, the potential is declining a little every year for Braeburn (117 000 t, i.e. - 2 %). Volumes are set to shrink for Golden Delicious (213 000 t, i.e. - 9 %) and Red Delicious (717 000 t, i.e. - 11 %), with the shortfall from South Africa and Argentina.

Apple – Southern Hemisphere – Harvest and export potential forecast

in tonnes	2018 production	2018 production compared to		2018 export potential	2018 export potential compared to	
		2017	Last 3-year average		2017	Last 3-year average
Argentina	635 000	- 20 %	- 19 %	88 360	- 20 %	- 20 %
South Africa	871 000	- 7 %	- 6 %	385 374	- 8 %	- 8 %
Brazil	1 185 000	+ 8 %	+ 16 %	60 000	+ 8 %	+ 23 %
Chile	1 758 000	+ 5 %	+ 5 %	730 633	+ 5 %	+ 7 %
New Zealand	564 000	+ 11 %	+ 6 %	376 664	+ 11 %	+ 11 %
Total	5 013 000	0 %	+ 2 %	1 641 031	+ 1 %	+ 3 %

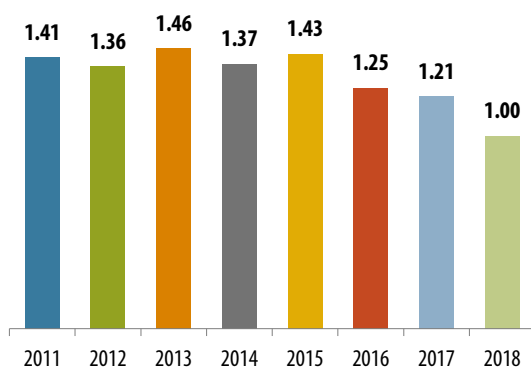
Source: WAPA

Pear supply smaller in South Africa and Argentina

Pear - Southern Hemisphere

Production in main producer countries:

South Africa, Argentina, Brazil, Chile, New Zealand
(in million tonnes / sources: WAPA, USDA / processed by Infofruit)

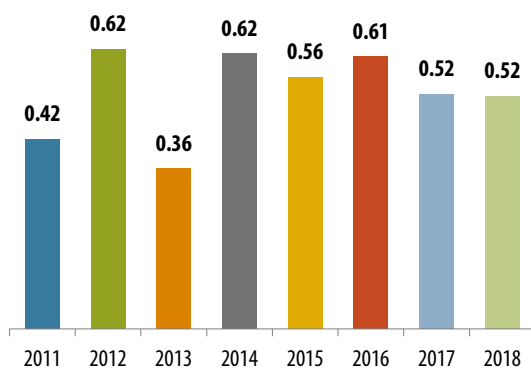


Pear - EU-28 - Stock at 1st February

in the main European countries : France, Italy, Netherlands,

Germany, Spain, Poland, Czech Rep., Denmark, UK

(in million tonnes / sources: WAPA, professional organizations)



Pear imports from the Southern Hemisphere might not really increase this year, given the production shortfall. Hence WAPA's forecasts for the campaign are fairly pessimistic, predicting an overall decrease of 17 % from 2017 (1 million tonnes, i.e. 23 % below the 3-year average). They are reckoning on a big production drop in Argentina and Chile, as well as to a lesser degree in South Africa; though it is being ravaged by an intense drought which is continuing to intensify, leaving great uncertainty over the potential actually available.

The harvest figures in South Africa have already been revised downward by Hortgro. The export potential could ultimately be 8 % less than in 2017 (202 200 t, i.e. 4 % below the 3-year average), with a 12 % fall for Williams (24 300 t, i.e. 8 % below the 3-year average), and probably for Abate (14 300 t, i.e. 14 % below the 3-year average). Comice is set for a 21 % fall (33 000 t, i.e. 16 % below the 3-year average) and Packhams for an 8 % fall (73 000 t, i.e. 5 % below the 3-year average). Shipments to the European market are for the moment well below normal (- 21 % on 2017 as at the end of February). Russia (+ 25 %) and the USA (+ 18 %) are taking in good volumes, with the rest divided between the various markets (40 % down on 2017).

Finally, a fall is expected in Argentina, after starting at full throttle. Export volumes as at 15 February were much smaller than last year (- 38 %), although they were still just 10% below the 3-year average. Shipments to Europe have been very limited until now (- 59 % on 2017 and 28 % below the 3-year average), especially those bound for Southern EU countries (Italy, France). Russia and the United States are capturing bigger volumes, though less than in previous years.

As for varieties, WAPA predicted a marked fall for Williams/Bon Chrétien (- 21 % on 2017) and Packhams (- 14 %) across the Southern Hemisphere countries ■

Cécilia Céleyrette, consultant
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Pear – Southern Hemisphere – Harvest and export potential forecast

in tonnes	2018 production	2018 production compared to		2018 export potential	2018 export potential compared to	
		2017	Last 3-year average		2017	Last 3-year average
Argentina	428 000	- 30 %	- 37 %	204 000	- 30 %	- 37 %
South Africa	420 000	- 3 %	- 2 %	212 000	- 3 %	0 %
Chile	141 000	- 5 %	- 18 %	141 000	- 5 %	+ 2 %
New Zealand	12 000	+ 9 %	+ 3 %	4 000	+ 16 %	+ 2 %
Total	1 001 000	- 17 %	- 23 %	560 000	- 15 %	- 17 %

Source: WAPA



Producer country file

Berries in Morocco

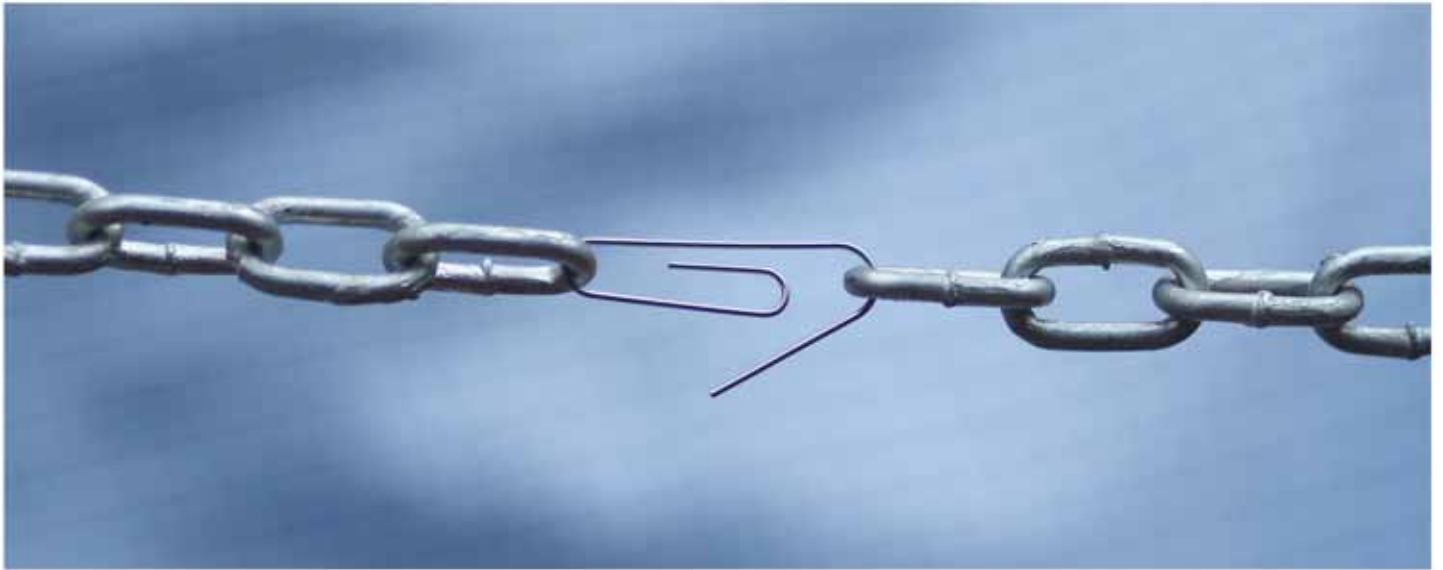
by Cécilia Céleyrette

The Moroccan berries industry is making strong progress, with the raspberry and blueberry coming to prominence alongside the strawberry. Initially planted in northern Morocco where they enjoy favourable pedoclimatic and water conditions, berries have now spread as far as Souss. Interest from European consumers in these berries, Morocco's undeniable competitive assets – its proximity to the European market and labour costs – as well as State support mean that even now tomato greenhouses are being converted to these fruits, and that the objectives initially set under the “Maroc Vert” plan are being exceeded.



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Information... your weak link?



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

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

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

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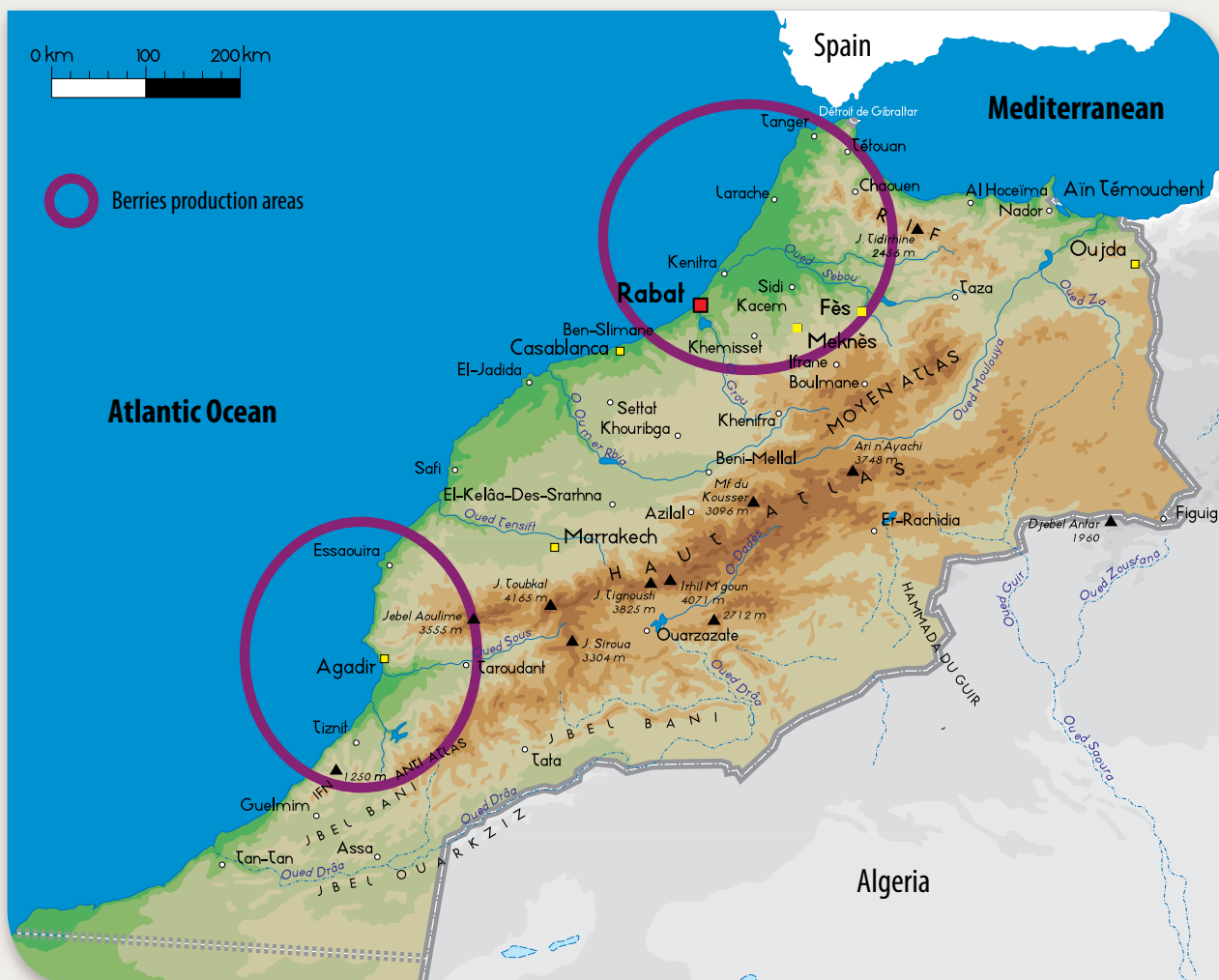
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reefer trends

Berries – Morocco

Location

Berry cultivation in Morocco first began in the north of the country, which brings together favourable pedoclimatic conditions, good land availability and abundant water resources with the development of irrigation. Strawberry production is concentrated in the irrigated areas of Gharb (78 %), where it spread from the 1980s, and Loukkos (22 %), where it was initially introduced. Production is primarily situated around Moulay Bouselham, thirty or so kilometres south of Larache. The first raspberry and blueberry trials also started in this zone, where the majority of production is concentrated at present, though cultivation of these berries is also developing further south (Agadir, Souss Massa). This zone is characterised by a semi-arid climate enabling good performances and rapid adaptation to cropping requirements. Surface areas are partly reconverted tomato greenhouses. Production can be a year-round activity.



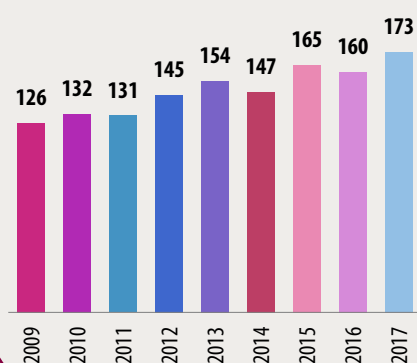
Berries – Morocco

Production

The total surface area dedicated to berries in Morocco is 5 700 hectares, divided between the strawberry (3 400 ha), raspberry (1 100 ha), blueberry (1 200 ha) and blackberry (less than 20 ha). Strawberry cultivation began in the 1950s, after irrigation was established on the right bank of the Drader and then R'mel in 1980, yet it really took off from 1985 with continuous development in the northern part of Morocco. Diversification into other berries is more recent. Development was curbed by the adaptation of European varieties to Morocco's climate conditions. So raspberry production was only really launched in 2005, and blueberry production in 2007. This sector was initiated by European companies relocating to set up in the region, but also by the creation of local agricultural companies which have acquired technical know-how. The sector has 593 farms for the strawberry, 20 for the raspberry and 12 for the blueberry, with mainly small surface areas (1 to 5 ha), and some facilities of more than 60 ha (large foreign export groups). The sector has become organised, with sixty or so private shippers and five cooperatives. It is governed by two associations, AMPFR (Moroccan berry producers' association) and AMCEFR (Moroccan berry packers & exporters association), which are both FIFEL affiliates (Moroccan inter-professional federation for fruit & vegetables production and export) and since the beginning of 2018 have been united under a common banner: Interproberries Maroc (IPBM). So production has gradually increased, already reaching 150 000 t for the strawberry and more than 10 000 t for the raspberry and blueberry. The objective for 2020 is to achieve 8 200 ha and produce 360 000 t per year, of which 80 000 t earmarked for export.



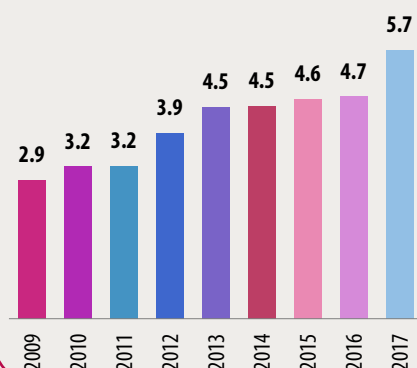
Berries - Morocco - Production
(in 000 t / professional sources / processed by Infofruit)



Berries — Morocco — Production				
in tonnes	Strawberry	Blueberry	Raspberry	Total
2008	126 950	139	949	128 038
2009	124 239	623	879	125 741
2010	129 468	1 250	1 010	131 728
2011	127 985	1 420	1 500	130 905
2012	139 683	1 780	3 100	144 563
2013	145 233	4 500	4 000	153 733
2014	137 388	4 950	4 200	146 538
2015	155 200	4 900	4 500	164 600
2016	148 680	6 615	4 800	160 095
2017	150 000	12 000	11 000	173 000

Professional sources

Berries - Morocco - Planted areas
(in 000 ha / professional sources / processed by Infofruit)



Berries – Morocco

Production calendar and varieties

Berries — Morocco — Production calendar

	O	N	D	J	F	M	A	M
Strawberry								
Raspberry								
Blueberry								

Professional sources

as Cardinal, Sevillana, Carmina, Alicia, Maravilla, Marabia, Glen Lyon, Brillance, but also new varieties with low cold requirements such as Adelita. For the blueberry, the most sought-after varieties are those able to bear fruit outside of the season, such as Sharp blue, Misty, Biloxi, Gulf Coast, Emerald, Jewel, Star, Sapphire, Blue Crisp, Millenia and Windsor. As for the blackberry, it is the cultivars with an upright habit which represent the best choice for commercial production in Morocco, with Brazos, Rosborough and Tupi offering big potential. New varieties such as Stella Blue and Violeta are also being planted.

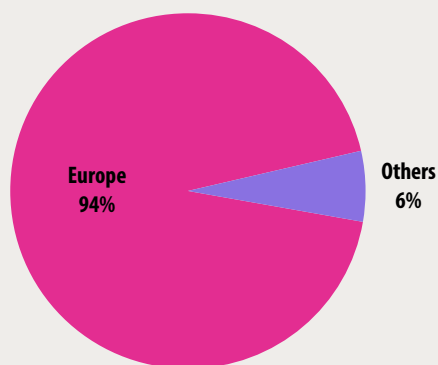
The Moroccan strawberry varietal range is limited by the necessity to produce varieties suited to both the fresh and deep frozen segments. Although this range has developed, from Chandler or Oso Grande to Splendor or Sabrina, varieties such as Camarosa with double-purpose characteristics remain essential for the moment. Conversely, the range is wider for the raspberry, driven by big foreign groups, with varieties such

Exports

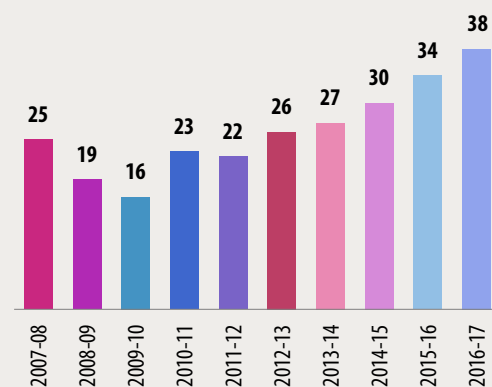
Overall fresh exports have seen renewed growth since 2010-2011, with the strong demand for the blueberry and raspberry offsetting the fall in strawberry volumes, highly exposed to competition from European produce. These exports are made primarily by big farms, and by foreign investors with the necessary logistical means in terms of production, value earning and exporting. They are aimed above all at the European market. The strawberry is still the main export, with nearly 20 000 t. However, raspberry exports are rapidly increasing, already in excess of 10 000 t in 2016-2017, with blueberry exports hot on their heels.



Berries - Morocco - Exports breakdown in 2016-17 (professional sources, COMEXT / processed by Infofruit)



Berries - Morocco - Fresh exports (in 000 tonnes / professional sources / processed by Infofruit)

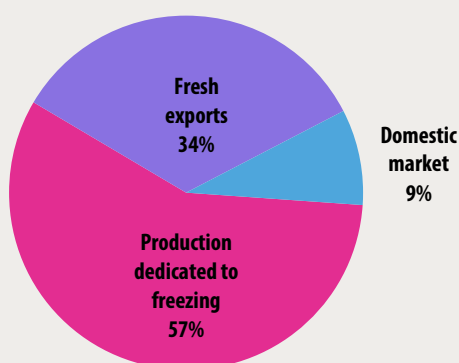


Berries – Morocco

Outlets

Berries are for the moment above all aimed at the export sector, with the exception of the strawberry. Hence 90 % of raspberry volumes and 100 % of blueberry volumes are currently exported. Conversely, the strawberry is mainly produced for processing, with approximately 65 % of tonnages aimed at the deep frozen segment and 25 % exported fresh. The domestic market for its part absorbs 10 % of volumes. The fruit is sold fresh at the beginning of the season (November to March), and is then sent to the deep freezing units from April to July.

Berries - Morocco - Outlets in 2016-17
(professional sources / processed by Infofruit)



Logistics

Morocco enjoys a privileged position for the European market by virtue of its proximity and the tariff conditions negotiated. Strawberry imports in particular enjoy a customs exemption with no quantitative limit between 1 November and 31 March, and then a duty-free quota of 3 600 t in April, plus a quota subject to 50 % customs duty from 1 May to 30 June. There is no preferential agreement for other berries, which are subject to the EU Common Customs Tariff. Transport is mainly by road-freight, with sea-freight primarily out of Tangiers for the northern produce, and out of Agadir for the southern produce.

Berries — Morocco — Sea-freight logistics

Port of departure	Port of arrival	Transit time
Tangiers, Agadir, Casablanca	Algeciras, Port Vendres	3 days
	Rotterdam, Dunkirk, Le Havre, Antwerp	4 days



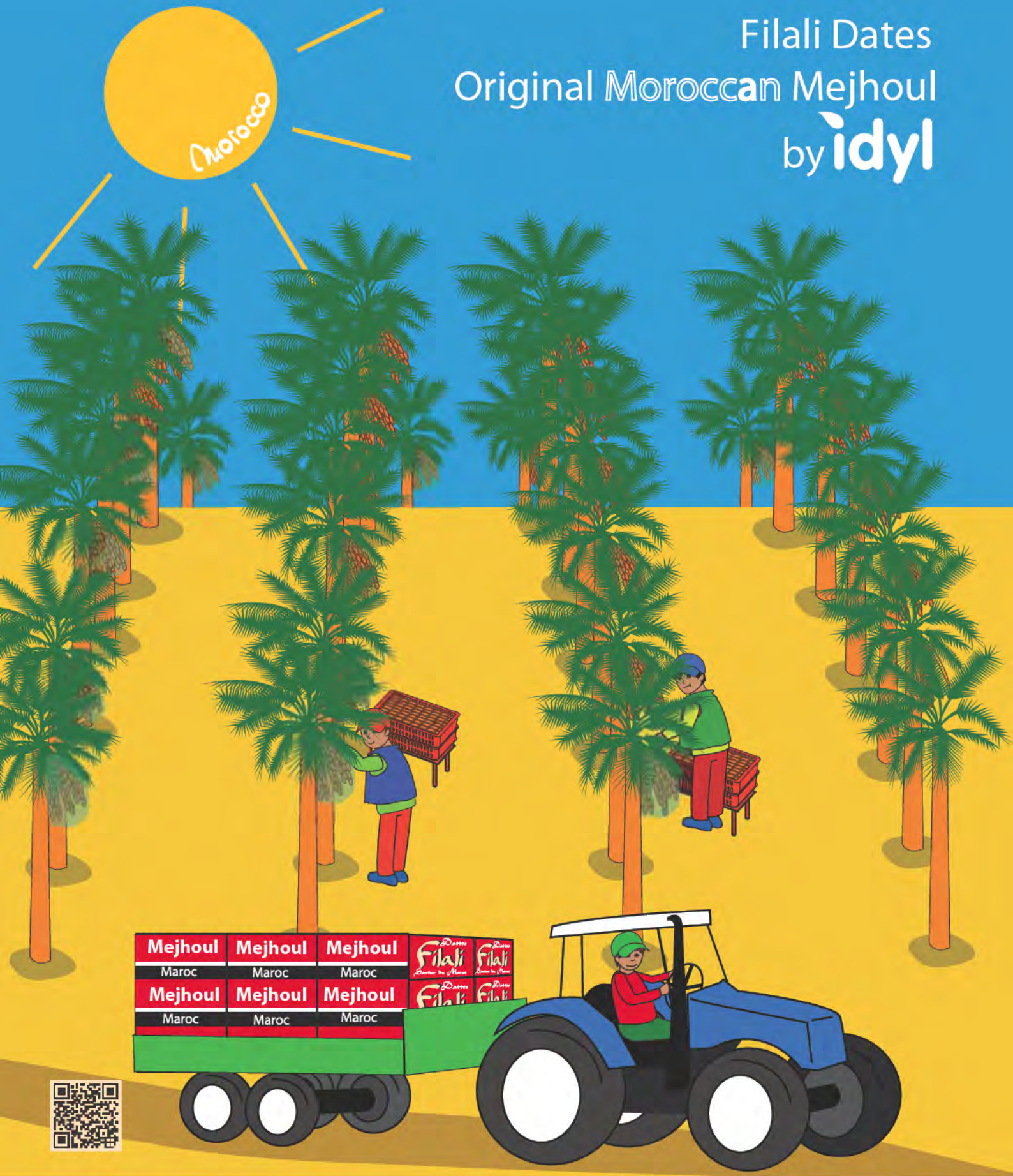
European date market

On a steep and continuous rise



The world date market is dynamic, with more and more origins entering the scene, and more and more countries providing increasing consumption. In Europe, annual growth rates are very high, and the consumption growth potential is a very long way from saturation. The dynamism of this market is particularly aided by the diversification of the supply via the various origins, varieties, distinguishing features and quality indicators, production modes, etc.

