

## Citruses

2017-2018 forecast

**Distinct production shortfall  
but high prices**

**World Banana Forum:  
Essential dialogue**

**Producer country file:  
The blueberry in Chile**





Contenu publié par l'Observatoire des Marchés du C

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**No cogito ergo sum.** Politicians and scientists have let power slip away from them. Driven by the media, which definitely does not like things to run smoothly, public opinion is now the supreme decision maker. The principle of ultra-caution has completely replaced risk analysis and cost-benefit evaluation. The glyphosate affair is also indicative of a society which is afraid, and whose elders no longer seem prepared to take responsibility for very much. The public authorities are only interested in subjects that pressure groups have decided to highlight, without asking for whom or what they are working. In a world where social networks have replaced statesmen, and where the number of followers gives weight to an argument, it is no surprise to see the development of a post-modern culture. Scientific argument is suspect and the researcher inevitably serves the interests of evil industry. Scientifically argued compromise is banned; while emotion, feeling and intuition are honoured. Common sense has replaced scientific discussion. Animal instinct has replaced Cartesian Man. Phobia and worry have seized power. One of the greatest advances of the entire history of public health, vaccination, is actually being called into question. Hence we are seeing the resurgence of diseases which had been believed extinct. In a chimeric return to the golden age before technology, in some respects to a Garden of Eden, the citizens of the North have actually forgotten that life expectancy in good health has taken a huge leap forward, and that hundreds of millions of people in the South dream of accessing an equivalent standard of living. Of course, public authorities and researchers bear some of the responsibility for this mistrust, which has indeed now turned into defiance. It is true that the sometimes unhealthy and ambiguous links between State, research and industry have ended up exhausting the trust capital that the authorities used to enjoy. Yet science, technology and chemistry – progress in short – are not humankind's enemy. Greed, stupidity and lack of courage are its real enemies. Yet for the moment few are taking an interest in this.

Denis Loeillet



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**Subscriptions**  
www.fruitrop.com

**Translators**  
Jabtrad Ltd and Tradeasy

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

**ISSN**  
French: 1256-544X  
English: 1256-5458  
**Separate French and English editions**  
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**Subscription rate**  
**EUR 325 / 8 issues per year**  
**(paper and electronic editions)**

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Cover photograph: © Eric Imbert

## Banana

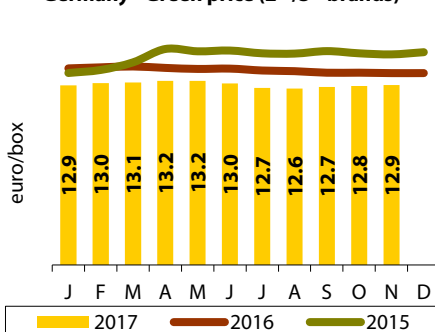
### October/November 2017

Despite a very high supply, the market maintained some balance under pressure. The context remained favourable for banana consumption thanks to falling temperatures, limited pressure from competing fruits, the implementation of large-scale promotions and attractive retail prices on certain markets. In terms of supply, the Caribbean shortfall widened due to Cyclone Maria in late September, leading to big losses in the French West Indies (- 70 % below average) and the Dominican Republic (- 20 %). Surinam also remained in shortfall. The African production peak, late and similar in level to 2016, was unable to make up for these shortfalls. It was the dollar origins which dominated the market, with a high supply in October, before the surplus subsided in late November. Colombia continued to peak in October at record levels for the EU, before undergoing a rapid fall in early November. Ecuador continued its steep rise in October, and only returned to average toward late November (effects of winter). Costa Rican volumes started to increase in October, reaching their high point in November, with higher levels than in 2016. Hence import prices remained under pressure and below average in October, only climbing belatedly, toward late November. Nonetheless, levels remained similar to 2016, and below-average for the season. Finally, the Canaries supply registered a highly marked increase because of abnormally high temperatures at the production stage, thereby leading to deterioration of the Spanish market.

#### NORTHERN EUROPE — IMPORT PRICE

November 2017 euro/box	Comparison	
	previous month	average for last 2 years
12.89	- 6 %	+ 1 %

#### Germany - Green price (2<sup>nd</sup>/3<sup>rd</sup> brands)



#### ■ Panama: renaissance of the Puerto Armuelles banana zone taking shape.

The Panamanian government has embarked on a vast lease programme of approximately 1 800 hectares of agricultural land belonging to 1 600 owners in Chiriqui province. This operation is the first step in the revitalisation of the Puerto Armuelles banana zone. These lands, as well as just over 4 000 hectares belonging to the State, will be leased/sub-leased for a twenty-year renewable term to Del Monte (represented by its subsidiary "Banapiña"). The multinational is committed to investing 100 million USD over seven years to boost banana activity in this historic production centre, involving at least 900 ha per year. This should create 3 100 direct jobs and 12 000 indirect jobs. According to the initial project schedule, the first fruits should be delivered in late 2018. Eventually, Cavendish production should reach 200 000 t, taking the country's export potential to approximately 500 000 t.

Sources: EFE, Reefer Trends

#### ■ Ecuador: hot and cold!

Ecuador recorded an exceptional first three quarters, as is attested by record cumulative exports as at the end of October, up 5 % on 2016. The end of the year should be very different. The cold spell – relatively speaking – affecting the country is at least temporarily counterbalancing the productivity gains due to the plantation investments made. According to climatologists, this cool and cloudy weather could extend into the coming months, and continue to weigh down on the harvest until March 2018. So the Q1 seasonal production peak could be delayed, though still not reduced.

Sources: Reefer Trends, Ciifen



#### EUROPE - RETAIL PRICE

Country	November 2017		Comparison	
	type	euro/kg	October 2017	average for last 3 years
France	normal	1.60	0 %	+ 1 %
	special offer	1.39	+ 2 %	+ 5 %
Germany	normal	1.31	- 1 %	- 2 %
	discount	1.14	+ 1 %	- 5 %
UK (£/kg)	packed	1.03	- 1 %	- 5 %
	loose	0.79	0 %	+ 10 %
Spain	platano	2.14	+ 3 %	- 1 %
	banano	1.27	+ 2 %	- 1 %



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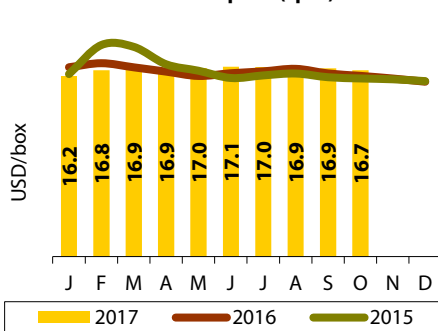
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## Banana

UNITED STATES

USA - Green price (spot)

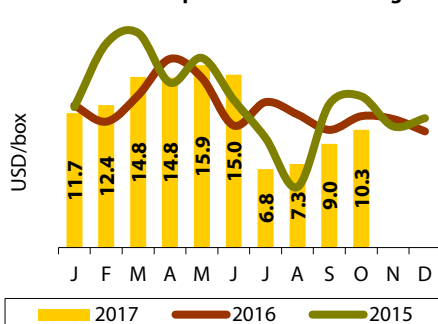


UNITED STATES - IMPORT PRICE

November 2017 USD/box	Comparison	
	previous month	average for last 2 years
16.71	+ 4 %	+ 5 %

RUSSIA

Russia - Green price CIF St. Petersburg

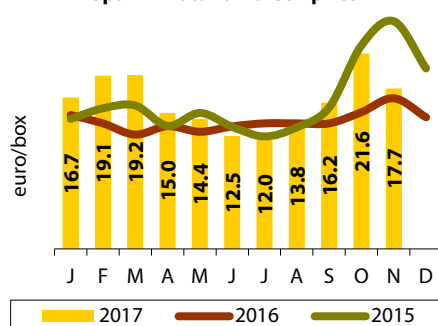


RUSSIA - IMPORT PRICE

October 2017 USD/box	Comparison	
	previous month	average for last 2 years
10.26	- 10 %	- 17 %

CANARIES

Spain - Platano - Green price



CANARIES - IMPORT PRICE\*

September 2017 euro/box	Comparison	
	previous month	average for last 2 years
18.20	- 16 %	- 13 %