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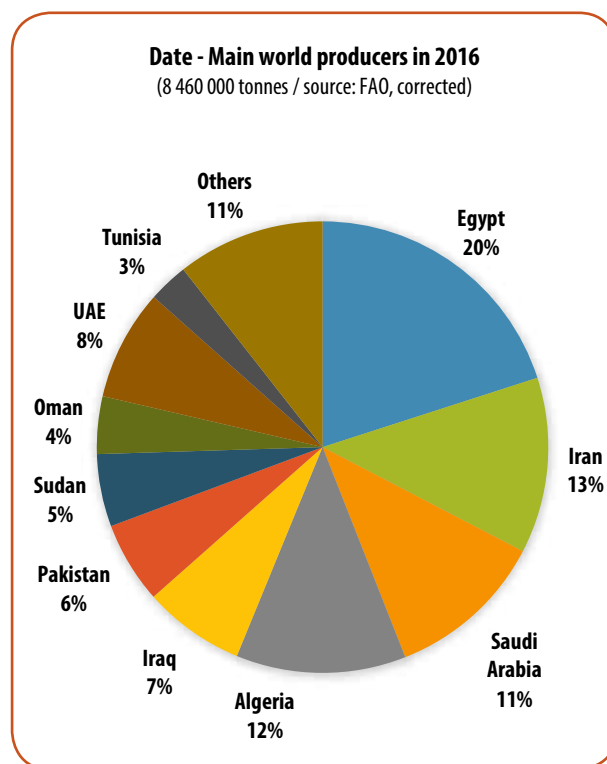
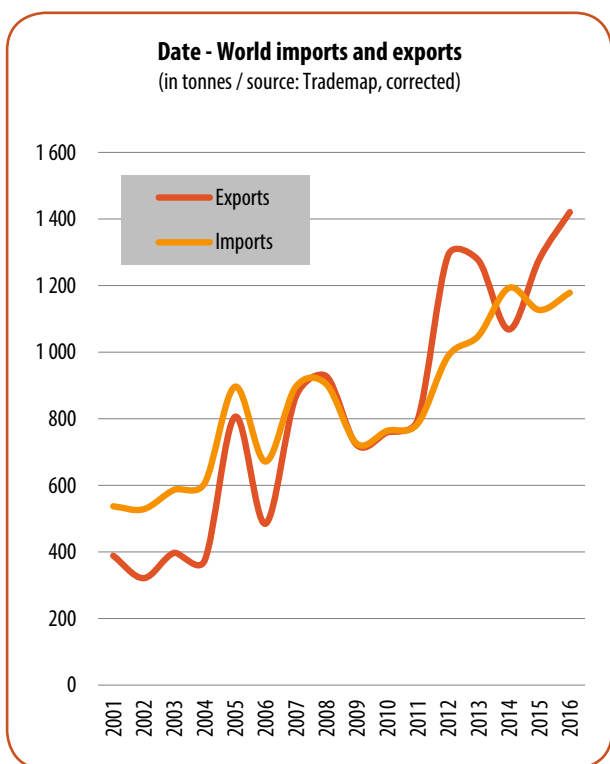
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13160 Châteaurenard



For both production (source: FAO) and world trade (source: Trademap), only approximate figures are available. Wars and the partial or complete absence of administration in certain countries mean that we can only go by rough figures and trends. World production is around 8.5 million tonnes, rising slowly by approximately 1.5 % per year. The production area is limited, extending from the South Mediterranean to the Near and Middle East. Pakistan is the only one of the world's top ten producer countries situated in Asia. Egypt, Iran, Algeria and Saudi Arabia have all reached or are in excess of or have reached one million tonnes. The United Arab Emirates (UAE), Iraq, Pakistan and Sudan come next with 400 000 tonnes each. Oman and Tunisia bring up the rear, with 350 000 t and 240 000 t respectively. Besides the top ten, we can note that there are more and more producer countries, producing in total nearly 900 000 tonnes.

World date imports have been rising at a rate of around 5 % per year since the early 2000s, and exceeded the one-million tonne mark in 2013. They should reach 1.2 to 1.3 million tonnes in 2017. While more than 200 countries are listed as date importers, only ten account for 70 % of the world trade total. India, the world number one purchaser with 30 % by volume, is missing from the list of world producers. This is not the case for the UAE, which imports 18 % of the world total, as well as being the world number 5 producer. Indeed, it is a genuine trade hub for the date for the entire Near and Middle East, especially since this Federal State is also the world number two second exporter, just behind Iraq and ahead of Iran and Pakistan.



European Union: growth potential intact

Ultimately, the European Union is a small market of around 120 000 tonnes, but with strong growth: there was an increase of 10 % between 2016 and 2017. Since 1988, when European imports were just 38 000 tonnes, there has been an average rise of 4 % per year!

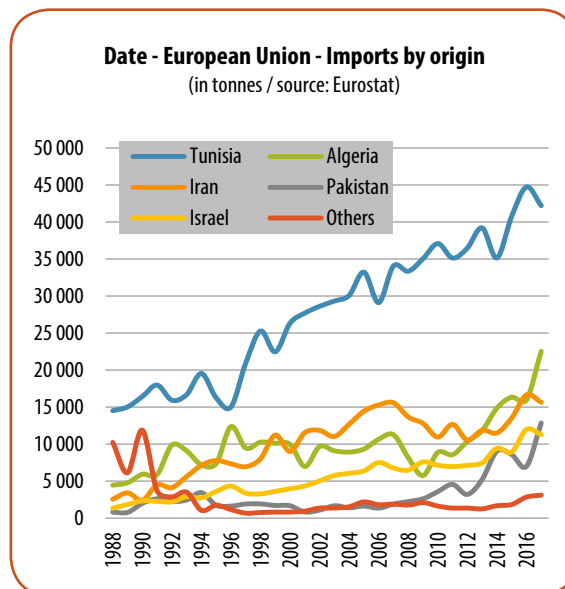
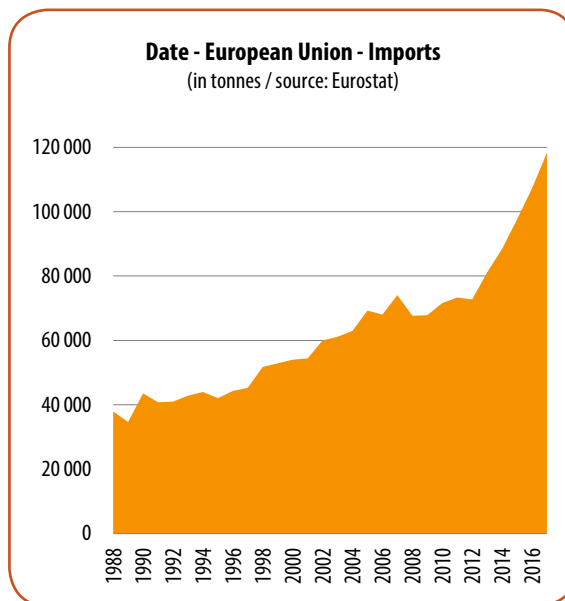
One origin stands out, and that is Tunisia. For the past three years, its exports to the EU have been between 40 000 and 45 000 tonnes of dates, with a market share of just over one-third. With 42 000 tonnes in 2017, its performance was below par for the market: - 1 % as opposed to + 10 % for all origins. This producer has a strong flow of exports to the EU, though also to Morocco (30 % of the total). Tunisia exported 110 000 tonnes of dates over the 2016-17 season (1st October to 30 September), for a production evaluated at just over 300 000 tonnes (diverging greatly between sources). The blip in 2017 should be taken in context, since for the 2017-18 season, which is yet to finish, the authorities have announced a 7 % rise in exports, as well as an even more considerable improvement in value (+ 22 %). It is the diversification markets (Australia, Qatar, India and even Canada) which are seeing rapid rises. Tunisia has also for a few years now been developing an organic date supply (exporting approximately 5 000 t per year).

Algeria is the number two date supplier to Europe, with a market share of 19 %. After exporting around 15 000 tonnes to the EU since 2014, this origin made a leap forward in 2017 with 22 500 tonnes, i.e. a 23 % increase in one year. The strong devaluation trend of the Algerian dinar against the euro, which began in early 2017, has made a big contribution to this export flow, by automatically improving the country's competitiveness. It is a direct competitor of Tunisia. In the space of a decade, Algeria has increased its shipments to the EU nearly fivefold. Successive development plans have tripled Algerian production within just twenty years or so.

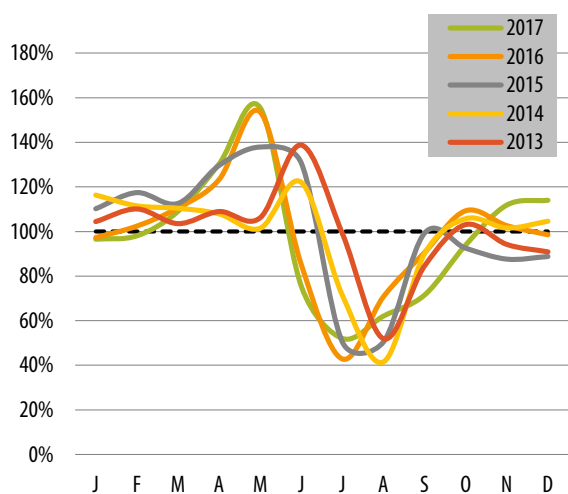
The number three supplier is Iran, whose annual exports to the EU have been more than 15 000 tonnes for the past two years. Its exports to Europe are on an upward trend, though very restrained. It has a 13 % market share.

Pakistan and Israel round off the list of the main suppliers, with market shares of 11 % and 10 % respectively. While Israel has practically doubled its shipments in the space of a decade, Pakistan has been a big hit, going from 1 800 tonnes in 2007 to nearly 13 000 tonnes in 2017.

Among the secondary suppliers on the rise, the United Arab Emirates is worthy of a mention. While the EU imported some 3 600 tonnes from this country in 2017, the flow in 2007 was less than 100 tonnes. Finally, Saudi Arabia is seeing a slow rise (doubling within a decade), to reach nearly 3 800 tonnes in 2017. Turkey, Palestine, the United States, South Africa and also Jordan round off the supply to Europe.



Date - EU-28 - Monthly breakdown of the annual supply
(source: Eurostat)



Ethnic-based consumption, though not exclusively

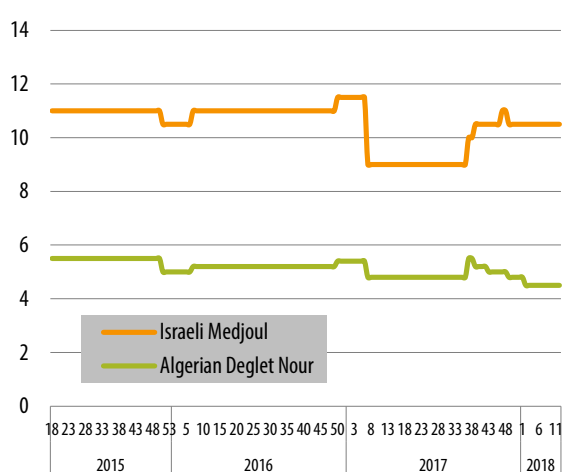
Date consumption is largely ethnic-based, and the consumption calendar is marked by the Ramadan period. When processed on an annual basis, European imports provide a perfect illustration of the interrelation between the Ramadan period and the import peak. Weekly shipments or sales, if there were any, would confirm this hypothesis. As an example: to within a few days, the Ramadan periods of 2016 and 2017 extended between late May and early July. In these two years, the import peaks were observed in May and June. If we take an earlier year, for example 2013, Ramadan went from early July to early August; and the import peak shifted by one month, falling in June.

While this religious holiday sets the tempo for consumption and therefore imports, we can nonetheless observe merchandise flows year round (long shelf life), with interest outside of Ramadan in Q1 and a small end-of-year peak for the festive period.

The Tunisian production calendar for export dates (excluding common varieties) runs from October to mid-December for the Tozeur region, and from November to late December for the Kebili region, the dominant production zone for the export market.

In Europe, France is historically the entry point for dates from around the Mediterranean. It apparently consumes at least one quarter of imports into Europe, i.e. approximately 24 000 tonnes. It is followed by the United Kingdom and Germany, with 20 000 t and 14 000 t respectively. All the other European Member States consume much less than 10 000 tonnes per year, which is a very low level. The potential in Eastern Europe is immense. The Czech Republic actually takes in just 1 700 tonnes, and Poland 3 300 tonnes. Nonetheless, there is a dynamic; between 2012 and 2017, their consumption leapt up by 300 %!

Date - France - Weekly wholesale price
(in euros/kg / source: RNM)



Not one but several date markets

There are a host of date varieties, but the one which hugely dominates European imports is Deglet Nour (Finger of Light). As for other products, the market tends to be segmented based on geographic distinguishing features, such as the Majhoul date from Taflet (Morocco) or the Deglet Nour from Tolga (Algeria), which both enjoy a PGI. For Israel, the supply primarily comprises the Medjoul variety. California also offers this variety. The organic production mode and Fairtrade labelling are also among the sector's avenues of diversification. Beyond these segmentations by variety or production mode, the market organisation is based on two main products: fresh dates and glucose-coated rehydrated dates. These two products have little in com-



mon in terms of taste quality; glucose-coated rehydrated dates can be considered far inferior to fresh dates.

There is no reliable public information system on export or import prices. Hence it is difficult to have an idea of their evolution by origin and category. The Customs values nonetheless provide some relative information on the markets targeted by the various suppliers. In outline, without prejudging specific supplies from any particular operator, or the volume share in terms of the fresh date or glucose-coated rehydrated date, we can observe that the market is organised in three strata.

The first stratum is the top-end market, with prices ranging between 5 500 and 6 500 euros/t. This market segment includes the Israeli or Californian Medjoul. Note that every year, imports values see a tremendous drop in August, down to between 3 500 and 4 000 euros/t. For the past five years, Customs values have been on a downward trend.

The second stratum involves the leading market origin, Tunisia. The Customs value of European imports from the number one suppliers is between 2 000 and 2 500 euros/t. There too, there is a marked upward trend. Furthermore, dizzying intra-annual variations can be observed: from 1 650 to 2 575 euros/t in 2017.

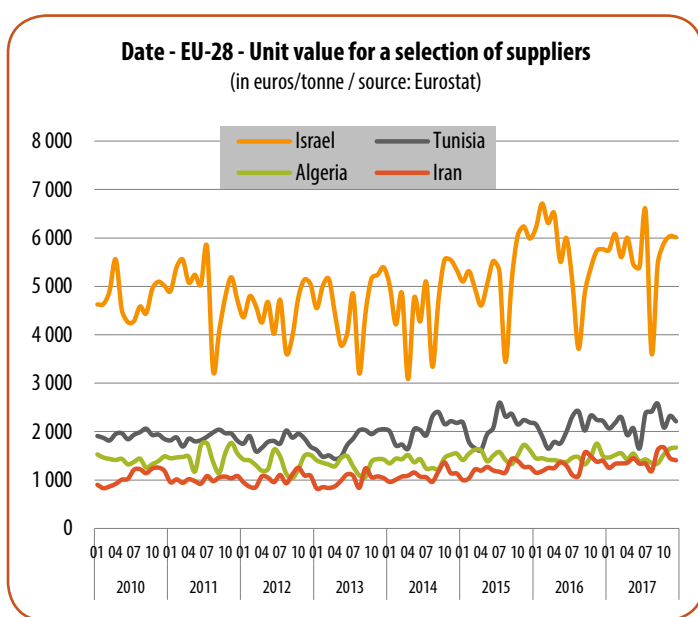
The third and final stratum (excluding highly specific products or confidential origins) involves Tunisia's rivals, i.e. Algeria and also Iran. Here we have a level of 1 500 euros/t, or even less for Iran. The Customs unit value for this supplier has been rising steadily for the past five years: from 1 000 euros/t in 2013, it has reached 1 500 euros/t and in certain months exceeded that mark.

A crop under severe threat

Two major pests and diseases pose severe threats to the date palm cultivation area: bayoud and the red weevil. Date palm bayoud is a fungal disease (similar to wilt) very common in North Africa, causing palm blight. According to the FAO, palm red weevil has recently become one of the biggest enemies. Part of the problem lies in that the red palm weevil is extremely difficult to detect at the initial stages of an infestation. There are very few visible external signs of the pest's presence in a tree: nearly 80 % of the pest's life cycle is hidden. For very large tree species, an infestation at the top is even more difficult to detect, and once the tree is infested, it is too late to save it.

To summarise, we can say that the date market is highly buoyant internationally, more especially in Europe. The supply is improving in terms of quality and service, while the range of products available is expanding, based on production systems (organic and Fairtrade), distinguishing features (especially PGI) or varieties other than the current star i.e. Deglet Nour, such as Kenta, Allig, Kouatallig, Medjoul, etc. The dynamic is due to ethnic and festive-based consumption. However, the date is meets just about all the criteria for success which will enable it to emerge from this specific niche: nutritional attributes (fibre, potassium, iron, magnesium, energy, etc.), good image (energy and natural, filling for the dry fruit), practicality (long shelf life) and finally multi-purpose potential (fresh or cooked) ■

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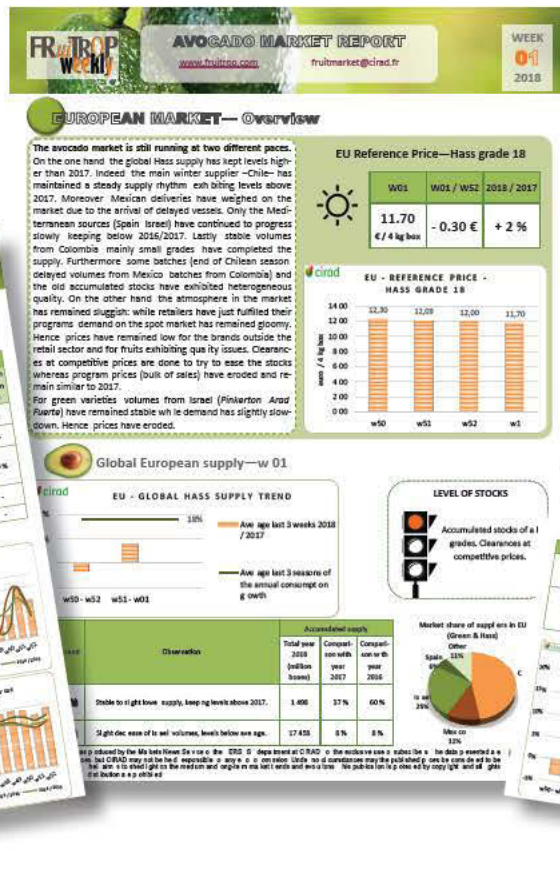
Tropical avocado market

European supermarket sector really timid



© Guy Brehinier

Despite its modest size, Hass casts a long shadow! Particularly dominant on the international scene, it leaves very little room for the other varieties of the *Persea americana* Miller family, though they number several hundreds. Hence the so-called “tropical” avocados are paying the price, with their international trade still anecdotal. Belonging more or less directly to the West Indian race, they are recognisable for their large size, their smooth generally thin skin and their low oil content. Excluding locally sold produce, international trade is probably stagnant at around 20 000 to 25 000 t, whereas Hass trade has increased by nearly 15 % per year over the past five years, nearing 1.7 million tonnes in 2016.



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A big share of world avocado production, particularly in the tropical zone



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Tropical avocado production is much less limited than the meagre level of international trade would lead us to believe. While proposing a figure would be highly fraught due to lack of detailed statistics for each variety, it is clear the West Indian race represents a significant share of the world stock. It dominates in warm zones situated between 0 and 1 000 metres above sea level in the intertropical region. These fruits still represent a large part of the harvest in at least three of the world's top ten producer countries. In the Dominican Republic, they reportedly represent over 80 % of the more than 400 tonnes produced every year, with highly iconic varieties such as Semil 34 (60 %), Créole (9 %) and Choquette (6 %). They also account for the vast majority of the large Colombian harvest, evaluated by the local authorities at nearly 350 000 t. The most common varieties are Lorena (locally known as Papelillo), cultivated in medium-altitude zones in the central part of the country, Choquette and Santana which are most abundant on the Caribbean Coast and in Santander. Finally, they make up the bulk of Brazilian production, estimated at 160 000 to 170 000 t according to the Ministry of Agriculture (especially the varieties Margarida, Quintal and Geada). The epicentre of production is situated in Sao Paulo province, and to a lesser degree in Minas Gerais.

Avocado – World production and evaluation for the West Indian race

Production rank	Country	Total production* (in tonnes)	West Indian variety and derivatives	Comments
1	Mexico	1 600 000 - 1 800 000	scarce	
2	Dominican Rep.	400 000 - 450 000	320 000 - 360 000 t	80% of production Source: USDA 2016
3	Peru	380 000 - 450 000	yes - limited presence	East of the country (Choquette, Collinred, etc.)
4	Colombia	350 000	290 000 t	Approximately 60 000 t of Hass - ICA 2016
5	Indonesia	300 000 - 380 000	yes - main varietal group	West Java (main zone) Local cultivars
6	Chile	280 000 - 220 000	no	
7	Kenya	200 000 - 250 000	yes - limited presence	Warm low-altitude zones
8	Brazil	160 000	140 000 - 150 000 t	Approximately 8 000 to 10 000 t of Hass Professional source: 2015
9	California	100 000 - 160 000	no	
10	Rwanda	125 000	yes - large presence	
11	China	120 000	yes - unknown production share	
12	Guatemala	120 000	yes - large presence	Booth, etc.
13	Venezuela	90 000 - 130 000	yes - main varietal group	Centre/north of country (Yaracui, Zulia, etc.)
14	Haiti	95 000 - 100 000	95 000 - 100 000 t	West Indian varieties and derivatives only
15	Israel	80 000 - 110 000	no	

* sources: local Agriculture Ministries, FAO

Tropical avocado – United States – Imports and production

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017
Imports	12 310	12 773	13 112	14 473	12 896	8 463	14 682	21 785
Dominican Republic	12 310	12 383	12 797	14 388	12 756	8 311	14 527	21 768
Others	-	390	316	85	140	152	155	17

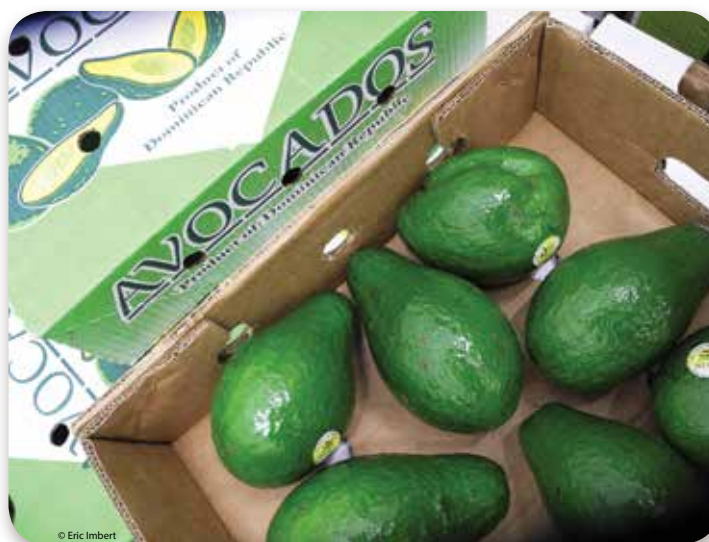
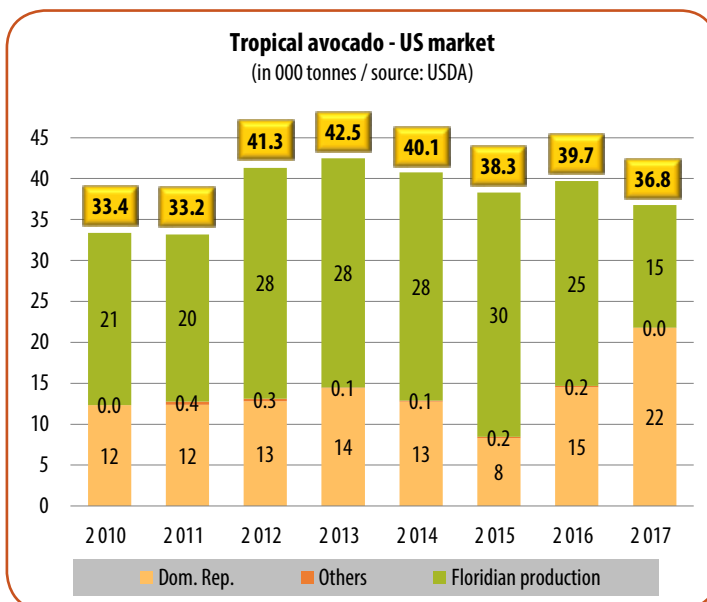
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17*
Floridian production	21 047	20 412	28 214	28 000	27 851	29 847	25 039	15 000

Total US market	33 357	33 185	41 326	42 473	40 747	38 310	39 720	36 785
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* impact of Hurricane Irma which destroyed the produce yet to enter the market in September / Source: USDA

**United States,
world number one importer
thanks to the ethnic market**

Tropical avocado volumes in the United States are a long way behind Hass, which is around the one million-tonne mark. Nonetheless, they reached a significant level of approximately 35 000 to 40 000 t according to our estimates. Just as for Hass, the supply comprises some local production, originating from Florida. According to surveys there are approximately 2 400 ha in the far south of Florida (Miami Dade County in particular), where frost risks are most moderate, bearing in mind that this fruit has very low cold tolerance. The annual harvest is around 22 000 to 25 000 t in a normal year. It is based primarily on the West Indian race at the start of the season in June, and on Guatemalan x West Indian race hybrids from the middle to the end of the season, i.e. from August to January. Surface areas and production are constantly falling, especially because of the impact of Laurel wilt. Imports can cover the period of zero production from Florida, and no more. In addition to sanitary protection measures, the draconian protocol defined by the USDA stipulates standards in terms of sizing, maturity and even a specific import calendar for each variety. 95 % of the 13 000 to 15 000 t imported every year comes from the Dominican Republic (variety Semil 34 for the vast majority). Unlike the Hass market, volumes seem to be stagnating, or even waning slightly in recent years. The clientele remain primarily ethnic, based on the immigrant population from the Caribbean or Central America on the East Coast (especially the States of New York and New Jersey).



Hass avocado EU-28 market

508 000 tonnes
in 2016-17

excluding Spanish production
marketed locally
(professional sources, Eurostat)



Tropical avocado EU-28 market

5 000 to 6 000 tonnes
in 2017

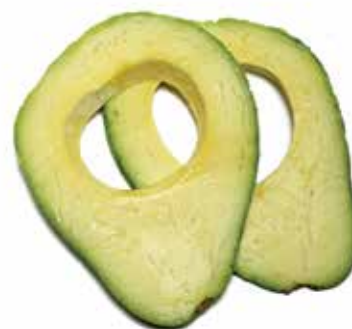
(estimated from
professional sources)



Photos © Guy Bréhinier

European market difficult to size up, but definitely small

Sizing up the Community market is a tough task. True, the supply is based nearly exclusively on two supplier countries, namely the Dominican Republic and Brazil. However, these two origins export both Hass and tropical avocados, and the EU-28's Customs nomenclature does not make it possible to distinguish between these two varieties, unlike the US system. Furthermore, the main export periods for Hass and tropical avocados tend to overlap, preventing flows of these two varieties from being isolated. Nonetheless, cross-referencing Customs figures and information from professional sources available for Hass can provide some clarification, enabling us to make a rough estimate. While imports across all varieties from these two suppliers have had a comparable level of around 6 000 t in recent seasons, it appears that the proportion of Hass is much bigger in the Brazilian supply than in the Dominican supply. We can very roughly estimate volumes of Brazilian tropical avocado at around one thousand tonnes, with Dominican tropical avocado volumes at 4 000 to 5 000 t. Overall, if we add the hundred or so tonnes probably comprising tropical avocados from Africa (Cameroon, Ghana, etc.) and the West Indies (Martinique, Guadeloupe, Jamaica, Saint Lucia, etc.), we can estimate the size of the European market at around 5 000 to 6 000 t.



Tropical avocado – European Union – Imports from origins capable of supplying tropical avocados

in tonnes	2010	2011	2012	2013	2014	2015	2016	2017	Comments
Brazil	2 659	3 007	3 959	3 928	5 265	3 535	4 499	6 911	Very large proportion of Hass, steep growth
Dominican Rep.	3 435	2 829	1 577	2 363	2 650	3 692	6 234	6 998	Large proportion of green varieties
Others	320	206	374	285	345	472	407	629	
Total	6 413	6 042	5 910	6 576	8 260	7 699	11 140	14 538	

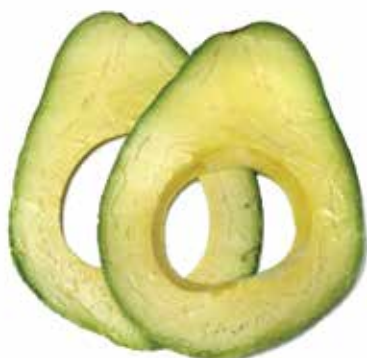
Source: Eurostat

Especially the Southern EU countries

The tropical avocado seems to be very scarce on markets in the north of the EC. This rather expensive product is fairly fragile and requires rapid in-store rotations. So it does not seem to match the distribution model for these countries, where it is only listed by a very limited number of chains. The bulk of sales are concentrated in South-West Europe. In France, the tropical avocado is part of the range, but it has been relegated to the “small exotics” section with only a sporadic presence. Hence it was available in less than 10 % of chains under a survey conducted in Southern France in spring 2016, whereas the coconut and passion fruit had a presence rate of as much as 80 %, and the papaya 40 % despite its fragility. So the sales tempo has remained very modest on the hypermarkets and supermarkets, outside of December which is the only big promotion period for the product (no specific events for the two other peak times favourable for sales of exotic fruits, i.e. Easter and Chinese New Year). Only the “Grand Frais” chain really promotes the product, offering a wide range year-round at attractive prices. The tropical avocado is also present in Italy, where it represented the bulk of the supply before the very recent breakthrough by Hass. We should also note the attempted promotion of this fruit in Spain in recent months by the Eurobanan group, via communication focusing on its “light” properties.



© Eric Imbert



Tropical avocado — Production calendar by source and variety

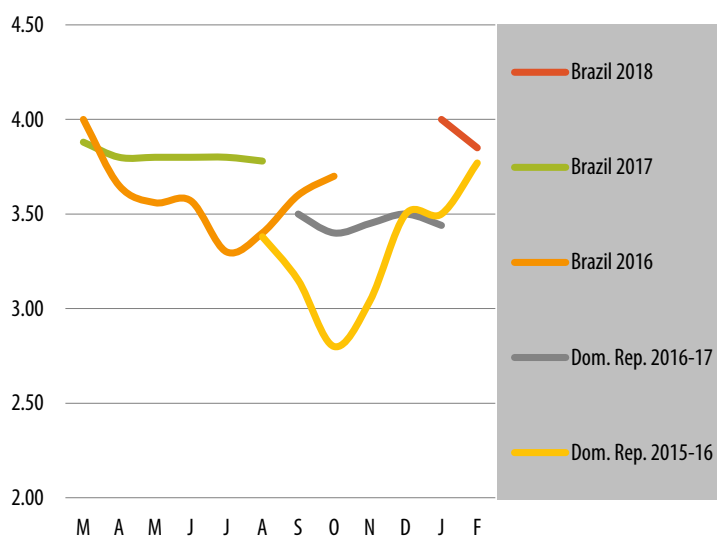
	J	F	M	A	M	J	J	A	S	O	N	D
Dominican Rep.												
Semil 34												
Bemecker												
Brazil												
Margarida												
Fortuna												
Geadá												

Professional sources

Two supplier countries and two supply profiles

Besides a common box weight of generally 6 kg (occasionaly 4 kg), the supplies from the Dominican Republic and Brazil have no similarity. In terms of supply marketing calendar first of all, the Dominican Republic is primarily present from October to February, when production of its main variety Semil 34 is at its peak. The Brazilian tropical avocado meanwhile is mainly marketed from March to September, with the variety Margarida representing the majority of the supply. Some batches of Fortuna or Geadá are sometimes offered at the beginning the season to bridge the gap. The qualitative rating of the operators for these two origins is also very different. While the Brazilian supply generally corresponds to the top-end, the Dominican supply is decent but more standard (generic boxing, lack of fruit homogeneity, sizing sometimes random and requiring rework, etc.). This positioning is based on customer expectations on the US ethnic market, which takes in the bulk of volumes, and for which price is more important than presentation.

Tropical avocado - France - Wholesale market monthly price by source
(in euros/kg / source: RNM)



Tropical avocado – France – Average campaign price (wholesale price)

in euros/kg	2014	2015	2016	2017
Brazil	3.55	4.49	3.60	3.84
Dominican Republic	3.21	3.63	3.27	3.52
Difference	11 %	24 %	10 %	9 %

Source: RNM



© Bettina Balmer

Price asset of the Dominican Republic

This positioning difference can also be seen in the production costs. Brazilian fruits are 10 to 15 % more expensive than Dominican fruits. This gap is significant bearing in mind that the tropical avocado is a rather costly fruit (3.50 to 4.00 euros/kg wholesale stage), especially because it is nearly exclusively air-freight due to the fairly limited lifetime of the product. Hence Brazil is tending to lose market share.

What are the avenues for development?

Besides the big production countries, the tropical avocado is still an under-developed micro-market, very widely operating thanks to an ethnic customer base. True, the fruit is attractive by virtue of its colour, often bright and shiny. Its striking size is also an asset, though a double-edged one since it equates to just over three times the average Hass (generally 6-10 tropical avocados per 6-kg box, i.e. 600 g to 1 kg/piece). Furthermore, its high retail price and the lack of information on consumption (in salads or guacamole of course, but also sweet in mousses or sorbets) are all curbing sales. How can its popularity be improved? By providing recipe sheets in-store, emphasising its "light" aspect or perhaps adjusting the prices, at the very least at certain times of year. Sea-freight, sometimes used for Dominican fruits, may be a lever for expansion of the product, especially during the period when the fruits have not yet matured excessively (first part of the Semil 34 season). Working on varietal diversity, which is enormous and completely under-harnessed, to promote new forms and flavours, is probably also a useful avenue for development. It now remains to persuade the European supermarket sector, which barring a few rare exceptions, is still very timid ■

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The three avocado races

Mexican race (*Persea americana* var. *drymifolia*)

Originates from the Mexican highlands. Its leaves have a characteristic aniseed odour. The fruits have a high oil content (more than 15 %). Conversely, their small size and the fragility of their very thin skin limit marketability in fresh form. The Mexican race has useful agronomic characteristics, especially in terms of tolerance to low temperatures and to *Phytophthora* (however, it is highly sensitive to salinity). So it is used as a rootstock (especially Duke) or as a sire in hybridisation programmes.

Guatemalan race (*Persea nubigena* var. *guatemalensis*)

Originates from the highlands in Guatemala and Chiapas (Mexico). This race has useful characteristics in terms of cold resistance (although they are smaller than the Mexican race fruits). The fruits also have assets sought after by geneticists. Their size is highly variable, but generally bigger than Mexican race varieties. Furthermore, they have a moderate-sized stone, and a thick, very hard and warty skin. Conversely, they have a medium oil content (10 to 15 %). Hass is derived from a cross between the Guatemalan and Mexican races.

West Indian race (*Persea americana* var. *americana*)

Despite its name, this race apparently originates from Colombia. It is sensitive to the cold (cannot withstand temperatures below -2°C) and aridity, but is more tolerant than the others to salinity. It is particularly well suited to wet tropical regions. Its fruits are large (400 to 900 g) and rather fragile. They have a thin skin (0.8 to 1.5 mm), which is smooth and glowing with a soft green colour, and yellow or reddish when mature. The pulp is watery and low in oil (< 8 %). The large-sized stone often does not adhere to the pulp.

Differentiating traits between the three avocado races

Characteristics	Mexican race	Guatemalan race	West Indian race
TREE			
Adaptation to climate type	semi-tropical to Mediterranean	subtropical	tropical
Cold tolerance	most tolerant (- 5 to - 7°C)	medium tolerant (- 2 to - 4°C)	sensible (- 1 à - 2°C)
Salinity tolerance	sensitive	medium tolerant	tolerant
<i>Phytophthora</i> tolerance	slightly tolerant	sensible	highly sensitive
Pubescence	highly pubescent	low pubescent	low pubescent
Leaf size	small	medium to large	large
Adult leaf colour	waxy pale green	dark green	light green
Odour	strong aniseed odour	no aniseed odour	no aniseed odour
FRUIT			
Shape	elongated	rounded	elongated
Size	small	variable	variable to large
Colour	brown	green or brown on maturity	Green or reddish-purple
Skin	very thin, waxy	thick, rough	thin, shiny
Oil content	high	medium	low
Presence of fibres	frequent	rare	rare
Cold preservation	very good	good	poor
Stone	large, sometimes free, smooth	small, adhesive, smooth	large, sometimes free, rough
Flowering-harvest interval	7 to 9 months	10 to 12 months	5 to 7 months
Source: "The avocado, its cultivation, its products", by Jean-Pierre Gaillard (table as per B.O. Bergh)			

Tropical avocados

Most tropical avocados on the market belong to the West Indian race, or are derived from West Indian race crosses.

Semil 34

A West Indian x Guatemalan race hybrid, derived from a selection made on the "Semil" plantation on Puerto Rico in 1947. Obovate to pear-shaped fruit, medium to large in size (average size 400 to 700 g). Skin ranging from lumpy to smooth, green in colour. Oil content 8 to 15 %. Main variety cultivated in the Dominican Republic. Recommended storage temperature 13°C.



Choquette

A West Indian x Guatemalan race hybrid, derived from a selection made on the M. Choquette plantation in Florida. Elliptical shaped fruit, very large in size (average weight more than 500 g to more than 1 kg). Very smooth, glowing, dark green skin. Yellow pulp. Adhesive stone. Oil content 8 to 13 %. Recommended storage temperature 4 to 10°C.



Carla

A West Indian x Guatemalan race hybrid, derived from a selection made in Ocoa valley in the Dominican Republic in 1994. Obovate to spherical fruit, medium to large in size (weight ranging from 400 g to 1.2 kg, 900 g on average). Fairly smooth skin, green to soft green in colour. Oil content 8 to 15 %. Important cultivar in the Dominican Republic. Recommended storage temperature 7 to 7.5°C.



Photos © Carlos José Jiménez

Margarida

Derived from a selection made in northern Parana in Brazil. Spherical fruit, medium in size (weight ranging from 600 to 800 g). Fairly thick skin, bright green in colour. Yellow fibreless pulp. Good post-harvest resistance.



Geda (Barbieri)

A West Indian race fruit, derived from a selection made in Sao Paulo State, Brazil. Pear-shaped fruit, medium in size (weight ranging from 400 to 700 g). Thin skin, soft green to dark green in colour. Yellow pulp with some fibres. Low oil content.



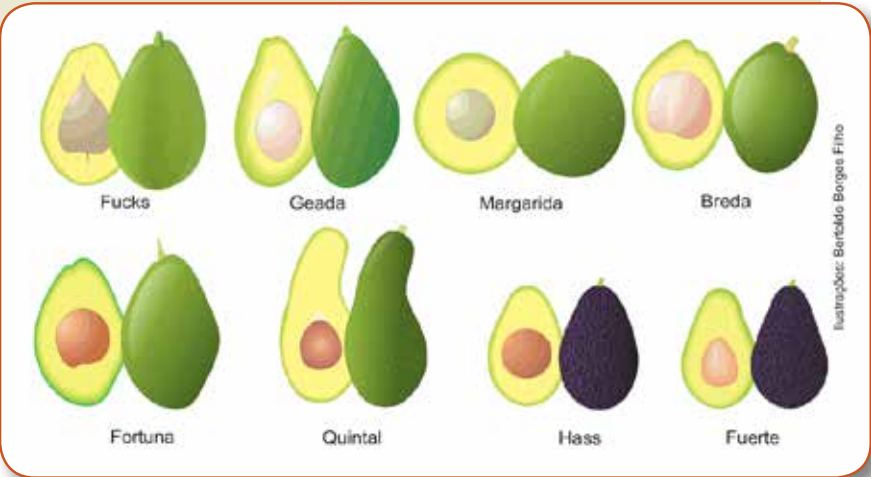
Fortuna

A West Indian x Guatemalan race hybrid, derived from a selection made in Campinas (Brazil) in the 1960s. Pear-shaped fruit, medium to large in size (weight ranging from 600 g to 1 kg). Smooth skin, dark green in colour. Yellow fibreless pulp. Oil content around 8 %. One of the main cultivars in the Sao Paulo region.



Quintal

A West Indian x Guatemalan race hybrid, derived from a selection made on the Quintal family plantation in Sao Paulo State (Brazil). Pear-shaped fruit, medium in size (500 to 800 g). Smooth skin, mid-green in colour. Yellow fibreless pulp.



Photos © Wanderley Momesso

Illustrações: Benedito Borges Filho

A report by
Pierre Gerbaud

Mango

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Mango

European market

Ever more volumes

The international mango market is continuing its rise, going by the latest trade statistics available in 2017. Practically every year brings a new quantitative record. Hence the threshold of 300 000 tonnes of imports into Europe, exceeded in 2016, was not a one-off surge but the sign of long-term development. 2017 confirmed the general trend, with a gain of more than 3 000 tonnes.



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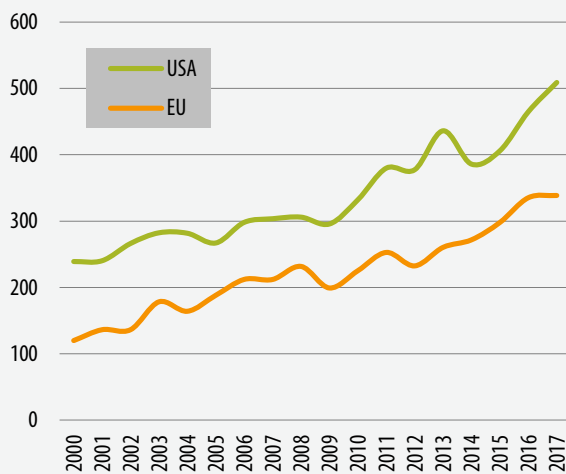
CÔTE D'IVOIRE - MALI - BURKINA FASO - SENEGAL



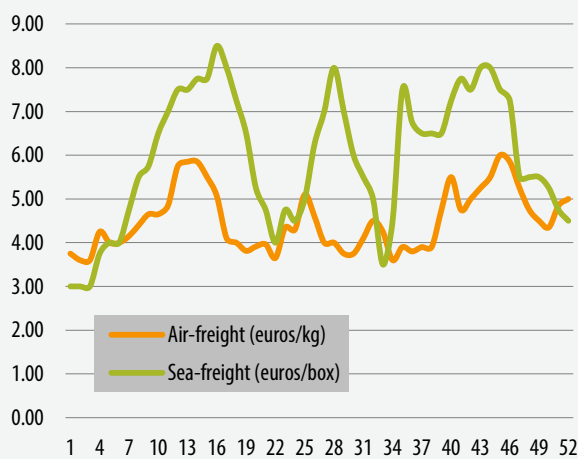
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Mango - Evolution of imports in the USA and Europe
(in 000 tonnes / source: national Customs)



Kent mango - France - Weekly average import price en 2017
(source: Pierre Gerbaud)



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Market still on the rise

The 338 600 tonnes of imports by the European Union in 2017 marked another rise, up from the 335 000 tonnes in 2016. Although the tempo of volumes growth from third countries was slower than in previous years, the mango market is consolidating year on year. For the medium term, this makes for a remarkable trend, actually exceeding the 350 000-tonnes mark if we include shipments from Spain, estimated at around 22 000 tonnes. This positive trend was also apparent for the number one mango consumer, the USA, with imports booming again, going from 464 800 tonnes in 2016 to 504 900 tonnes in 2017. The gap widened further between the USA and Europe, at the latter's expense, despite its bigger population. The supply, distribution circuits, and also the ethnic composition of the populations of the USA and Europe are considerably different, and all contribute to explaining the dominance of the market across the Pond.

65% of the supply to the USA is provided by Mexico alone, the mango giant which is the world number one exporter of the fruit. In addition, by virtue of its geographical range from north to south, this neighbouring country enjoys a practically year-round production calendar, from January to October. For the rest, 26 % of US imports come from a group of countries comprising, in decreasing order, Peru, Ecuador and Brazil, which each ship between 30 000 and 50 000 tonnes. The Central American and Caribbean countries make up the rest of the imports. With four supplier countries, the USA imports more than 90 % of its requirements.

The supply to the European market is more fragmented, with two main origins (Brazil and Peru), which supply 62 % of total imports, equivalent to Mexico for the USA. Apart from Côte d'Ivoire which has hoisted itself up to third position with 30 000 tonnes for the past two years, the rest of the supply is based on at least five countries shipping between 10 000 and 15 000 tonnes, and on ten or so others contributing 2 000 to 5 000 tonnes. Apart from Brazil, which can supply mangos year-round with volume fluctuations, the other suppliers have more seasonal calendars, rarely exceeding four months.

This rapid overview shows the great disparity in market supply sources. This fragmentation causes supply variations in terms of varieties but also produce quality. In this respect, certain origins suffer from recurrent problems, especially West African countries facing particularly intense parasite pressures.

Fruit fly: scourge of the West African origins

In spite of occasional fluctuations from such or such an origin, the European mango market is seeing rising volumes. The product is becoming more commonplace on supermarket shelves, where it is available year round. The supply is ensured by working on the production calendar of the various supplier countries, as well as with a varietal range enabling campaigns to be extended. Monthly imports are tending toward regular quantities, covering demand and indeed anticipating it at certain times of year.

The binary supply/demand phenomenon sometimes boils down to the riddle of the chicken and the egg, namely what drives one in relation to the other. Is it demand which is behind the rise in supply, or the growing supply which drives demand? The answer doubtless lies in the middle ground, with each of the terms in this cause-and-effect mechanism representing driving forces behind market growth, though often with a time lag.

In this ongoing context of near-imbalance, qualitative aspects take on particular importance. It is difficult not to dwell here on the parasite problems in West Africa. Fruit fly infestations of West African orchards are not a recent phenomenon, but they are a long-term one, and endangering flows of fruits to Europe, and thereby the profitability of export activities. The seizure of a batch on entering Europe entails not only loss of the product's value, its packaging, the labour costs for export and the various transport operations, but also taking the merchandise to the destruction site, and the destruction operation itself. All of which means to say that the seizure of an infested batch can compromise the balance of an export structure, especially if the interception recurs during the campaign. And here we are only mentioning the losses incurred by the shipper. The problem is also passed on to the purchasers, which sees their supply scaled back by quantities that may have been programmed with their customers, not to mention the costs associated with the interception.

Mango from West Africa – Number of seizures in the EU due to fruit fly infestation

	2014	2015	2016	2017
Côte d'Ivoire	62	10	10	32
Mali	23	10	66	26
Burkina Faso	3	15	16	20
Senegal	11	13	10	24
Guinea	0	1	1	7
Gambia	7	2	2	1
Total	106	51	105	110

Source: EU Customs



© Régis Domergue

The economic impact may be catastrophic, as was the case this year for Guinea, which had seven interceptions for a total volume of 320 tonnes. This sounded a rapid end to the campaign for this origin. In 2014, the European Union alerted Côte d'Ivoire because of the high number of seizures, requesting that it implement a management program for the following campaign, or face a ban on exporting its fruits to the European markets. This wake-up call had the effect of a drastic fall in interceptions over the following two years. Whether it was better consideration of the problem by the origin, or lower parasite pressure, is of little importance; this fall in interceptions was a favourable omen for the coming campaigns. Yet in 2017, interceptions bounced back, raising the problem again in all its severity. On this point, Mali, Burkina Faso and Senegal also had dreadful performances in spite of European alerts.