\* 18.5-kg box equivalent

### Banana supply: absolute record in the EU, and gathering pace in the USA.

It is hard to come up with anything new to say, since European consumption has been setting record after record for months, and even years. Over the last twelve months (October 2016 to September 2017), it has touched on the 6.3-million tonnes mark; which is 4.3 % more than for the previous period. In September 2017, it actually reached 510 000 t, i.e. the highest ever level for a September. Over nine months, the growth rate was 4.7 %. The dollar origins were the big movers, with a 10 % rise! The African ACPs were trailing at +1.4 %, handicapped by the Cameroon's poor performance. The Caribbean and Latin American ACPs were down by 13 % due to the fall by the Dominican Republic and Surinam. The trend was the same for European production, which fell by 12 %. It was French production which was impeding the trend, with the Canaries seeing only a very slight decline. The effects of the very lively 2017 cyclone season in the Caribbean should affect the supply balance from October. However,

the initial data originating from the Customs releases (source: Taxud) for October show that the dollar origins very easily offset the shortfall, with an estimated increase of 13 % at least for October 2017 compared to October 2016! This helps explain the flat market and the fact that the losses in the Caribbean went completely unnoticed. We might also ask what consequences there would have been for prices had the Caribbean supply level been normal.

US consumption picked up in September 2017 to 359 000 t (+ 11 %), taking an upturn after a 4 % drop in August. Over nine months, it climbed by 4 %, and over twelve months by 2.6 % to 4 166 000 t. Guatemala and Costa Rica continued their ascent in North America with growth rates over nine months of 16 % and 18 % respectively. Mexico enjoyed a boom (+ 31 %) to become the number 5 supplier. Ecuador slumped by 33 %, clearly opting for Europe, Russia and the Near and Middle Eastern markets.

Source: CIRAD

### Banana – EU & USA – Supply from January to September 2017 (provisional)

000 tonnes	2015	2016	2017	2017/2016 difference
<b>EU-28 - Supply</b>	<b>4 348</b>	<b>4 571</b>	<b>4 785</b>	<b>+ 5 %</b>
<b>Total imports, of which</b>	3 883	4 061	4 339	+ 7 %
MFN	3 090	3 212	3 533	+ 10 %
ACP Africa	413	465	472	+ 1 %
ACP others	380	382	333	- 13 %
<b>Total EU, of which</b>	466	509	447	- 12 %
Martinique	146	156	108	- 31 %
Guadeloupe	47	50	40	- 20 %
Canaries	257	289	284	- 2 %
<b>USA - Imports</b>	<b>3 527</b>	<b>3 516</b>	<b>3 657</b>	<b>+ 4 %</b>
Re-exports	416	423	438	+ 4 %
Net supply	3 111	3 094	3 219	+ 4 %

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

### EUROPE - IMPORTED VOLUMES - NOVEMBER 2017

Source	Comparison		
	October 2017	November 2016	2017 cumulative total compared to 2016
French West Indies	↘	- 60 %	- 33 %
Cameroon/Ghana/Côte d'Ivoire	↗	+ 2 %	+ 3 %
Surinam	=↗	- 13 %	- 10 %
Canaries	↗	+ 21 %	+ 1 %
Dollar:			
Ecuador*	↗	+ 27 %	+ 16 %
Colombia*	↗	+ 16 %	+ 14 %
Costa Rica	↗	+ 9 %	+ 5 %

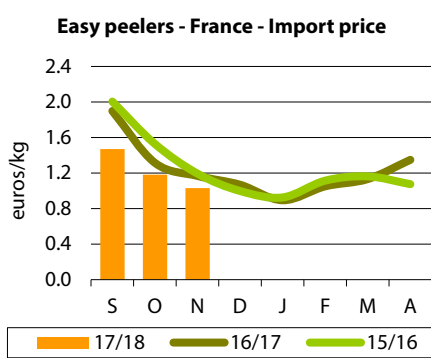
Estimate made thanks to professional sources / \* total for all destinations



## Easy peelers

October/November 2017

The situation was difficult despite the declared production shortfalls. Demand remained very quiet because of overly mild temperatures for consumption until mid-November. Quality concerns (coloration, small sizes) for early-season varieties (Clemenrubi, Oronules) hindered sales, with prices remaining below-average in October. In November, despite sales picking up and the declared production shortfalls, the market remained swollen due to bigger shipments than in previous years: Spanish Nules and clementines from Corsica and Morocco entered the market early. Volumes progressed rapidly, in higher quantities than in previous years because of the high temperatures in the production zones (rapid fruit maturation). Hence prices for Spanish and Moroccan clementines continued to fall, down to lower levels than in previous years.