However, regional fruit fly management projects have been set up to eliminate this recurrent problem. Are they ineffective, or insufficient given the scale and complexity of the phenomenon? These are legitimate questions, bearing in mind that treatment products were only made available in certain countries at the beginning of the campaign, too late to have an effect. Worse, some treatment products, though delivered in time and on time, remained immobilised by the Customs Services of the producer countries. Would it be a good thing to have a pure and simple ban on imports from one or more origins, so that coordinated measures corresponding to the challenges could finally be taken? Being aware of a problem is useful, but completely in vain if no appropriate solution follows. Unfortunately, this still seems to be the case ■

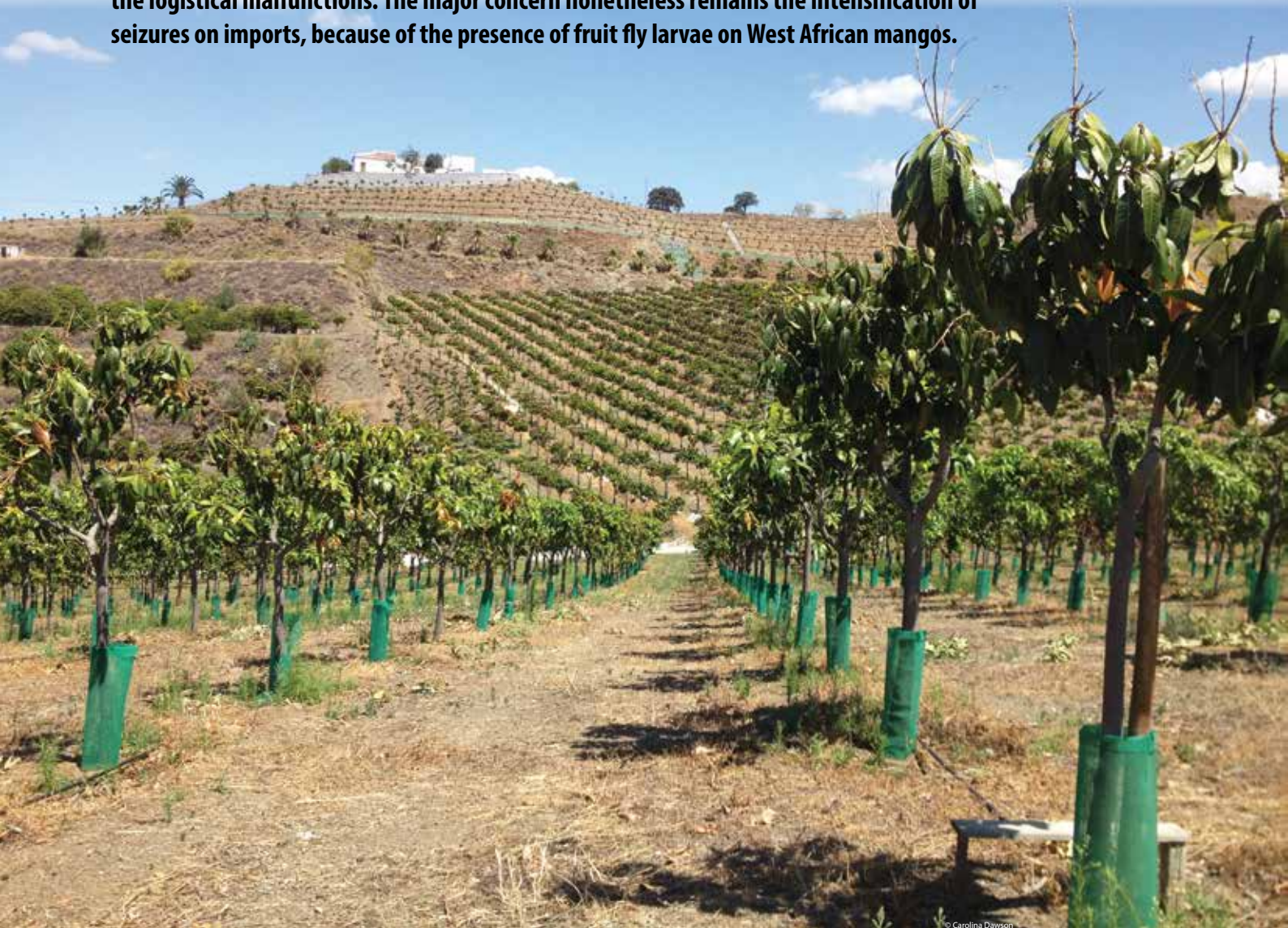
Pierre Gerbaud, consultant
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Mango

European market

2017 review by origin

The traditional production variations in the various origins had relatively little impact on the main mango export flows to the European markets in 2017. However, the meteorological vagaries hit production levels more or less hard, though we cannot talk about deep climate modifications (marked heat in West Africa, El Niño phenomenon in Peru and its repercussions in the Caribbean). Conversely, several exogenous factors caused major disruption to certain supplier countries. We will recall in particular the disturbances in Côte d'Ivoire, as well as the logistical malfunctions. The major concern nonetheless remains the intensification of seizures on imports, because of the presence of fruit fly larvae on West African mangos.



© Carolina Dawson



A year round supply of triggered mangoes



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Brazil

Constant

As the number one mango supplier to the European Union, Brazil accounts for one third of Community imports. Present year-round, it represents a solid supply base. 2017 was a year marked by a slight increase of approximately 2 500 tonnes from the previous year. The gap between Brazil and Peru has now come down to around 20 000 tonnes. While Brazil has remained the number one supplier to Europe, it is slipping on the US market, where Peru has achieved a big rise. With extensive and varied production zones enabling uninterrupted production, Brazil offers a wide varietal range, a large part of which is reserved for the domestic market. For the export sector, four varieties are produced and shipped to the European market: Tommy Atkins, Palmer, Keitt and Kent.



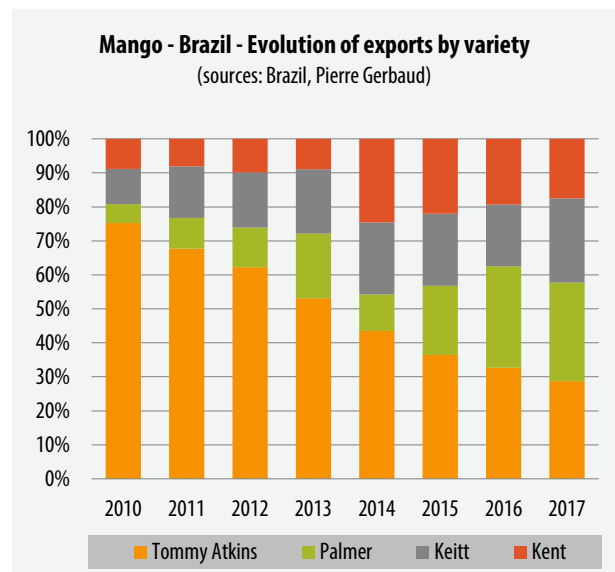
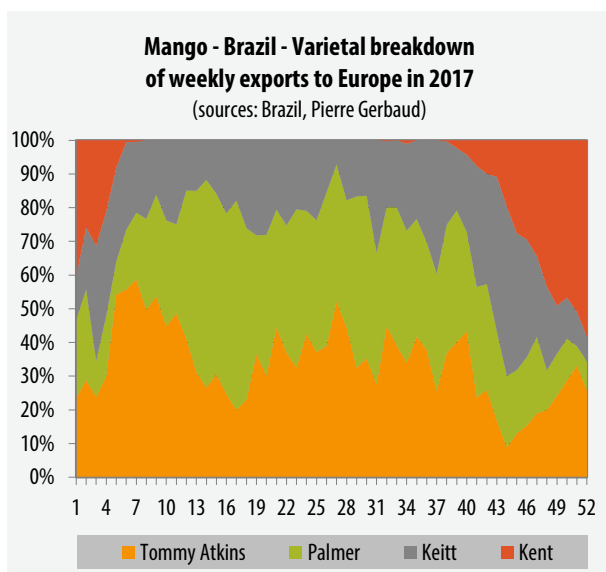
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Ongoing varietal adaptation

The Tommy Atkins variety has long remained the spearhead of Brazilian production and exports, because of its productivity, coloration, resistance to certain diseases and transportability. In addition, it lends itself well to scheduled cropping practices, enabling greater adaptability to market demands. Conversely, its middling flavour and its appearance, more or less fibrous, mean that an increasingly well informed public moving away from it. For sev-

eral years, the proportion of Tommy Atkins exported has decreased. In 2017, it was overtaken for the first time by the Palmer variety, which represented approximately 29% of shipments to Europe, as opposed to 28.7% for Tommy Atkins. The latter is being gradually relegated to a top-up role, especially during periods when production of the other varieties is in shortfall.

The Keitt variety, which has also seen a remarkable rise, now accounts for 24.8% of Brazilian shipments. Finally, Kent, the most popular variety in Europe, represented just 17.5% of exports, down two points from 2016. Less productive and more delicate, it does nonetheless occupy a particular place in the Brazilian export calendar. It is targeted at the end-of-year market, from October to January. Furthermore, from October to early December, Brazil is the sole supplier of this variety, apart from what tonnages are exported from Spain. Palmer and Keitt, previously available on an occasional basis, are now present year-round, making for a varietal diversity that cannot be found among other suppliers to the European market.





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Campaign fading away at the end of the year

Brazil's production capacity, as well as its varietal range, have helped exporters adapt to the demands of the market. Despite the inertia arising from the shipping times, Brazilian flows followed the market variations. Hence it manages to cover periods of leaner supply, and scale back its shipments during export peaks. It also ensures an annual volume base through juggling the different varieties available from production. This rather advantageous strategy is not comprehensive, since at the end of the year the confrontation with the Peruvian supply is proving increasingly tricky.

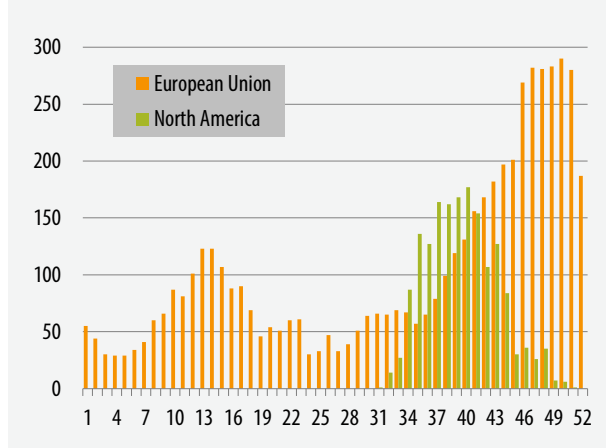
For this last campaign, Kent exports progressed fairly slowly in October, with the other Brazilian varieties remaining in the majority. The Kent campaign got off to a favourable start until November, with prices falling but high (from 8.50 to 6.50 euros/box). Yet this slightly late start shifted the biggest incoming shipments to the second half of November onward, causing a drop in prices accelerated by the early arrival and rapid progress of Peruvian shipments. Volumes from both origins rapidly saturated the market, to well in excess of the demand level, and halving prices from the beginning of the campaign.

Brazil adjusted its shipments to its two main markets, North America and Europe, depending on the better opportunities. Yet at the end of the year, the bulk of exportable volumes was aimed at Europe, leading to oversupply. North American demand was satisfied by the abundance of Ecuadorian mangos, which were more competitive, and the start of the Peruvian campaign. The fairly rapid decline of Brazilian fruits at the beginning of 2018 mitigated the mediocre results from the end of the year.

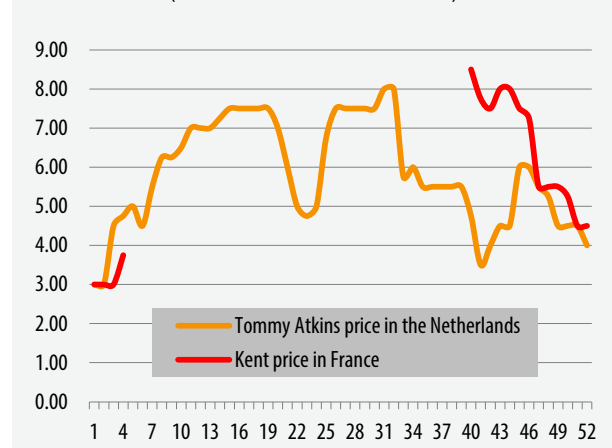


Over the rest of the year, Brazilian mangos sold fairly steadily, except in May and early June when the West African origins campaign was in full swing with Kent. At this period, Brazil was offering varieties less highly rated on the European market. Yet once the West African shipments ceased, prices took an upturn, with Brazilian mangos making up for the decrease in the overall supply. In September, their rates dipped again, with the European market sufficiently supplied by Israel and Spain. In October, Brazilian Kent, beginning their campaign, competed with the origin's other varieties, which were less in demand and whose rates dipped, though they bounced back from mid-October to mid-November. Kent prices maintained a high level until the appearance of Peruvian mangos, in late November-early December, when the magnitude of the volumes available dragged the market into long-lasting stagnation.

Brazilian mango - Weekly incoming shipments in 2017 in the European Union and in North America
(in number of containers / source: Pierre Gerbaud)



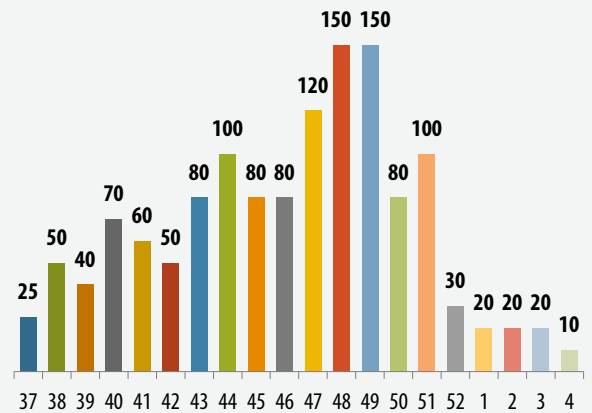
Brazilian mango - Weekly average import price in 2017 for Tommy Atkins in the Netherlands and Kent in France
(in euros/box / source: Pierre Gerbaud)



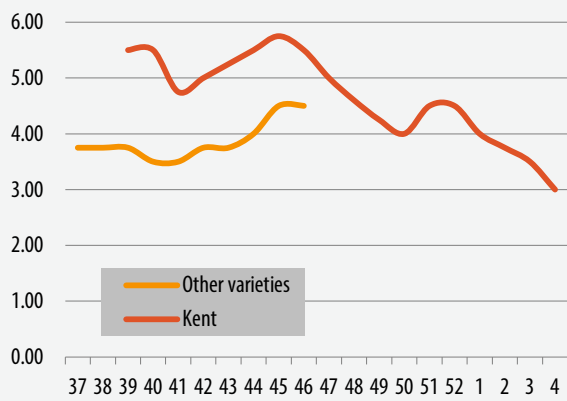
An unbalanced air-freight campaign

The air-freight campaign started in mid-September, with restrained volumes which enabled high prices for Kent (5.00-5.50 euros/kg). The other varieties (Haden and Palmer) were valued at approximately 1.00 euro/kg less. The increase in quantities of Kent in November led to the abandonment of these varieties, less highly rated on the European market. Rising incoming shipments, from the second half of November, weighed down on rates, which deteriorated all the more with Peru entering its campaign. In December, they dropped below 4.00 euros/kg under Peruvian pressure, but also due to the receipt of batches of advanced maturity requiring rapid sale, i.e. at lower prices. Apart from during the narrow end-of-year festive period, when demand was invigorated and enabled a pricing re-adjustment, the Brazilian mango rate was aligned on the Peruvian mango rate until the final shipments in January. Hence the campaign was split between a first phase, accompanied by firm prices with rising tonnages, and a second phase, with low prices yet decreasing volumes ■

Brazilian air-freight mango - Weekly incoming shipments on the French market in 2017-18
(in tonnes / source: Pierre Gerbaud)



Brazilian air-freight mango - Weekly average import price on the French market in 2017-18
(in euros/kg / source: Pierre Gerbaud)



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Peru

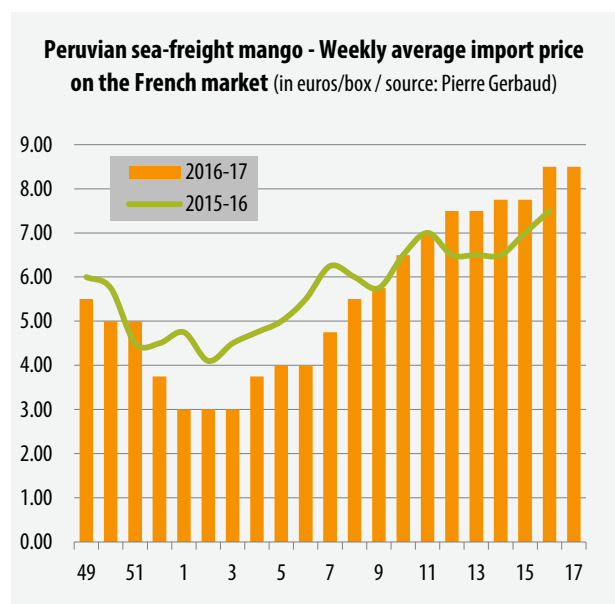
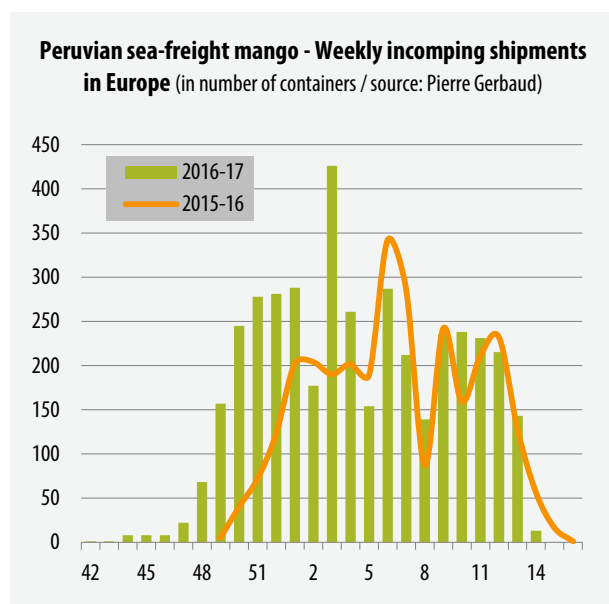
Early and abundant

A choice spot in international trade

Whereas it exported 10 000 tonnes to Europe in the early 2000s, Peru has developed its mango industry remarkably, to achieve exports of more than 95 500 tonnes in 2017. In less than twenty years, this origin has soared in the international mango trade, starting off from a limited level to hoist itself up to be the long-term number two supplier to the European market behind Brazil, practically the founding mainstay of the mango trade. This year marked a new volumes record, with a rise of 8 000 tonnes on the previous year.

Across all destinations, Peru has become the world number two mango exporter, overhauling Brazil to take position behind Mexico. This expansion has been achieved through increasing shipments to the North American markets, but also through diversification of its outlets, especially Asia (Japan, Korea, etc.). Furthermore, Peru is also processing its fruits into dried or purée form, and making big advances in exports there too.

Yet this growth also has its flip side, judging by the results of the 2016-17 campaign. True, the international mango market is increasing, yet infinitely less rapidly than the po-



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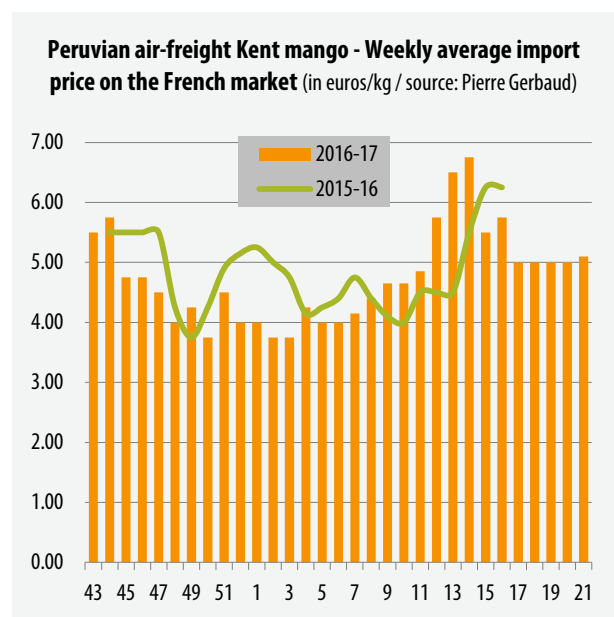
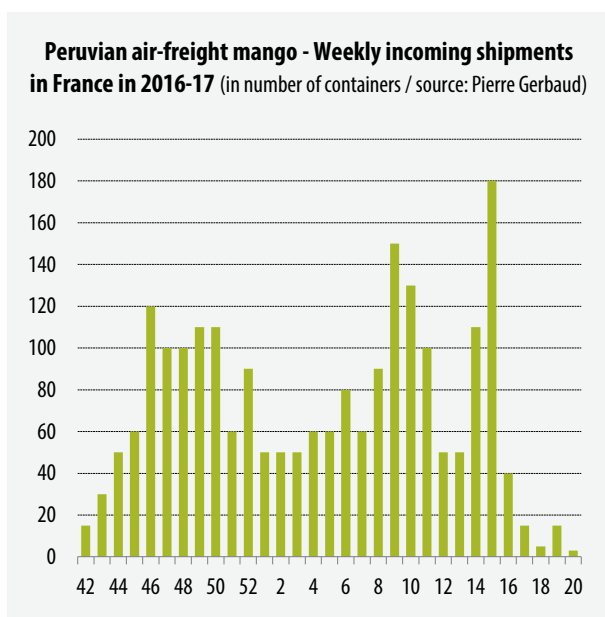


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tentials of the producer countries and their desire to progress. In this context the expansion of an origin such as Peru could only occur at the detriment of another origin, with the risk of saturating the markets and consequently reducing the economic results. Hence many years ago, Peru emerged through the near-total withdrawal of South Africa, whose export period extended over the first months of the year. It is in this window that Peruvian development has taken root. Furthermore, the increasingly late start to the West African campaigns offered Peru the possibility to extend its campaign until May.

An early and protracted campaign

The 2016-17 Peruvian campaign started early, in late November-early December, and was characterised by a very rapid surge in volumes received in Europe, which added to the big incoming shipments from Brazil, whose Kent campaign had started later and more slowly. Hence in December, the European market was choked by weekly incoming shipments of 350 to 400 containers, or even more. This unprecedented tempo extended over several weeks, driving down rates and leading to the formation of large stocks, in a context of high but not outstanding demand. The market was entering a vicious cycle of over-supply: abundant incoming shipments - stocks - qualitative deterioration - low prices. Given the inertia arising from the transport times, stagnation set in for the long haul, in spite of Brazilian Kent shipments stopping during January, and the considerable reduction of its Tommy Atkins, Keitt and Palmer shipments.



In February, the market, practically exclusively supplied by Peru, was slowly recovering, with stronger prices for incoming merchandise. Conversely, they remained very low for fruits out of more or less prolonged storage. On top of that came the gradual predominance of large fruits, harder to sell and obtaining rock-bottom prices. In late February, the change of harvest zones in Peru, going from Piura to Motupe and then Casma, did not help market conditions recover, due to the higher cost prices. European operators struggled to pass on these price increases to their customers, who over a number of weeks had grown accustomed to more attractive prices.

In early March, stocks were being used up, helping prices make a distinct recovery. This positive market trend was especially pronounced since operators anticipated the foreseeable shortfall for the period from mid-March/mid-April, corresponding to the gap between the end of the Peruvian campaign and the start of the West African campaign. Peruvian shipments ended suddenly. In fact in week 11, very heavy storms due to the El Niño phenomenon caused major flooding, accompanied by landslides causing numerous victims. While the production zones do not seem to have been hard hit, the country's logistical axes were paralysed with roads cut off and bridges uprooted. Despite the qualitative deterioration of the fruits, rates remained high in the run-up to Easter, insofar as there were barely any alternative supplies, barring the Brazilian shipments.

The air-freight campaign extended for longer than the sea-freight campaign, starting from mid-October. Air-freight mango rates dipped gradually in the face of the Brazilian competition, its campaign now in full swing. From nearly 5.50 euros/kg at the start of the campaign, prices reached their lowest level in December at less than 4.00 euros/kg. This average rate, obtained by smoothing large variations according to fruit quality, continued until early March. It then soared until Easter, to 6.50 euros/kg on average, before dipping back to around 5.00 euros/kg in the second half of April, while demand shrank slightly and increasing quantities entered Europe from West Africa. At the end of the month, Peruvian volumes became marginal and marked the end of the season with fruits of increasingly fragile quality.

Peru is consolidating its footing on the European market with shipments rising year on year. Yet is the quantitative saturation that it causes, especially from mid-December to mid-March, proving economically advantageous? As in recent years, the majority of exports sold at prices if not low then at least not very high, and the second part of the campaign was characterised by smaller volumes selling at high prices. For all that, the Peruvian industry is pulling off genuine feats in terms of export volumes. The products proposed are of a satisfactory quality standard, in spite of occasional variations due to sheer mass of shipments. This represents an asset for this origin, the most distant of the mango supplier countries to the European market ■



West Africa

Caught in the tempest

Despite its shipments to the European market being 4 000 tonnes down 2017, West Africa remains an essential supply source in spring. Yet besides this dip, the difficulty arose from the logistical and sanitary conditions under which the campaign proceeded.

Côte d'Ivoire

One year of joy, the other of despair

In 2016, Côte d'Ivoire, Africa's number one mango exporter and the number three supplier to the European Union, had exported just over 30 000 tonnes. In 2017, despite a similar volume, the results have been incomparably less positive. However, market conditions turned out rather well, with the transition from the Peruvian campaign to the West African campaign proceeding fairly harmoniously, with the rapid withdrawal of Latin American fruit, and Ivorian shipments soaring. However, the 2017 campaign proved to be distinctly more complicated and difficult due to a combination of factors.

First of all, production proved to be more modest than in 2016, requiring scattered harvests and a geographically wider search for fruits, particularly damaging to the already fragile quality. The lack of precipitation during fruit growth represented an initial handicap, leading to their dehydration which rapidly led to a creased appearance of their skin. Heatwaves then accentuated this phenomenon. The early harvest at the start of the campaign, driven by demand from markets in shortfall, also aggravated fruit desiccation. Though barely visible during picking, it developed after receipt by the end markets. In addition, the early harvest, for fear of fruit fly infestation, does not seem to have been a good strategy. Fly holing on the rapidly picked fruits, in a context of high parasite pressure, are harder to detect during packing and loading into containers. Conversely, maturing during transport favours egg hatching and development of the larvae, visible on arrival of the merchandise.

On top of these meteorological and parasite problems, from around 10 May onward, came social action which



disrupted local logistics. Transport from the production zones to the port of Abidjan was hindered and often delayed, altering the ship loading programmes. To make matters worse, the port handling machinery breakdowns altered the ship docking windows, causing major loading delays. Hence many containers remained in port, with or without refrigeration, leading to accelerated maturation of the fruits, and thereby an increased risk of parasite proliferation. The delays between packing and delivery to the end recipient were occasionally very long, generating numerous disputes. These logistical problems concentrated shipments even more, causing piecemeal delivery of merchandise of disparate quality, which weighed down heavily on fruit sales and sale prices. In addition, they were also highly restrictive for produce from Burkina Faso and Mali using the Abidjan logistics corridor.

Accentuated concentration of supply

The sea-freight campaign started in early April with small volumes of Amélie and Zill, which sold decently given the decreasing Peruvian presence and the preparation of procurement for Easter, always a slightly livelier period. The first Kent containers reached Europe in mid-April and sold rapidly at high prices, in spite of a sometimes borderline maturity and low-intensity external coloration.

In May, seasonal fruit volumes, hitherto scarce because of cold spells in winter and early spring, rapidly intensified and sold at attractive prices, relegating tropical fruits to a secondary role. It was also at this time that Ivorian ship-



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ments boomed erratically because of the events mentioned above. The concentration of volumes proved to be detrimental to fluidity of transactions and the quality of produce subjected to more or less long storage. During May alone, Ivorian exporters made 80 % of the campaign total. Rates declined gradually, going from more than 7.00 euros/box to 4.00 euros/box on average at the end of the month. They stabilised at this level over the following weeks, whereas incoming shipments became marginal. At the end of May and the first half of June, Ivorian mangos out of storage underwent clearance sales at low prices.

A mediocre air-freight campaign

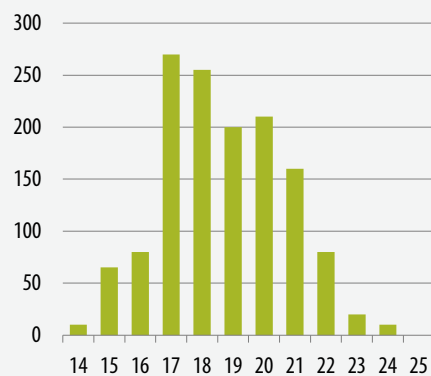
Estimated at nearly one thousand tonnes, the air-freight campaign proved to be very average. The first shipments began late, though they were expected to offset the decrease in Peruvian shipments. The big tonnages received at the beginning of the campaign (mid-April) rapidly saturated the market, especially since they arrived after the more dynamic Easter period. Furthermore, the (justified) fear of merchandise seizures, in case of the presence of fly larvae, encouraged exporters to ship premature fruits with underdeveloped coloration, unsuited to demand. These fruits struggled for the most part, aggravated by the triggering process. Their quality was often akin to sea-freight mangos, immature and with low coloration. Many were

creased, exhibiting an unattractive visual appearance. Prices remained relatively stable, at around 4.00 euros/kg for fruits of decent quality, i.e. approximately 1.00 euro/kg less than during the previous campaign. Numerous sales were also made at lower prices for lower-quality fruits.

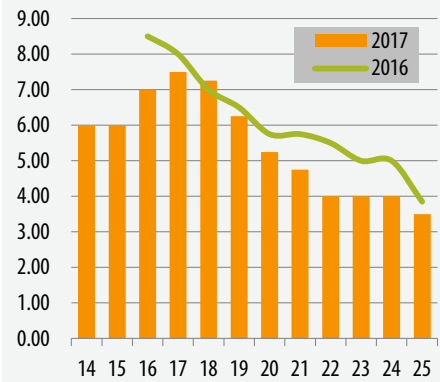
In mid-May, a lack of air-freight capacity contributed to limiting shipments, but hardly influenced prices given the accumulated volumes already received. On top of the qualitative problems came strong competition from the season fruits, available in quantity and offered at more accessible prices. Hence demand for Ivorian mangos dipped, especially as the Mexican and Senegalese campaigns started.

Average fruit quality, major logistical problems and high parasite pressure contributed to the difficulties experienced by the Ivorian campaign. The Ivorian mango industry will need to quickly find solutions to all these issues, to safeguard its brand image on the European markets.

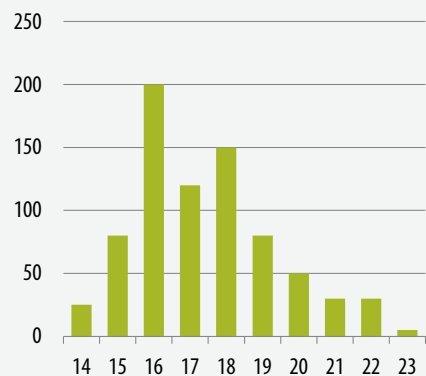
Côte d'Ivoire sea-freight mango - Weekly incoming shipments on the French market in 2017 (in number of containers / source: Pierre Gerbaud)



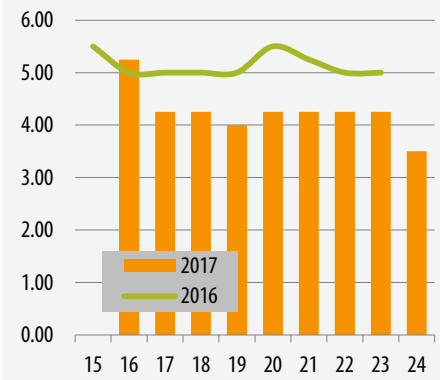
Côte d'Ivoire sea-freight Kent mango Weekly average import price in France (in euros/box / source: Pierre Gerbaud)



Côte d'Ivoire air-freight mango Weekly incoming shipments in France in 2017 (in tonnes / source: Pierre Gerbaud)



Côte d'Ivoire air-freight mango Weekly average import price in France (in euros/kg / source: Pierre Gerbaud)



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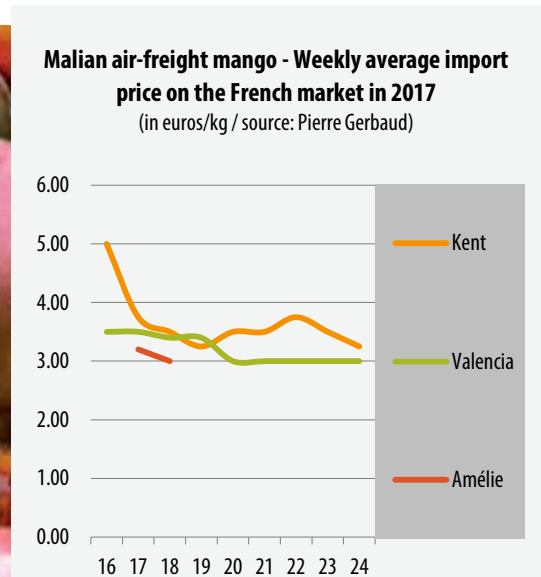
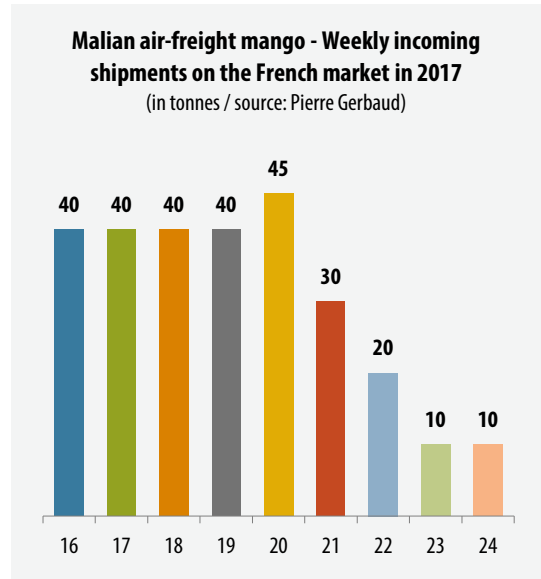
Mali

Thwarted development

The 2017 campaign marked a distinct downturn for Mali on the European markets, after the progress of the past two years. The exports tempo, which had held up at between 3 500 and 4 500 tonnes depending on the year since 2007, saw more distinct growth in 2015 (6 425 tonnes), and especially in 2016 (7 450 tonnes). The origin, which exploits various logistical corridors to evacuate its mangos, turned out to be the second supplier to the European Union over the period from April to June. Yet the momentum picked up in the wake of Côte d'Ivoire eased up in 2017, with volumes of 4 850 tonnes. This downturn arose mainly from the fall in production because of unfavourable meteorological conditions, but also other external factors, especially the logistical problems around the port of Abidjan, which usually processes the majority of this country's shipments. Finally, the high parasite pressure this year played a limiting role due to fears of merchandise seizures on receipt.

Air-freight campaign cut short

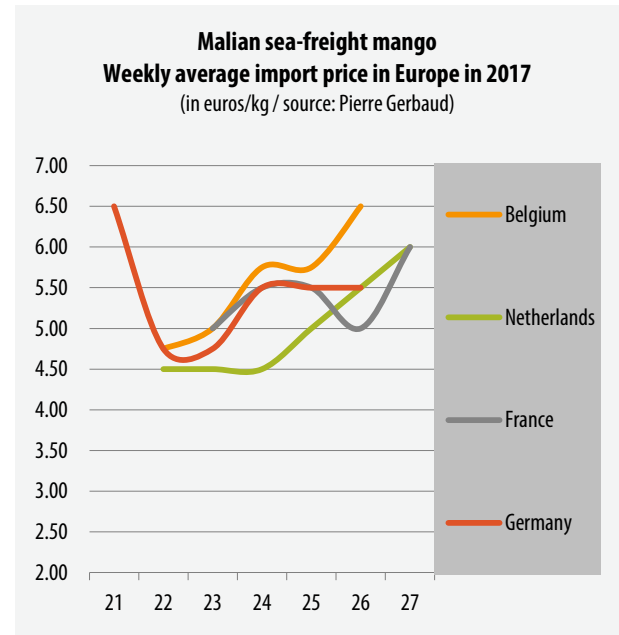
Air-freight shipments started two to three weeks later than the previous year, with a shortage of the Amélie variety, generally early and which often kicks off the export period. Fruit fly infestations were observed practically at the start of the campaign, encouraging shippers to rapidly suspend shipments of this particularly fragile variety. The Kent and Valencia campaigns started simultaneously, whereas usually Valencia appears earlier. Mutual competition rapidly set in between the two varieties. From approximately 4.00 euros/kg from mid-April to mid-May, their rates diverged thereafter, with Valencia selling at around 3.00 euros/kg and Kent at 4.00 euros/kg. Valencia seems to have been abandoned by customers due to the parallel presence of Kent, but also because of its often rapid development, and accompanied by qualitative deterioration. In week 24, exports were winding down two weeks earlier than in 2016. The lower fruit availability and appearance of mangos from Senegal and Mexico in the first half of June probably precipitated the closure of the Malian campaign.



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A moderate yet stable sea-freight campaign

Sea-freight shipments started in the second half of May, and were primarily aimed at Northern Europe (Germany, Belgium, the Netherlands). Shipments to the French market were later in June. The abundance of Ivorian mangos on this market, with the fits and starts in the supply already mentioned, explains this difference. The Malian export flow was hard hit by produce transport problems, landlocked as it is and therefore dependent on the neighbouring countries which enjoy a coastline. Nonetheless, without reaching the prices obtained at the beginning and end of the last campaign, Malian mangos sold more steadily at between 4.50 and 5.50 euros/box, with rates strengthening to sometimes in excess of 6.00 euros/box at the end of the campaign (early July). The disappearance of Ivorian mangos in early June left a more favourable niche for Malian produce in the absence of other Kent suppliers. In spite of a considerable downturn in volumes, Mali nonetheless confirmed its trade slot, which remains dependent on the country's capacity to eliminate the damage caused by the fruit fly, on the rise again this year.



Burkina Faso

A backward step

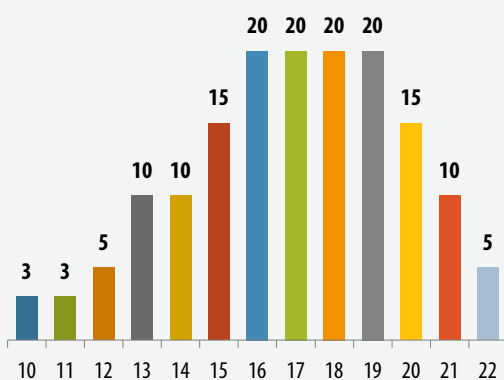
Production declining

After rising fairly steadily since 2013, Burkina Faso is at a standstill with export volumes to the European markets on the wane. From 6 000 tonnes in 2016, a record level for this country, they went to 3 800 tonnes in 2017. The main reason seems to be smaller production which hit all the fruit trade and processing sectors more or less hard. Only air-freight shipments and processing saw a rise. Air-freight exports totalled approximately 500 tonnes, instead of 420 tonnes in 2016. So exporters logically preferred to ship more fruits by air-freight, a more flexible mode of transport, especially with production dwindling. On top of this, there were nearly 2 500 tonnes shipped to regional or international markets outside of Europe.

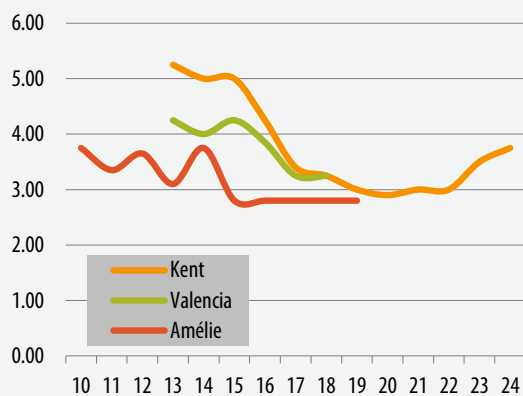
The processing sector has also risen, managing to cope with the difficulty in finding sufficient volumes to satisfy the sea-freight sector, more demanding in quantitative terms. Hence, 2 600 tonnes of mango purée and mango juice were produced in 2017, as opposed to 2 330 tonnes in 2016. Conversely, dried mango production, which Burkina Faso has made a speciality for many years, went down to 1 520 tonnes in 2017, whereas it had touched on 2 000 tonnes the previous year. Dried mango exports also collapsed in 2017, with 700 tonnes as opposed to more than 1 700 tonnes in 2016.



Burkina Faso air-freight mango - Weekly incoming shipments on the French market in 2017
(in tonnes / source: Pierre Gerbaud)



Burkina Faso air-freight mango - Weekly average import price on the French market in 2017
(in euros/kg / source: Pierre Gerbaud)



A more difficult second part of the campaign

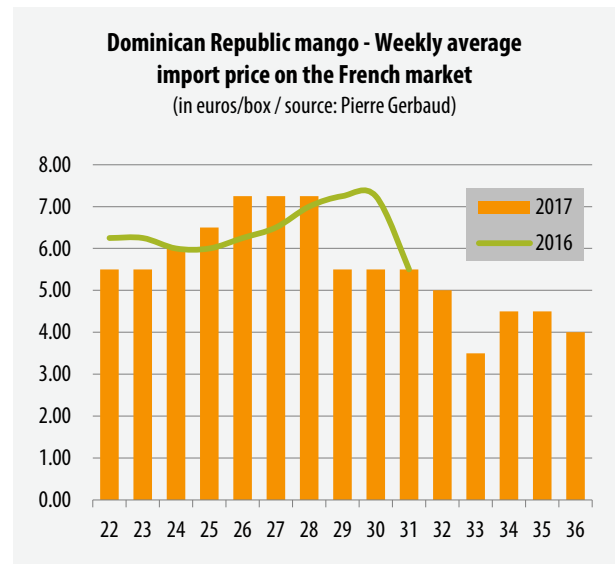
The export campaign to the European markets began early, with the first batches on sale in week 10 rather than week 12 in 2016. This primarily involved Amélie, which sold at high prices for this variety. The relative shortage of air-freight mangos at this time of year favoured these sales, aimed more at retailers specialised in sales of exotic products. This variety, formerly widely available, is now to be found in a niche slot.

Week 13 saw the start of the Valencia and Kent campaigns, generally more coloured and more popular among consumers. Prices, high during the weeks before Easter (14 and 15 April), dipped thereafter under the effect of the increasing supply, not only from Burkina Faso, but also the other origins. In early May, prices stabilised at around 3.00-3.50 euros/kg on average, while Amélie and Valencia shipments were suspended. In the first half of June, Kent rates were recovering, due to lower market pressure with the end of the Ivorian campaign. While Amélie and Kent met the market criteria, Valencia were finding it harder to sell. This variety found a market window mainly at the beginning of the West African campaign, when the coloured fruits supply was provided above all by Peru. At this time of the year, Valencia was an alternative to the Peruvian mangos, whose quantity and quality were on the wane, and with higher production costs. Hence Valencia was of interest to retailers, though this vanished upon the appearance of substantial volumes of Kent from the various West African origins. In addition, in late April/early May, the quality of Valencia deteriorated, aggravating lack of interest from the distribution sector. This development is tending to take a firmer hold with each passing campaign. Might it not be desirable for shippers to tailor their shipments more precisely in terms of varieties, so as to avoid excessive price variations? The challenge remains tricky, with the campaigns never following a set course ■

Dominican Republic

A mixed campaign

The 2017 Dominican export campaign totalled 11 360 tonnes to the European Union, a figure down from 2016 (14 730 tonnes). This campaign neared that of 2014, in terms of both volumes and economic results. Dominican shipments began in late May, thereby avoiding the concentration of West African mangos in May. The first phase of the Dominican campaign paralleled that of Puerto Rico. These two origins, which export Keitt, harnessed favourable market conditions with increasing rates, from 5.50 euros/box at the beginning of the campaign to more than 7.00 euros/box in mid-July. They then dropped until mid-August, falling below 4.00 euros/box because of qualitative problems (fungal attacks and poor development). Certain sales were made at low prices during this period, characterised by flat demand. At the end of the campaign, prices recovered partially with more measured incoming shipments. Over three months of the campaign, rates saw very mixed development, with a rather good first half of the season and a distinctly less profitable second half ■



Senegal

Exports stabilising

In 2017, Senegalese mango exports to Europe totalled 11 124 tonnes, up slightly from 2016 (10 000 tonnes). However, they have remained of the same order of magnitude since 2014, fluctuating between 10 000 and 11 500 tonnes, and consolidating the origin as the number six supplier to the European market. The export calendar generally extends from June to September, a period which does enjoy certain advantages but also has constraints. The beginning of the campaign was marked by the end of West African shipments (Côte d'Ivoire, Mali, Burkina Faso), or at least a considerable dip, thereby leaving a free space for this origin, which in addition is practically the only one to offer Kent until the appearance of Israeli fruits in late July/early August. Senegal only faces competition from Mexico, which exports exclusively by air-freight. In August, the market conditions are complicated due to the parallel shipments from Israel, yet also a recurrent problem of fungal attacks. Furthermore, mango consumption tends to slack off during the summer period. Finally, the parasite pressure affecting Senegal represents a more or less tough obstacle depending on the year, and seems more problematic for air-freight than sea-freight exports.

A shortened air-freight campaign

Sanitary problems seem to have been one of the main causes of the brevity of the air-freight campaign, which started in early June before finishing in the first week of August. It extended for longer in 2016, from the second half of May until the end of September. The high sale prices at the

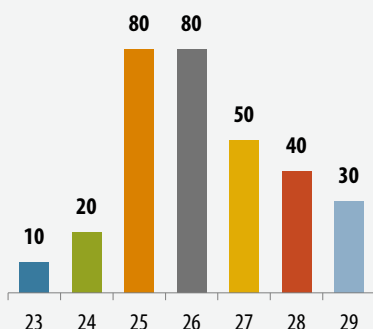
start of the campaign (5.00-5.50 euros/kg) quickly turned around with progressing volumes and the appearance of qualitative problems (3.00-4.00 euros/kg). At the end of the campaign, rates strengthened somewhat as shipments subsided.

Sea-freight campaign same as in 2016

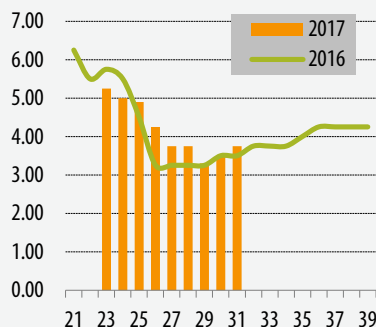
Sea-freight shipments started in mid-June and finished in late August, three weeks earlier than the previous year. They sold steadily under the same profile as the previous season. The moderate prices from the beginning of the campaign rapidly picked up with the disappearance of the competing West African supplies (around 4.00 euros/box). They climbed steeply until July, reaching 8.00 euros/box. The absence of genuine competition for Kent favoured these price increases, especially since the mangos were of good quality at this time. From mid-July, rates gradually took a downturn because of weaker demand, less reliable quality and the increasing presence of Israeli produce. They dropped back to their early campaign level in the second half of August.

Senegal's positioning as the summer turning point, and the fragility of the fruits in the second part of the campaign, remain heavy constraints which can only be eliminated by superior quality in the long term ■

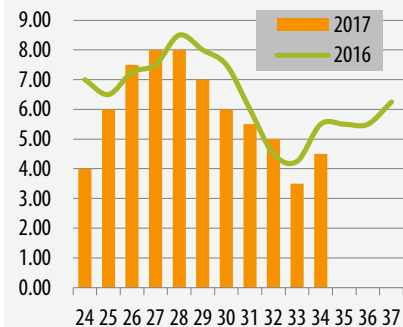
Senegal air-freight mango - Weekly incoming shipments in France in 2017
(in tonnes / source: Pierre Gerbaud)



Senegal air-freight mango - Weekly average import price in France
(in euros/kg / source: Pierre Gerbaud)



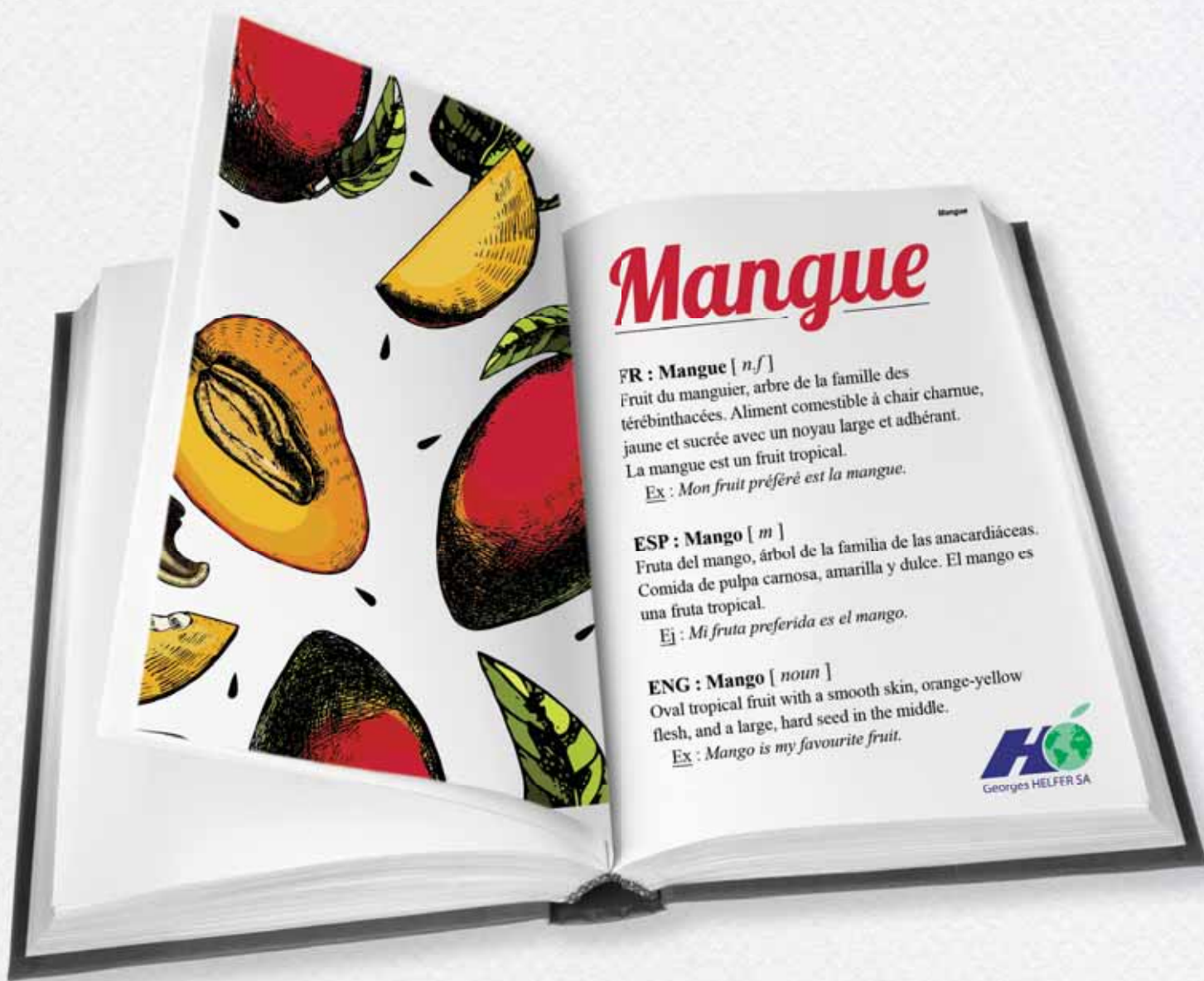
Senegal sea-freight mango - Weekly average import price in France
(in euros/box / source: Pierre Gerbaud)



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Mangue

FR : Mangue [n.f]

Fruit du manguier, arbre de la famille des térébinthacées. Aliment comestible à chair charnue, jaune et sucrée avec un noyau large et adhérent. La mangue est un fruit tropical.

Ex : Mon fruit préféré est la mangue.

ESP : Mango [m]

Fruta del mango, árbol de la familia de las anacardiáceas. Comida de pulpa carnosa, amarilla y dulce. El mango es una fruta tropical.

Ej : Mi fruta preferida es el mango.

ENG : Mango [noun]

Oval tropical fruit with a smooth skin, orange-yellow flesh, and a large, hard seed in the middle.

Ex : Mango is my favourite fruit.



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Mexico

A consolidated position

Since 2014, Mexico has consolidated its position on the European air-freight mango market, aimed at the late spring-early summer period, the turning point in terms of supplier countries, especially for Kent. From June to August, the European market is supplied in succession by Côte d'Ivoire, Mali and Burkina Faso at the end of the campaign, followed by Senegal and finally Israel. The end-of-campaign West African fruits are of less reliable quality, develop rapidly and are often affected by fungal diseases. The Mexican supply represents an alternative, with Senegal as the only real competitor. Israeli produce only appears later in terms of Kent.

The 2017 campaign proceeded, two weeks behind the previous one. Volumes rapidly increased from early June, reaching their maximum in mid-June. They then gradually decreased before a hiatus in mid-August. Mexican exporters took advantage of this period of less lively competition and wound down their shipments in mid-summer, when demand is lowest. It is also during this latter phase of the campaign that the risks of qualitative deterioration of Mexican produce usually develop.

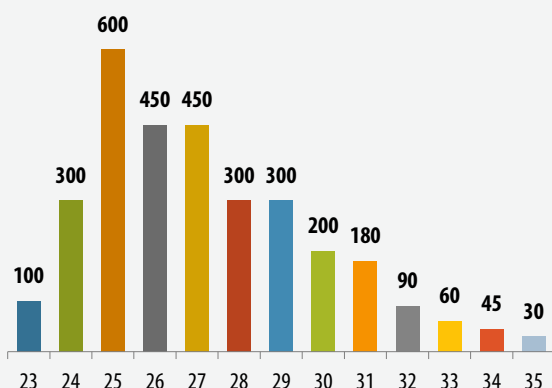
The big Mexican shipments in the second half of June, combined with those out of Senegal, dragged the market down in early July (from 5.00-5.50 euros/kg to 4.00-4.50 euros/kg). Certain batches of advanced maturity actually underwent low-price clearance sales (2.50 euros/kg). Air-freight volumes proved to be much greater

than demand in the downturn phase. There were numerous batches passing via Spain on top of the direct imports, especially on the French market, making sales conditions even tougher. In late July, the market remained tight, though the rapid decrease in Mexican shipments enabled prices to be revised for good quality fruits.

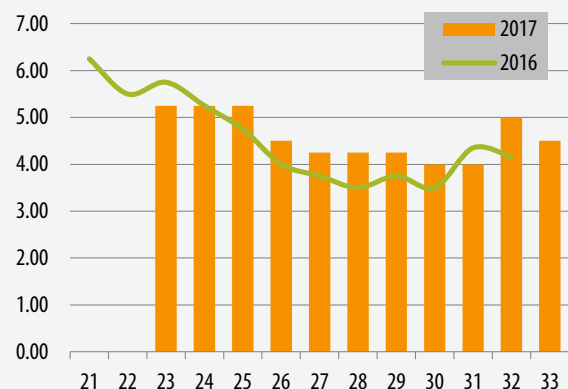
Mexico consolidated its place as an air-freight mango supplier in a market slot which remains tricky, between the end of the West African origins campaign and the summer period when demand weakens. The earliness and extent of the seasonal fruit supply also contributed to halting the fluidity of sales from this origin. However, the rise in tonnages attests to an increased desire from the Mexican professionals to establish themselves on the European markets. In 2017, the recipient markets were mainly France, Spain, Belgium and Switzerland. Mexico, an essential supplier to the North American markets, especially for sea-freight or road-freight mangos, is diversifying its outlets to Europe but also Japan, a particularly demanding market in terms of quality.

Meanwhile, Mexico is developing dried mango production, helping it harness fruits not exportable fresh. The country's large production favours this new niche, which could in future give rise to exports, with these products for now primarily consumed locally. Growth in this segment and the quality of dried Mexican mangos are positives for the development of this sector, less dependent on seasonality than the fresh mango ■

Mexican mango - Weekly incoming shipments in Europe in 2017 (in tonnes / source: Pierre Gerbaud)



Mexican mango - Weekly average import price on the French market (in euros/kg / source: Pierre Gerbaud)



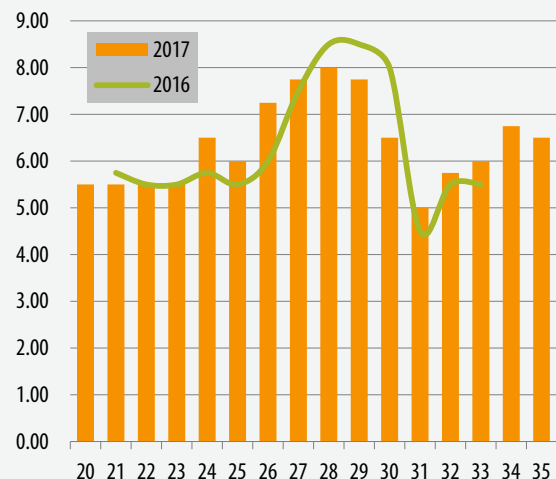
Puerto Rico

A degree of regularity

The 2017 Puerto Rican campaign was similar to the previous one, with export volumes to Europe falling slightly (11 100 tonnes as opposed to 12 250 tonnes). The calendar was the same, starting in mid-May and with shipments ceasing in late August. Puerto Rico exports Keitt exclusively by sea-freight, the outlet being the North European markets via the supermarket sector circuits. Prices at the beginning of the campaign were restrained, at around 5.50 euros/box, given the abundance of West African fruits which dominated the European supply. From mid-June, they increased gradually, to 8.00 euros/box in mid-July, their highest level of the season. At this period, the supply was smaller and Puerto Rican produce provided a steady supply of standard quality. Rates then took a downturn until early August (5.00 euros/box), because of a larger overall supply with the arrival of Israeli produce, less marked demand and quality problems on certain batches. The campaign continued in August, with prices strengthening to 6.50 euros/box though with distinctly smaller volume. Without causing a sensation, Puerto Rico year on year is establishing its presence on the European markets, providing an alternative to competing produce ■



Puerto Rican mango - Weekly average import price on the French market (in euros/box / source: Pierre Gerbaud)



Israel

A condensed campaign

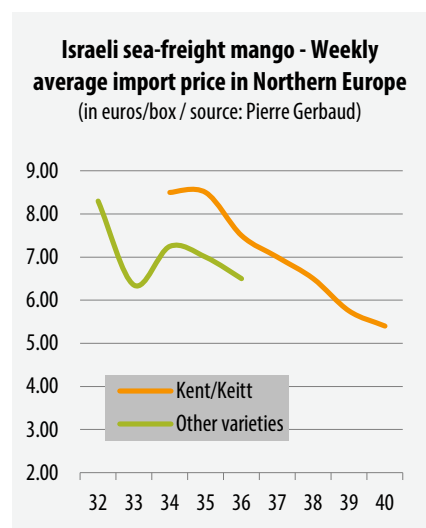
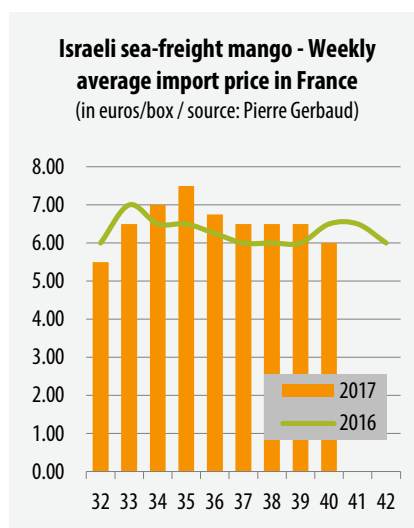
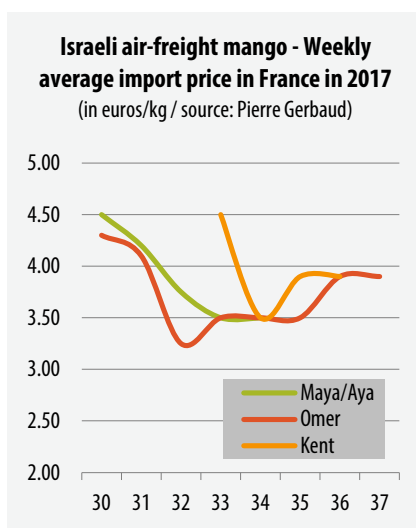
With nearly 16 500 tonnes of shipments in 2017, i.e. approximately 1 300 tonnes less than in 2016, Israel was still the main supplier to the European market during the summer period. With a late start on the market, the Israeli fruits wound down in early October, lasting one month less than in 2016. Sea-freight shipments initially comprised the Shelly and Omer (Kasturi) varieties, which sold at high prices (average 7.00 euros/box). After an overlap period of three weeks between August and September, Kent and Keitt easily dominated shipments to the EU. After selling at between 7.00 and 8.00 euros/kg at the beginning of the campaign, they gradually decreased due to the downturn in demand in August. At the end of the campaign, rates were around 5.50 euros/box, a level which was down, yet nonetheless ensured results envied by other origins.

Israel also shipped air-freight mangos, with the campaign starting similarly to the sea-freight mangos, but finishing more rapidly in mid-September. Usually, the campaign begins with shipments of the Maya and Aya varieties, Israel's early fruits, followed by Shelly and Omer, with the second half of the campaign provided by Kent, and then Keitt, which rounds off exports. In 2017, the first shipments actually comprised Maya and Aya, but also Omer, perhaps due to the lateness of the campaign. Yet the biggest highlight was doubtless the presence of Omer until the end of the campaign, parallel to Kent. Conversely, Keitt shipments were, if not non-existent, at least marginal. Is the Omer variety in the process of supplanting the oth-



er varieties for reasons of productivity or greater solidity? Or is it cyclical development due to natural or market conditions?

Maya and Aya rates gradually declined, going from 4.50 euros/kg on average to 3.50 euros/kg. The Omer rate saw a bigger and more rapid downturn, with the same price as Maya at the end of the availability period. Stable until late August, Omer rates picked up by 0.50 euro/kg in the first half of September. After a marked fall in the second half of August, Kent returned to a level of approximately 4.00 euros/kg for the last shipments of the season. Israel, in addition to substantial volumes, brought a range of varieties to the overall supply, mainly dominated by Kent ■





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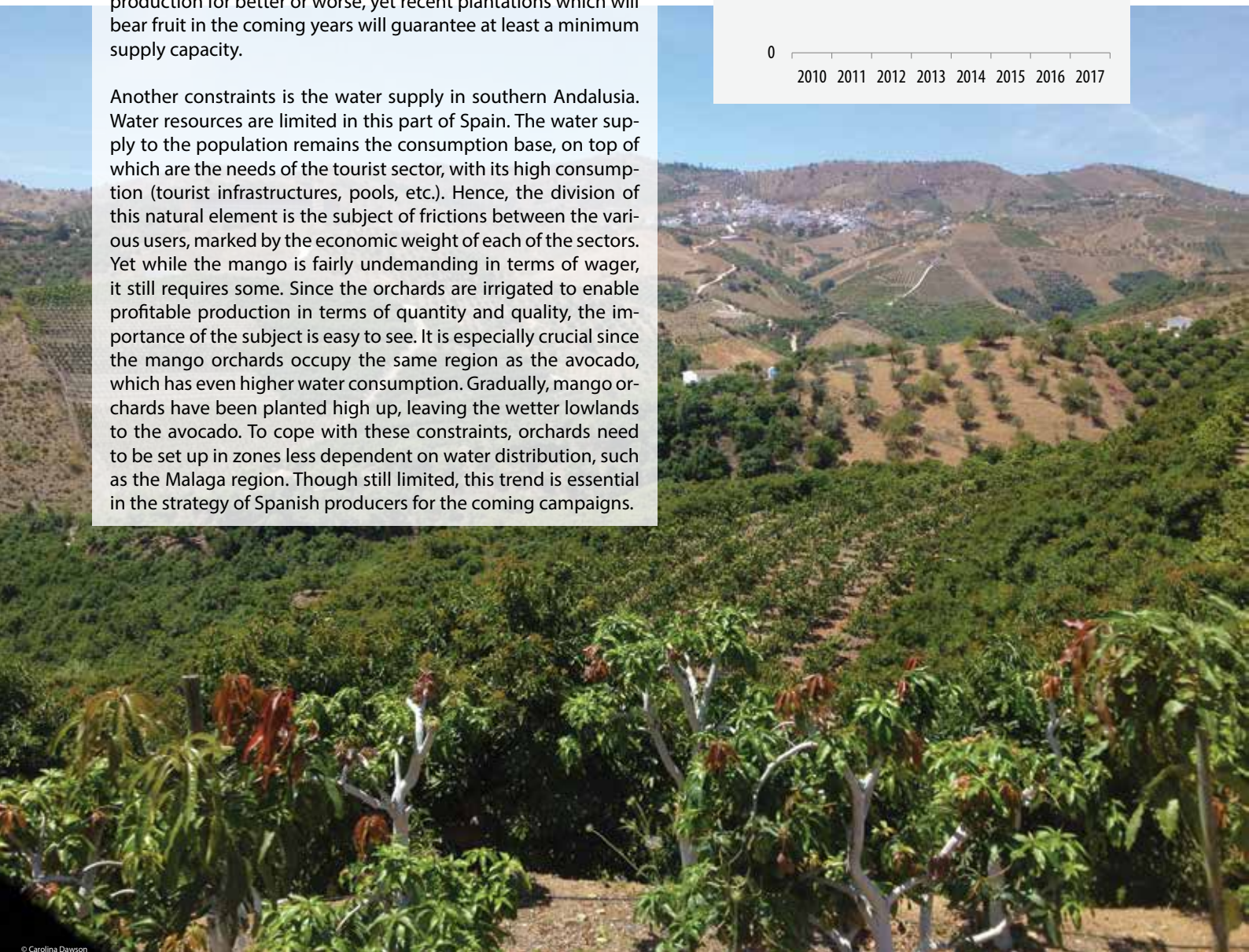
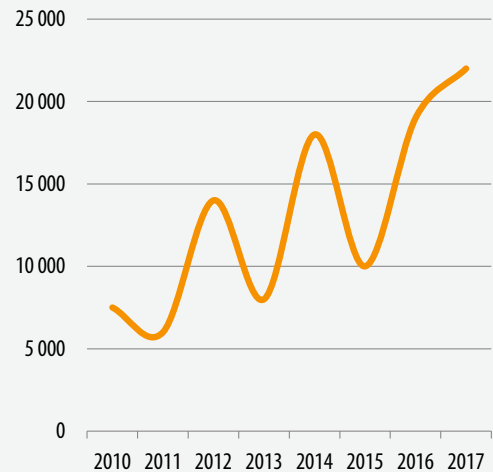
A good campaign

Production increasing, though with constraints

Thanks to production potential which has been constantly increasing for years, Spain has been protected from the meteorological vagaries inherent to its geographic location at the limit of mango growing conditions. Planting is increasing steeply, and production is forecast from 30 000 to 35 000 tonnes for the coming years. True, meteorological variations will still influence production for better or worse, yet recent plantations which will bear fruit in the coming years will guarantee at least a minimum supply capacity.

Another constraint is the water supply in southern Andalusia. Water resources are limited in this part of Spain. The water supply to the population remains the consumption base, on top of which are the needs of the tourist sector, with its high consumption (tourist infrastructures, pools, etc.). Hence, the division of this natural element is the subject of frictions between the various users, marked by the economic weight of each of the sectors. Yet while the mango is fairly undemanding in terms of water, it still requires some. Since the orchards are irrigated to enable profitable production in terms of quantity and quality, the importance of the subject is easy to see. It is especially crucial since the mango orchards occupy the same region as the avocado, which has even higher water consumption. Gradually, mango orchards have been planted high up, leaving the wetter lowlands to the avocado. To cope with these constraints, orchards need to be set up in zones less dependent on water distribution, such as the Malaga region. Though still limited, this trend is essential in the strategy of Spanish producers for the coming campaigns.

Mango - Spain - Evolution of exports
(estimates / in tonnes / source: Pierre Gerbaud)



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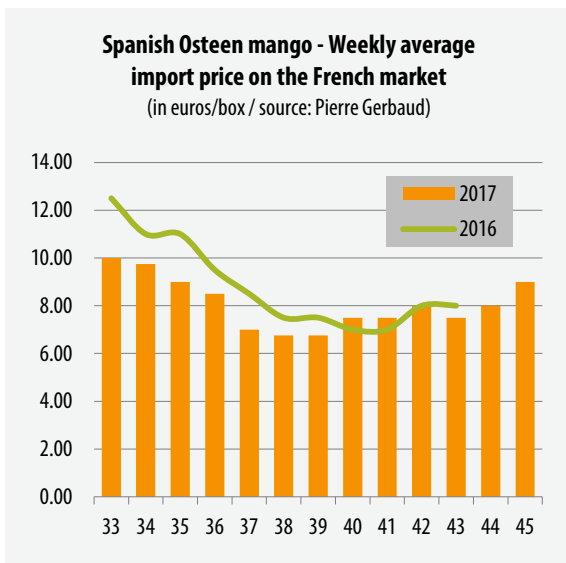
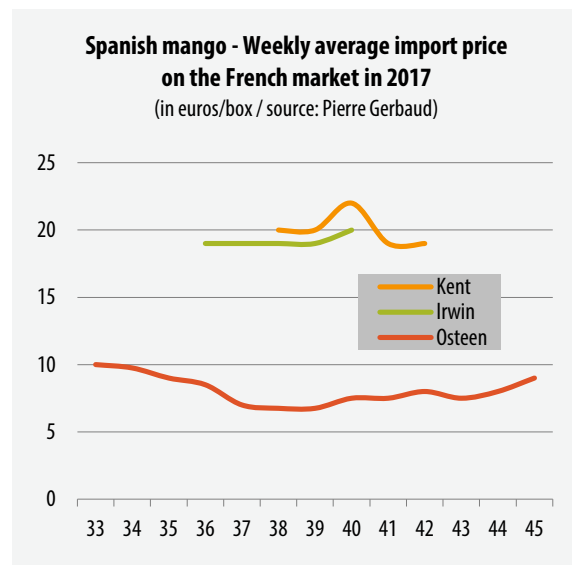
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A hitch-free campaign

In spite of this problem, Spanish production is on the increase. In 2017 shipments were estimated between 20 000 and 22 000 tonnes, up by approximately 2 000 tonnes from 2016. This figure disregards domestic consumption, which further magnifies this result. Like the previous year, shipments started in mid-August with the Osteen variety. This start was made on a market mainly supplied by Israel and Brazil, as well as by the final deliveries from Senegal. The campaign had a tougher start than in 2016, with lower penetration prices, which dipped in the same way. The combination of the various origins, especially the later presence of Israeli produce, doubtless weighed down on the rate of Spanish produce, which went down from 10.00 euros/box to 6.50 euros/box in late September. With the disappearance of the Israeli competition, the Osteen rate recovered in October to 8.00 euros/box on average, during the variety's campaign peak. It even exceeded the previous year's average, and probably marked the most profitable period of the campaign for this variety. Osteen were available until mid-November, though with volumes well down. Their rates strengthened as quantities waned. The Spanish campaign wound down in late November, with Keitt shipments selling on the same price footing. Bit by bit, Spain overcame the Brazil competition from October. Its essential asset is the more developed fruit maturity stage than that of the Brazilian sea-freight mangos, and a more attractive price than the air-freight mangos. Hence Spanish shippers are successfully diversifying their shipments to other European markets.



While Osteen remains Spain's flagship variety, there are other varieties enriching its range. In September, a flow of Irwin made itself felt, though more modestly than for Osteen. A variety primarily comprising small-sized fruits, it earned its value through its packing and selection comparable to air-freight mangos. It sold steadily at high prices, aimed at traditional retail. Kent appeared later (mid-September/mid-October), with volumes up on previous years, and obtained high rates due to its superior quality. More fragile, it did see some price variations, especially when Brazilian air-freight Kent made its appearance. Now, Spanish mangos are winning over not only new market share in the European Union, but are also on the rise on the domestic market, which had hitherto proved moderate. The communication efforts of the main marketing agents are proving useful for this industry ■

Pierre Gerbaud, consultant
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desde 1993

Mango

European market

2017 monthly review: a relatively difficult year

Overproduction in Peru causing absolute stagnation of the European market at the start of the year

In early January, the European market was caught in a long-lasting period of stagnation. The accumulation of incoming shipments, which had a disproportionate month, completely saturated the market, which collapsed bit by bit. The excessive volumes from Peru, in the midst of its production campaign, reached Europe while demand was waning. The European market had not seen such a crisis for several years! In late January-early February, it was completely saturated. Note that this overproduction in Peru also saturated the US market, which was supplied by Ecuador and Mexico as well.

Meteorological problems in Peru in February-March

In mid-February, the market tension seemed to be easing. Prices were higher on some European markets, though sales were still disrupted by produce taken out of more or less prolonged storage. In late February, after two months of stagnation, market conditions finally improved, thanks to the sale of accumulated stocks and the big reduction in incoming shipments from Peru.

In early March, the Peruvian supply was still high, and the Brazilian supply on the rise. Demand appeared more dynamic, favouring a more marked price recovery. Yet in mid-March, heavy storms caused very serious damage in Peru, especially on the road infrastructures, which made it difficult, or even impossible, to forward the merchandise to the ports and airports. The ongoing precipitation, including in the production zones, weakened the fruits. In late March, the trading window was hard to read: wavering in anticipation of Peru's withdrawal and due to incoming shipments from West Africa expected in late April, qualitative deterioration of Peruvian fruits and employing alternative sources (Brazil, Central America).

The Easter gap

On the eve of Easter (16 April 2017), the European market exhibited a stable and positive trend. Demand was high while the sea-freight supply remained limited. While a dip in rates was observed on certain markets after Easter, it remained temporary. Prices remained high insofar as the supply reached a particularly low threshold in this transition period between supplier countries.

In late April, top-up batches from Central America (Costa Rica, Nicaragua, etc.) were received. The supply exhibited fairly average quality between the Peruvian and Brazilian fruits, with often mediocre development, as well as West African fruits, with often insufficient coloration and maturity.



© Denis Loeillet

Africa in the majority, yet market in disarray because of the crisis in Côte d'Ivoire

In early May, West Africa was becoming the main player in the European supply, replacing Peru, and more gradually Brazil. However, the European market proved to be highly disrupted because of logistical problems out of Côte d'Ivoire. Port handling machinery breakdowns altered the ship docking windows and delayed the loads, whereas certain packing stations were winding down their campaign already. Loading of several ships was delayed or moved. Political and logistical events in Côte d'Ivoire greatly destructured the mango supply, not only from Côte d'Ivoire but also the neighbouring origins whose products are routed via Abidjan. Furthermore, the sudden and substantial influx of seasonal produce in Europe was putting tropical fruits in the shade. Mali partially took over from Côte d'Ivoire.

Transition to a summer regime

In early June, a gradual change in the origins could be seen: falling incoming shipments from Côte d'Ivoire, Mali, Burkina Faso, Guinea, etc., with Puerto Rico and the Dominican Republic taking the stage, with the first shipments from Senegal expected. The fall in volumes favoured stagnation, or even a slight recovery in rates. In late June, imports were fairly scattered and varied. Senegal was on the rise in terms of volumes, despite its campaign set to be smaller than forecast. We should also recall the heat waves which hit Europe, leading to strong competition for seasonal produce, with consumption switching to the melon or watermelon.

Nothing new under the sun

During the second half of July, the European market switched to summer mode. The supply remained fairly balanced compared to demand, which as usual saw strong competition from seasonal produce. The summer holidays also contributed to reducing and shifting demand. This all weighed heavily on transactions. The market was particularly quiet, and demand flat. In late August, the supply altered bit by bit with the end of the Senegalese campaign. Brazil shared its exports between the North American markets, with a big increase in volumes, and the European market with fairly stable quantities. In September, the market was supplied by Brazil, Spain and Israel, though demand remained moderate and sales slow.



A difficult end to the year, with overproduction again in Brazil and then Peru

In October, volumes received were increasing and prices dropping. The presence of Spanish mangos remained marked, in spite of shipments dipping. Conversely, Brazil was shipping bigger quantities, in excess of those received at the same time in 2016. A balance was observed in Brazilian shipments to the North American and European markets.

In early November, the European market strengthened again, with rates on an upward trend but still varying according to quality and sizes available. The supply was for the vast majority provided by Brazil. This resulted in rates for sea-freight mangos stagnating, with prices even slumping slightly. The Brazilian supply altered bit by bit with Kent tonnages on the rise, to make up nearly 30 % of the origin's total shipments to Europe. In late November, market conditions were gradually deteriorating, as the Brazilian supply expanded. The big volumes received exceeded the demand level, which favoured storage. In addition, the imbalance in the sizing gradually faded, resulting in a downward levelling out of prices. The varietal modification of Brazilian shipments also caused a more marked lack of interest in varieties besides Kent.

In mid-December, Brazil was reaching the peak of its campaign (nearly 300 containers per week), just as Peru was rapidly starting its exports. In late December, the market was completely saturated by sea-freight mangos. On top of accumulated Brazilian stocks came increasing volumes from Peru. Peruvian mangos entered the market in a difficult context, with prices on a downward trend. The European mango market had a poor end to 2017 ■

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Producer country file

The mango in Côte d'Ivoire

by Virgine Pugnet

The number three supplier to the European market, Côte d'Ivoire is also the number one African exporter country, far ahead of the other West African countries. This origin saw record exports in 2016 and 2017, with more than 30 000 tonnes shipped to Europe. Representing 4 % of the national GDP, the mango is the number three export fruit, behind the banana and pineapple. Generating more than 10 million euros of revenue in the northern zones where it is cultivated, the mango is a flagship product of Côte d'Ivoire. Exports more than doubled in ten years, and sale prices on the markets have improved. Yet there are still many logistical and phytosanitary challenges to tackle, in a still fragile industry.



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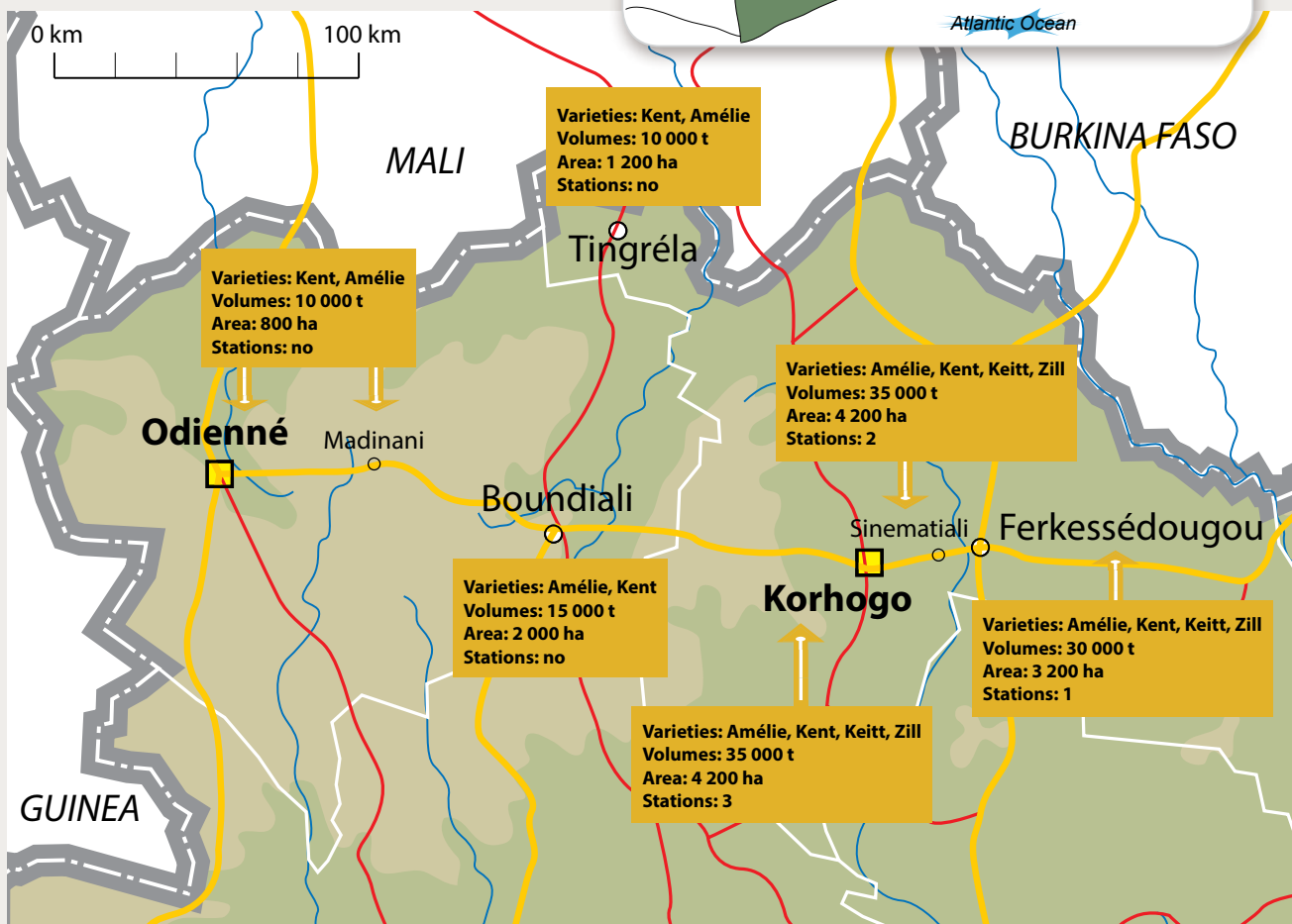
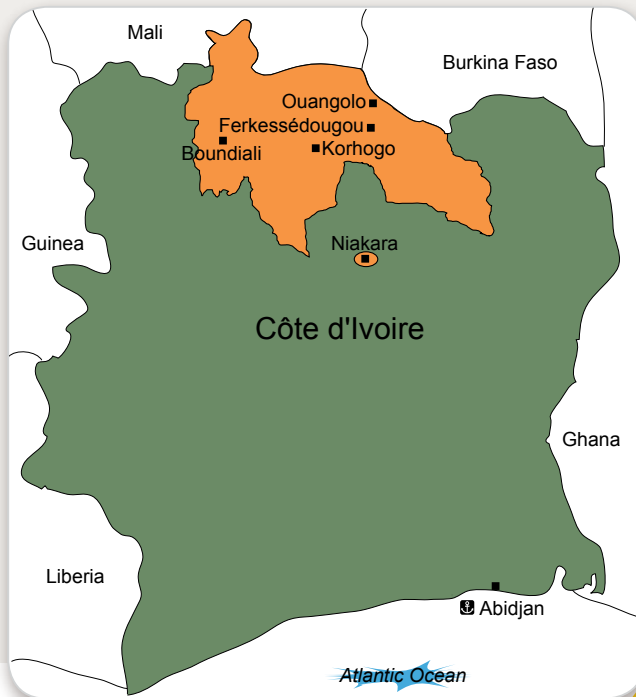
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Mango – Côte d'Ivoire

Location

Mango production for exports is located in the northern part of the country, covering the regions of Bagoue, Poro, Tchologo and Hambol. The main production regions can be found around the cities of Odiénne, Boundiali, Korhogo, Sinématiali, Ferkessedougou and Tafire further south. Situated 600 km from the port of Abidjan, the country's economic capital, the zone is favourable for mango cultivation. It enjoys a lower humidity level than the rest of the country. The long Harmattan periods help ensure good flowering and favourable climate conditions for fruit development.



Source: Ecowas ten study

Mango – Côte d'Ivoire

Production

The Ivorian Agriculture Ministry evaluates mango production at 150 000 tonnes per year. Côte d'Ivoire has a large traditional mango cultivation area, and some modern plantations. The cultivation area has seen rapid growth over the past decade. According to the FAO, it went from 10 000 hectares in 1999 to more than 20 000 hectares at present. More than 90 % of the country's production is provided by small producers (approximately 7 000), on surface areas varying between 2 and 20 hectares. Cooperatives have been set up in the various production zones, though they do not always market their produce directly. The mango represents a major source of revenue, as well as diversification in a zone where the main crops remain cotton and the cashew nut.

Production has increased rapidly, though with rudimentary cropping methods. Ploughing,

weeding, grafting and fencing are the main activities carried out on the plantations. Pruning and phytosanitary treatments are limited. Irrigation is practically non-existent. Production is completely subject to climate vagaries. The maximum yields per hectare are still currently low, including between 3 and 7 tonnes. For the past two years, the effects of climate change have been detrimental to production. The long periods of drought have caused substantial production falls.

However, one of the main challenges remains management of the fruit fly, a genuine scourge of Ivorian producers and exporters. Since 2015, biological pesticide-based treatment campaigns have been launched by the Ministry of Agriculture on 20 000 hectares of orchards. A regional fruit fly management plan has been implemented by ECOWAS for a total of 25.5 million euros.



Photos © Virginie Pugnet



Mango – Côte d'Ivoire

Mango – Côte d'Ivoire – Production calendar

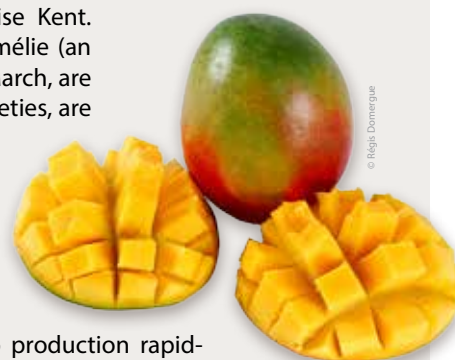
	F	M	A	M	J	J
Amélie						
Zill						
Kent						
Keitt						

Professional sources

This variety now represents more than 95 % of Ivorian export production. Amélie (an acidic-tasting green variety) and Zill, early varieties which enter production in March, are now practically absent from Ivorian stock. Palmer and Keitt, which are later varieties, are exported in limited quantities in late May.

Production calendar and varieties

The dominant variety is Kent, which has gradually become dominant with exports progressing. Multi-varietal orchards already in existence were used for grafting, and the new plantations mainly comprise Kent.

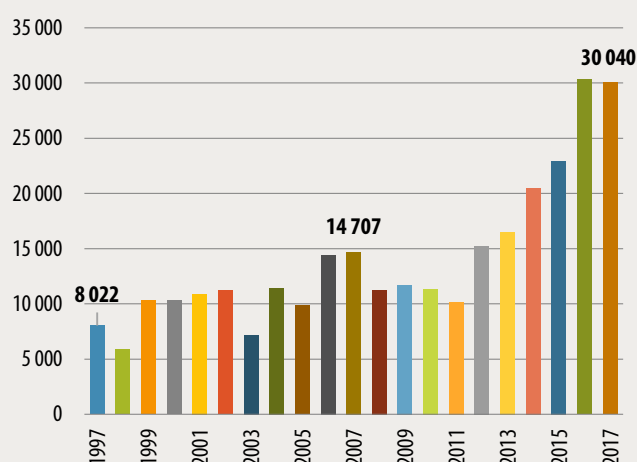


Exports

Mainly intended for local consumption until the early 1990s, Ivorian mango production rapidly switched to exports aimed at Europe. Shipments rose rapidly to cope with a rapidly expanding European market. They slowed down between 2002 and 2013, mainly because of the socio-political crisis that the country went through during this extremely difficult period. After that, exports were stimulated by the stabilisation of the political situation, the entry of big operators into the industry and the improved shipping logistics, thanks to loading the containers at the fruit terminal via the Compagnie Fruitière ships. Around thirty private export facilities export mangos from Côte d'Ivoire. In 2018, a survey by the sanitary authorities counted 36 fresh mango packing units in the cities of Korhogo (18 stations), Sinématiali (10 stations), Ferkessédougou (7 stations) and Odienné (1 station). The campaign start date is now set by the Ministry of Agriculture, which is increasingly involved in the industry. Ivorian exports are now entirely GLOBALGAP certified. Other social certifications meeting the requirements of the markets are increasingly being applied, such as GRAPPS and FAIR FOR LIVE. Organic and Fairtrade certifications are scarce. The industry is managed by three professional organisations: OCAB, AREXMA and OBAMCI. Given the complexity of this situation, operators are currently trying to create a mango inter-professional association, at the initiative of the Ministry of Agriculture.

By virtue of its geographic proximity, its production calendar, the predominance of the Kent variety, and its suitability for the requirements of the market, Côte d'Ivoire is an essential trading partner for Europe in terms of developing the mango market. However, there remains a major dark cloud over this scene: the increased seizures in Europe because of the fruit fly. Despite reinforced inspections at the packing stations imposed by the Ivorian phytosanitary services in 2017, 37 interceptions were recorded in the European Union, as opposed to 10 in 2016.

Mango - Côte d'Ivoire - Evolution of European imports
(in tonnes / source: Eurostat)



Mango – Côte d'Ivoire

Outlets

The main export outlet for Ivorian mangos remains by a long way the European fresh mango market. Though in recent years, there has been growth in exports to other destinations such as the sub-regional market and North Africa, with approximately 3 000 tonnes shipped in 2017. The population boom in Côte d'Ivoire has also stimulated demand for fresh fruit on the local market. The sub-regional market is growing rapidly, in particular supplying the drying units in Ghana and Burkina Faso. Recently, the governmental authorities, with the support of FIRCA (Inter-Professional Agricultural Consultancy Fund) set up some drying units in the north of the country. The objective was to harness the production difference between exports (33 000 tonnes) and production (150 000 tonnes).



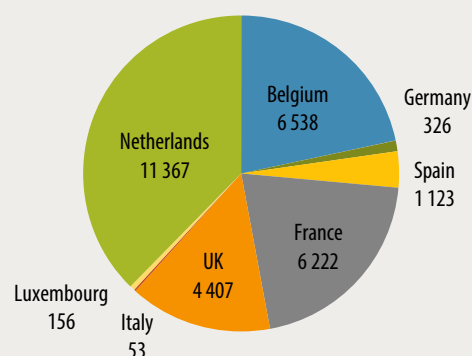
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Mango - Côte d'Ivoire - Points of entry in Europe in 2017

(in tonnes / source: Eurostat)



Mango — Côte d'Ivoire — Sea-freight logistics

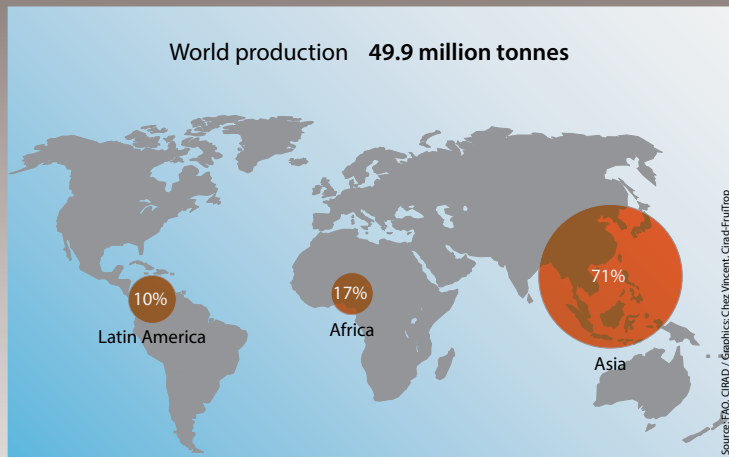
Port of departure	Sea line	Port of arrival	Transit time
Abidjan	AEL	Antwerp	11 days
		Portsmouth	10 days
		Port Vendres	8 days
	CMA CGM	Antwerp	15 days
		Dunkirk	13 days
		Algeciras	9 days
	HAPPAG ARKAS	Tangiers	8 days
		Antwerp	11 days
		London Gateway	16 days
		Algeciras	7 days
		Hamburg	13 days
		Rotterdam	15 days
	NILEDUCHT	Antwerp	11 days
		Algeciras	6 days
Rotterdam		15 days	

Source: Bolloré/AEL

Logistics

The increase in exports has made management of sea-freight logistics an essential issue. Setting up container logistics via AEL ships and the fruit terminal have helped support the increase in exports. Though primarily dedicated to the banana and pineapple, Compagnie Fruitière logistics are limited, given the volumes shipped over a very short period. At the autonomous port of Abidjan, congestion has caused transit problems for the past three years, and thereby fruit quality problems. This constraint should be lifted in 2018 thanks to the improvement in the port facilities, enabling better progress in exports. At the initiative of the banana exporters, measures have been implemented: special booths for reefers, and modernisation of the facilities.

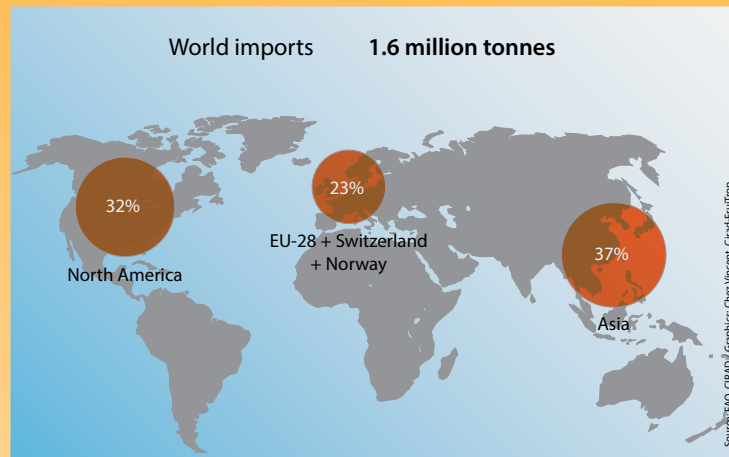
MANGO - Production (2016)



Mango - Top 10 producer countries	
million tonnes	2016
India	18.8
China	9.4
Thailand	3.4
Mexico	2.2
Indonesia	2.2
Pakistan	1.6
Brazil	1.4
Egypt	1.3
Bangladesh	1.2
Sudan	1.1

Sources: FAO, professionals

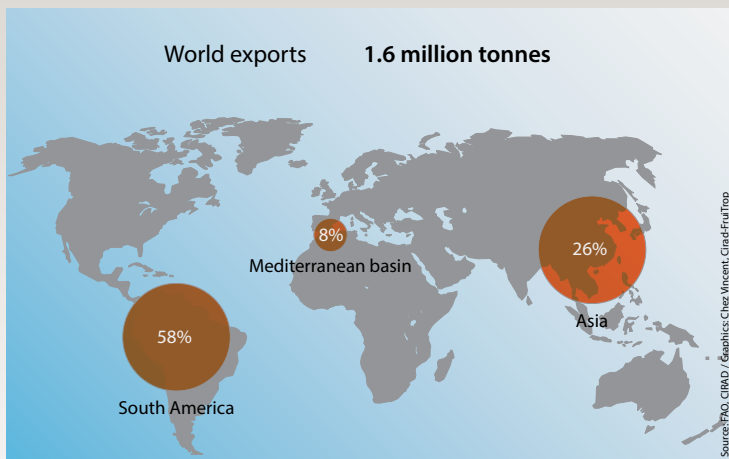
MANGO - Imports (2016)



Mango - Top 7 importer countries	
tonnes	2015
United States	464 797
Netherlands	174 519
China	105 143
United Arab Emirates	103 417
Saudi Arabia	54 098
Canada	57 022
Singapore	51 158

Sources: national Customs, Comtrade

MANGO - Exports (2016)



Mango - Top 7 exporter countries	
tonnes	2015
Mexico	369 314
Thailand	183 290
Peru	157 070
Brazil	154 383
Pakistan	82 658
Ecuador	37 948
India	36 000

Source: Comtrade

USA - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	377 408	436 085	385 861	405 965	464 797	508 904
Mexico	251 321	285 679	242 737	263 080	304 140	332 647
Peru	26 974	41 277	44 653	33 394	45 047	51 562
Ecuador	37 868	45 945	34 462	38 202	56 303	49 628
Brazil	24 215	23 924	22 361	32 210	27 858	32 935
Guatemala	16 986	16 948	20 803	15 544	12 448	16 818
Haiti	8 045	10 262	9 894	10 728	7 087	9 347
Philippines	2 929	2 411	2 220	3 027	3 065	2 932
Others	9 070	9 639	8 731	9 780	8 849	13 035

Source: US Customs

Canada - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	54 291	60 290	58 000	57 234	57 022	65 576
Mexico	35 173	38 940	35 211	37 065	36 477	41 239
Brazil	4 850	4 706	6 317	6 744	5 645	7 131
Peru	4 346	5 826	6 437	4 789	5 875	6 732
Ecuador	3 709	3 979	3 192	2 716	2 744	2 235

Source: Comtrade

Central and South America - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	23 119	27 025	27 196	21 440	19 637	21 999
Chile	3 240	3 421	5 286	4 820	4 765	6 497
Colombia	13 132	13 132	11 530	6 594	3 219	4 499
Honduras	1 339	2 565	2 174	2 999	3 276	2 643
Mexico	1 976	2 921	3 307	2 041	1 588	1 768
Guatemala	228	124	277	363	1 558	1 740
Argentina	1 353	1 408	1 399	1 426	1 425	1 337
El Salvador	569	1 966	1 761	1 952	1 797	1 196
Panama	374	535	464	431	620	914
Bolivia	79	133	426	431	834	874
Paraguay	121	117	375	265	364	412

Source: Comtrade

European Union - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total extra-EU + Spain	246 267	268 686	288 421	304 297	354 233	360 602
Total extra-EU, of which	232 267	260 686	270 421	294 297	335 233	338 602
Brazil	91 093	89 884	99 314	111 511	114 923	117 496
Peru	53 323	68 689	71 975	78 299	87 819	95 537
Côte d'Ivoire	15 245	16 553	20 473	22 919	30 298	30 193
Israel	12 492	11 011	15 865	13 777	17 843	16 583
Dominican Rep.	6 652	9 636	11 154	13 103	14 727	11 360
Senegal	6 197	8 267	10 328	11 520	10 029	11 125
USA	7 954	12 009	11 343	7 383	12 254	11 119
Pakistan	11 272	12 295	3 873	5 318	8 106	6 271
India	3 782	6 037	956	2 477	4 329	5 421
Mali	3 816	4 802	3 833	5 946	7 449	4 897
Burkina Faso	2 126	2 933	3 064	4 358	6 158	4 786
Mexico	4 512	2 954	2 224	3 078	3 742	4 322
Ghana	847	1 627	2 383	2 656	3 611	3 609
Costa Rica	3 860	4 027	3 825	3 952	2 460	3 154
South Africa	681	297	592	1 482	1 510	2 287
Gambia	981	876	2 193	1 915	1 679	1 753
Ecuador	2 071	3 311	1 418	1 857	2 136	1 426
Thailand	1 061	990	1 128	1 168	974	1 020
Guatemala	24	597	591	904	510	979
Venezuela	141	182	389	468	381	310
Nicaragua	824	211	465	208	193	21
Spain production shipments (estimate)	14 000	8 000	18 000	10 000	19 000	22 000

Source: EUROSTAT

Other West European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	14 731	14 906	17 214	18 647	19 080	21 344
Switzerland	9 730	9 905	11 277	12 494	13 448	14 709
Norway	4 657	4 608	5 516	5 685	5 176	6 155
Iceland	344	393	421	468	456	480

Source: Comtrade

Russia - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	8 091	9 429	8 969	5 564	6 119	11 907
Brazil	5 442	5 863	4 559	3 518	3 513	6 165
Peru	666	919	1 235	535	632	1 437
China	435	424	324	286	301	1 106
Thailand	559	750	736	404	438	812
Ecuador	87	105	45	3	73	-

Source: Comtrade

Other East European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	808	922	1 172	1 397	1 389	727
Ukraine	694	774	788	579	275	524
Belarus	114	148	384	818	1 114	203

Source: Comtrade

Mediterranean - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	8 986	11 369	11 912	11 897	13 932	23 967
Lebanon	1 344	1 720	2 039	3 084	3 420	8 523
Palestine	3 735	2 905	2 872	1 125	3 022	7 075
Morocco	1 372	1 027	2 368	3 228	4 377	5 550
Jordan	966	3 271	2 504	2 260	1 335	2 315
Turkey	260	318	282	285	365	382
Libya	1 309	2 128	1 847	1 915	1 413	122
Algeria	209	233	236	273	179	5

Source: Comtrade

Japan - Imports - Main supplier countries						
tonnes	2012	2013	2014	2015	2016	2017
Total	9 741	8 588	7 354	5 841	6 144	5 986
Mexico	3 828	3 569	2 849	2 740	2 952	3 009
Thailand	1 773	1 309	1 229	1 116	1 369	1 295
Taiwan	834	805	759	803	429	587
Philippines	2 113	1 733	1 300	464	623	477
Brazil	598	424	334	235	255	263
Peru	339	548	515	250	322	146
India	4	-	5	24	52	72
Australia	57	62	49	68	45	24
USA	178	109	100	39	16	4

Source: Japanese Customs

Other Asian countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	297 632	349 188	358 341	302 561	317 728	357 415
Vietnam	7 932	8 000	33 984	53 375	28 850	130 259
China	203 184	231 938	233 827	149 553	155 185	105 143
Malaysia	50 960	60 637	48 675	50 324	55 140	51 158
Thailand	1 311	3 602	1 408	385	18 380	26 597
Singapore	20 920	22 716	21 234	22 507	22 083	20 336
South Korea	2 270	3 041	6 494	11 248	13 917	11 747
Nepal	5 740	6 500	7 117	12 550	15 845	5 582
Cambodia	3 287	5 734	4 415	1 243	3 723	4 156
Brunei	779	658	1 012	1 142	1 466	1 477
Bangladesh	185	5 269	56		3 138	954
Indonesia	1 064	1 093	119	234	1	6

Source: Comtrade

Persian Gulf - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	207 204	212 886	219 781	236 339	217 272	231 631
UAE	83 635	84 397	103 966	104 187	88 163	103 417
Saudi Arabia	63 497	69 702	57 649	63 668	64 823	54 098
Iran	18 073	18 156	17 576	12 713	15 000	20 344
Oman	19 794	21 283	16 548	21 201	15 724	17 475
Kuwait	13 099	8 567	11 223	20 409	18 960	17 232
Qatar	3 525	4 334	5 482	6 148	6 937	9 958
Bahrain	5 581	6 447	7 337	8 013	7 665	9 107

Source: Comtrade

Africa - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
Total	15 218	17 139	22 006	22 636	17 951	14 746
Niger	3 274	3 676	3 166	2 681	5 589	4 859
Djibouti	2 251	1 743	2 115	2 509	2 334	2 145
Mauritania	774	890	2 461	2 387	2 364	1 578
Rwanda	1 360	1 471	2 290	2 557	834	1 270
Kenya	253	1 541	1 251	787	1 012	1 138
Botswana	1 369	1 451	1 726	519	1 005	1 074
Uganda	111	1 310	1 542	2 411	3 570	843
Tanzania	4 649	4 003	6 208	7 503	302	709
South Africa	571	522	621	530	320	648
Namibia	461	420	513	556	532	482
Swaziland	145	112	113	196	89	-

Source: Comtrade

Oceania - Main markets						
tonnes	2012	2013	2014	2015	2016	2017
Total	3 758	4 330	5 126	4 856	4 816	5 619
New Zealand	2 487	3 217	3 335	3 468	3 168	4 584
Australia	1 271	1 113	1 791	1 388	1 648	1 035

Source: Comtrade

Mango quality defects



Immaturity and spotting



Natural discoloration of the epidermis



Misshapen fruit



Scarred-over insect pricking



Mechanical wounds after picking



Mechanical wounds after picking



Stalk too long



Spotting on epidermis

Photos © Pierre Gerbaud



Anthracnose type fungal infection



Fruitfly larvae



Sun scorching



Misshapen fruit



Discoloration caused by scales



Wounding with wind-caused rubbing



Postharvest sap burn



Postharvest soiling by sap



Stalk rot



Fungal infection



Overripeness



Internal breakdown caused by excessive nitrogen (high calcium and boron contents too)

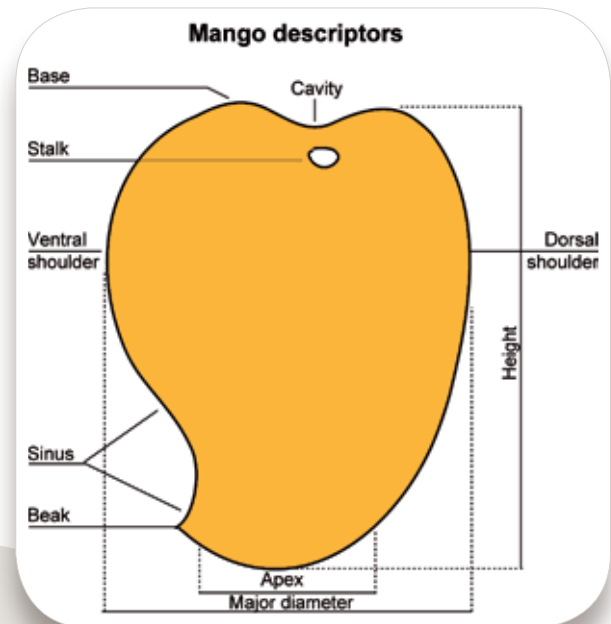
Mango

Main varieties

The mango, *Mangifera indica*, probably originated in a region on the border between India and Burma. Today, there are certainly more than a thousand different varieties around the world. The mango plays an important role as a foodstuff in many countries. A distinction was originally made between two main families of mango with clearly different features that came from two diversification zones—the Indian sub-continent and tropical Asia. A great many of the commercial varieties grown today were bred in Florida at the beginning of the Twentieth Century from multiple crosses between parents from these two families. Exported fruits are generally from budded plants.

REQUIREMENTS OF THE MANGO

The mango is suited to a broad tropical climate ranging from humid to dry. It is found in regions with very different annual precipitation. In the tropics, the halting of vegetation caused by a dry or cool season lasting for a few weeks or months is a condition for good flowering intensity and hence high productivity. Production is often small and irregular in equatorial humid zones as a result of the absence of vegetative growth. The optimum temperature range for tree development and fruit growth is 24° to 30°C. Temperatures lower than 10°C can cause physiological damage. Water supply to the tree must be optimum throughout the fruit growth period and then during the growth of new shoots. Rainfall distribution over the year is more important than cumulative annual precipitation, especially for the production of high-quality fruits. The lower limit for precipitation for commercial mango growing seems to be 750 mm. The mango can grow in a very varied range of soil types if the underlying horizons are sufficiently loose and well-drained. However, the tree prefers deep, fairly light soils with average structure. It can suffer from water shortage in sandy soil and produce small, insipid fruits. It is sensitive to salts in the soil and in irrigation water. Wind can cause damage of varying seriousness and cause imbalance in the water supply. Windbreaks should therefore be grown in windy areas before mango trees are planted.



Characteristics of the two mango families

	Indian sub-cont.	Tropical Asia
Diversification zone	India, Pakistan	Burma, Malaysia, Philippines
Seed	Mono-embryonic	Poly-embryonic
Shape	Round to ovoid	Elongated with cylindrical or flattened cross section
Skin colour	Yellow to orange, sometimes with purple flushes	Green to yellowish green, no purple
Taste	Marked, hint of turpentine	Less marked
Observations	Susceptible to anthracnose	



TOMMY ATKINS

Shape: ovoid, sometimes slightly oblong. Sloping dorsal shoulder. Ventral shoulder above the stalk zone. Round apex, small lateral beak.

Peel: thick. Yellow orange and bright red. Dark purple bloom. Numerous large greenish-yellow lenticels.

Flesh: strong orange colour. Good quality but slightly fibrous.

Average weight: 450 to 710 g

Bred in Florida in 1922, it was soon chosen by growers for its productivity, robustness when handled and good resistance to anthracnose, in spite of its medium fibre content. Flesh quality deteriorates markedly if too much fertiliser or water is supplied. This is the most widespread variety in Brazil, where it forms the majority of exports. It is particularly well-liked in Northern Europe for its bright colour. Most exports consist of medium-sized fruits (8 to 10 fruits per 4 kg box); this matches the requirements of supermarket chains.



KENT

Shape: ovoid, rounded dorsal shoulder and apex. Full ventral shoulder. No beak.

Peel: thick and strong, low adhesion. Main colour greenish-yellow with red or even crimson surface in the parts most exposed to light. Slight greyish bloom.

Flesh: strong yellow to orangey yellow, rich flavour with melting, fibreless texture.

Stone : 9% of total fruit weight.

Average weight: 600 to 750 g

Bred in 1932 in Florida from sown 'Brooks', it bears comparatively large fruits, ranging from 440 g to more than 1 kg on young trees. Much appreciated by both the upstream and downstream ends of the sector, yields are medium but with a high proportion of export quality fruits. Fruit colour is attractive and the tasty flesh is firm and ripens very gradually. It is grown in most of the countries supplying Europe, where it is considered to be the yardstick for mango. However, considerable variations in colour and size according to the production zone can lead to sales problems.



KEITT

Shape: oval, abruptly falling dorsal shoulder. Full and rounded ventral shoulder. Rounded, obtuse apex with no beak.

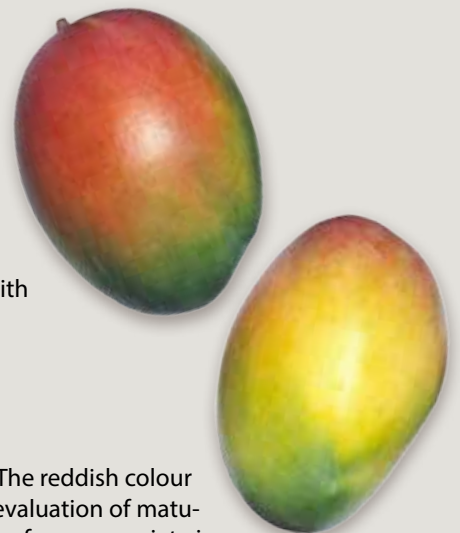
Peel: thick and strong, fairly high adhesion. Orangey yellow to crimson yellow on the side exposed to the sun, with numerous small pale yellow to russet lenticels. Fairly strong lavender-coloured bloom.

Flesh: orange to deep yellow. Rich and fruity flavour. Melting texture with many fibres that are not particularly unpleasant as they are fine.

Stone: 7 to 8% of total fruit weight.

Average weight: 510 g to 2 kg

Bred in 1939 in Florida from sown 'Mulgoba', it has high, regular yields. The reddish colour appears very early before the fruit is ripe and can lead to problems of evaluation of maturity; the latter can be enhanced by time in a ripening chamber. An end-of-season variety in most sources that makes it possible to prolong the export season. Less appreciated than 'Kent', it is nevertheless of increasing importance during periods of gaps between supply sources.





OSTEEN

Shape: oblong with a rounded base. Rounded apex, sometimes with a small beak.

Peel: thick, not very adhesive. Main colour violet/purple with some lavender lights. White lenticels.

Flesh: lemon yellow, firm and juicy. Very high quality and not fibrous.

Stone: long and flat.

Average weight: 500 to 800 g

'Osteen' is from Florida, where it was bred from sown 'Haden' in 1935. It is little grown on a global scale in spite of its good commercial features. It has become more common on the EU market since 2000 as it forms the majority of Spanish production.



HADEN

Shape: oval to rounded cordate. The ventral shoulder is broader and slightly higher than the dorsal shoulder. Well-rounded apex.

Peel: mostly dark red with numerous whitish-yellow lenticels.

Flesh: orangey yellow, almost fibreless. Pleasant, slightly acidic taste.

Average weight: 510 to 680 g

Variety bred from a sowing of 'Mulgoba' in 1902. Shipped almost only by air, this variety tops up supplies of 'Kent' when these are too small to meet demand. The fruit has a fine appearance and a reputation for fragility, requiring rapid sale.



VALENCIA PRIDE

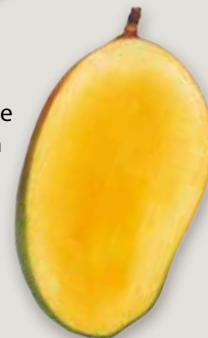
Shape: elliptic. Rounded apex, large apical beak.

Peel: comparatively thin but detaches fairly well. Basic colour greenish-yellow with a large red to purple area. Yellow lenticels.

Flesh: deep yellow. Aromatic and practically fibreless.

Average weight: 600 to 900 g

Variety bred from sown 'Haden' in Florida in 1941. Very elongated, fairly large fruits with attractive colour and shape. Good productivity. Grown mainly in West Africa, it long enabled varietal diversification at the beginning of the season when shipments consisted mainly of 'Amélie'. Its attractive colour formed an alternative. Gradually growing in popularity, it is now consolidating its market share in the range of air-freight fruits.



Wholesale market prices in Europe

January/February 2018

					EUROPEAN UNION - IN EUROS					
					France	Holland	UK	Germany	Belgium	
AVOCADO	Air	TROPICAL	BRAZIL	Box	21.00					
			DOMINICAN REP.	Box	14.40					
	Sea	FUERTE	ISRAEL	Box	11.00					
			PERU	Box	9.75	11.00	11.21			
		HASS	MOROCCO	Box	10.50					
			CHILE	Box	14.88	13.50	18.80	12.50	11.50	
	Truck		PINKERTON	COLOMBIA	Box	11.19	14.00	13.67	10.50	
				ISRAEL	Box	12.15	12.50			
			ETTINGER	MEXICO	Box	11.35	12.25			
			ARAD	MOROCCO	Box	13.25	15.00		15.25	
			FUERTE	ISRAEL	Box	11.00	11.88			
			HASS	ISRAEL	Box	10.00				
			PINKERTON	ISRAEL	Box		11.50			
			BACON	SPAIN	Box	11.50				
			SPAIN	Box	14.46	16.50		15.75		
				SPAIN	Box	11.00		8.21		
		SPAIN	Box	9.50						
BANANA	Air	SMALL	COLOMBIA	kg	6.20					
			ECUADOR	kg		6.08				
	Sea	RED	ECUADOR	kg		2.60				
			SMALL	ECUADOR	kg	2.20	3.17			
CARAMBOLA	Air		MALAYSIA	kg		4.89				
CHAYOTE	Sea		COSTA RICA	kg	1.50	1.60				
COCONUT	Sea	NOT DETERMINED	COTE D'IVOIRE	Bag	15.00	12.71	14.71			
			GHANA	Bag		13.50				
			SRI LANKA	Bag			13.58			
			DOMINICA	Bag			13.67			
	YOUNG GREEN	THAILAND	Bag		9.25					
		COSTA RICA	Bag		17.50					
DATE	Sea	DEGLET	ALGERIA	kg	4.50					
			TUNISIA	kg		2.10				
		MEDJOOL	ISRAEL	kg	11.50	8.22				
			NOT DETERMINED	ALGERIA	kg		3.28			
		MOZAFATI	ISRAEL	kg			3.41			
IRAN	kg		4.50							
EDDOE	Sea		COSTA RICA	kg		1.98				
GINGER	Sea		CHINA	kg	2.20	1.31	1.31	1.77		
			PERU	kg		1.95				
GUAVA	Sea		BRAZIL	kg			3.07			
KUMQUAT	Air		ISRAEL	kg		4.50				
LIME	Air		MEXICO	kg	4.80					
	Sea		BRAZIL	kg	2.65	1.66	1.91		1.64	
			MEXICO	kg		1.90	1.99		1.72	
LITCHI	Air		SOUTH AFRICA	kg	8.00					
	Sea		SOUTH AFRICA	kg		2.94				
			MADAGASCAR	kg	1.80	2.88				
MANGO	Air	ATKINS	BRAZIL	kg	4.00					
			NAM DOK MAI	THAILAND	kg		8.95			
			KEITT	BRAZIL	kg	4.50				
				PERU	kg	4.75				
	Sea	PALMER	BRAZIL	kg	4.50					
			KENT	BRAZIL	kg	4.88				
		ATKINS	PERU	kg	4.69	4.77				
				BRAZIL	kg		1.25			
		NOT DETERMINED	SOUTH AFRICA	kg		1.50	1.56			
			KEITT	BRAZIL	kg		1.01			
			KENT	PERU	kg			0.94		
				PERU	kg	1.22	1.06	1.17	0.75	1.07
MANGOSTEEN	Air		COLOMBIA	kg	9.00	8.25				
			MALAYSIA	kg		8.25				
			INDONESIA	kg		8.63				
MANIOC	Sea		COSTA RICA	kg	1.30	1.24				

					EUROPEAN UNION - IN EUROS				
					France	Holland	UK	Germany	Belgium
MELON	Sea	CANTALOUPE	BRAZIL	kg	1.55	1.32	1.65		
			HONDURAS	kg		1.30	1.53		
			GUATEMALA	kg		1.30			
		GALIA	BRAZIL	kg	1.47	1.18	1.70		
			HONDURAS	kg		1.25	1.81		
		HONEY DEW	BRAZIL	kg	1.00	0.88	0.94		
			COSTA RICA	kg		0.95	0.94		
			HONDURAS	kg		0.95	1.00		
		WATERMELON	BRAZIL	kg	0.93	0.90	1.17		
			COSTA RICA	kg	1.25				
		PIEL DE SAPO	BRAZIL	kg	1.20	0.78	1.41		
		SEEDLESS WATER	BRAZIL	kg	0.97	1.00	1.33		
		CHARENTAIS	BRAZIL	kg	1.70				
			HONDURAS	kg			1.75		
PAPAYA	Air	FORMOSA	BRAZIL	kg	2.89	2.72			3.22
	Sea	NOT DETERMINED	BRAZIL	kg	3.49	3.07	4.31		3.07
		FORMOSA	BRAZIL	kg	2.81	3.00	4.53		
		NOT DETERMINED	BRAZIL	kg	3.43	3.00			
		SOLO	ECUADOR	kg		1.84			
PASSION FRUIT	Air	NOT DETERMINED	COLOMBIA	kg	5.25	5.00		5.00	4.75
		PURPLE	BRAZIL	kg			3.22		
			ISRAEL	kg		5.50			
			VIETNAM	kg	7.63		7.36		
		YELLOW	COLOMBIA	kg	8.17	9.94			
			ECUADOR	kg		7.40			
PHYSALIS	Air	PREPACKED	COLOMBIA	kg	9.50	6.67			
	Sea		COLOMBIA	kg	6.25	5.84	4.17		
PINEAPPLE	Air	VICTORIA	MAURITIUS	Box		13.50			
			MAURITIUS	kg	3.50				
			SOUTH AFRICA	Box		13.50			
			REUNION	Box	18.00				
		SMOOTH CAYENNE	BENIN	kg	2.40				
			CAMEROON	kg	2.00				
	Sea	MD-2	BRAZIL	Box			11.32		
			BRAZIL	Piece			0.57		
			COSTA RICA	Box		8.94		8.00	10.63
			COSTA RICA	kg	1.01				
			COSTA RICA	Piece			1.56		
			COTE D'IVOIRE	kg	1.04				
			COTE D'IVOIRE	Piece			0.85		
			PANAMA	kg	0.95				
PITAHAYA	Air	RED	THAILAND	kg		6.83			
			VIETNAM	kg		7.13			
			INDONESIA	kg		8.67			
		YELLOW	ECUADOR	kg		10.00			
PLANTAIN	Sea		COLOMBIA	kg	1.20	1.05			
			ECUADOR	kg	1.10	1.11			
			WINWARD ISL.	kg			1.20		
POMEGRANATE	Air	NOT DETERMINED	TURKEY	kg		2.14			
		WONDERFUL	ISRAEL	kg	2.70	3.30			
		BAGHWA	INDIA	kg		3.57			
	Sea	NOT DETERMINED	EGYPT	kg	1.80				
			TURKEY	kg			1.71		
			INDIA	kg			3.55		
		WONDERFUL	ISRAEL	kg	2.80				
		BAGHWA	INDIA	kg		3.64			
		HICAZ	TURKEY	kg	2.08				
RAMBUTAN	Air		THAILAND	kg		7.50			
SWEET POTATO	Sea	NOT DETERMINED	BRAZIL	kg	1.50	1.35		0.75	
			EGYPT	kg	1.00	0.82			
		RED/RED	HONDURAS	kg	1.50	1.04	1.11		
			HONDURAS	kg		0.99			
TAMARILLO	Air		COLOMBIA	kg		7.20			
TAMARIND	Air		THAILAND	kg		4.20			
TARO	Sea		COSTA RICA	kg	2.30				
YAM	Sea		BRAZIL	kg			1.10		
			GHANA	kg	1.40	1.67			

Note: according to grade

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

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