PRICE	Source	Average monthly price euro/kg	Comparison with average for last 2 years
	Clementine	0.82	- 8 %
	Hybrids	-	- 2 %

VOLUMES	Source	Comparison	
		previous month	average for last 2 years
	Clementine	↗	+ 23 %
	Hybrids	↗	- 1 %

VOLUMES	Varieties by source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Spanish clementine	↗	+ 1 %	In spite of the Nules production shortfall, shipments similar to previous years. Problems of coloration and small sizes. Clemenvilla starting off with small volumes.	+ 2 %
	Moroccan clementine	↗	+ 23 %	Volumes progressing rapidly and early, larger than in previous years. Small sizes and competitive prices.	+ 27 %
	Corsican clementine	↗	+ 18 %	Volumes larger than previous years, despite a production shortfall of 20 %. Campaign ahead of schedule.	+ 24 %

■ **The green clementine, or the woes of virtue.** Tesco is transforming quality standards for easy peelers, but playing with fire. The UK's number one supermarket chain has decided to market non-degreened easy peelers (Satsuma and soon clementine). According to Tesco, this initiative comes under a wider programme to combat food waste, with in March 2016 the launch of a so-called "Perfectly imperfect" range, aimed at eliminating waste from "ugly" fruit. This approach is also supposed to solve the increasingly present problem, due to climate change, of lack of coloration at the beginning of the season, though without affecting the organoleptic qualities for the consumer, as external coloration is not a sign of internal maturity.

True, this approach does have its virtue, but there is a but! Tesco sells these fruits on the same price footing as coloured fruits. Conveying to the consumer the idea that a green citrus is equivalent to a coloured citrus is dangerous in more than one respect. Indeed, external coloration is one of the only quality indicators recognised by consumers, who are unaware of all the varieties for lack of information. Without this simple differentiation criterion, how will the upstream segment be able to cover the enormous investments made in terms of varietal research, purchasing innovative varieties under licence, and demanding technical procedures to offer consumers a wider and higher-quality range ever year? In addition, this may mean eventually opening up the shelves to tropical oranges

or easy peelers, the effects of which on consumption might be disastrous because of their organoleptic qualities being very much inferior to Mediterranean produce. While Tesco is perhaps making a small short-term gain, the Mediterranean industry has a lot to lose from such an initiative.

Source: CIRAD



### ■ Variety of the month:

**Israeli Orri.** An induced mutation of the Orah mandarin (Temple and Dancy Hybrid), bred by the Volcani Center in Israel. It is a medium-sized fruit recognisable by fairly marked grooves running from the base of the peduncle and the occasional presence of a small fruit embryo. The skin is fairly pale orange, of medium thickness and is easily removed. The segments are soft and juicy with few pips. The flavour is very pleasant thanks to a good sugar:acid balance. In the Northern Hemisphere, the cultivation area is approximately 5 500 ha in Israel and 2 000 ha in Spain (46 % in the Valencian Community, 40 % in Andalusia and 13 % in Murcia).

Source: CIRAD



# Grapefruit

**October/November 2017**

The market was tight in October, with November bringing the transition. The supply in October was lean because of South Africa ending early, delayed shipping from Mexico, the highly discreet arrival of the Mediterranean origins (Spanish shortfall, Israel progressing toward the end of the month) and Florida being behind schedule (losses due to Cyclone Irma). Prices remained high and strong. The situation deteriorated in November, a traditional period of low consumption. Mediterranean origins continued to progress. The late arrival of Mexican volumes (delays from October) led to an incoming shipments peak, while the lines had already started to switch. In this context, competition between origins intensified despite moderate incoming shipments. Prices for Mediterranean fruits started to wane, though they were above average. Prices for the heavy stocks from Mexico quickly declined. The first very limited batches from Florida sold at record prices.

■ **Floridian grapefruit: temporary revision of export size standards.** The USDA has decided to temporarily ease size restrictions on citrus eligible for export, given the extreme paucity of the harvest due to Hurricane Irma. Grapefruits will need to have a minimum diameter of 7.6 mm instead of 8.4 mm. This measure should be of limited benefit to the EC market, which is not generally interested in such small fruits. The harvest forecast was again revised downward slightly in November, to just 4.65 million field crates (- 40 % on 2016-17).

Source: FDOC

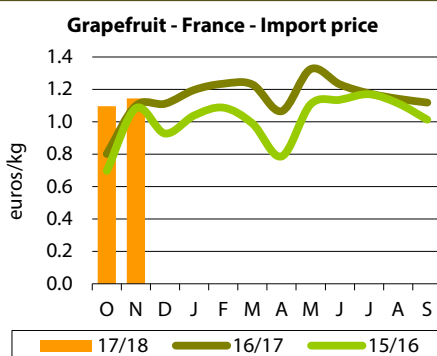
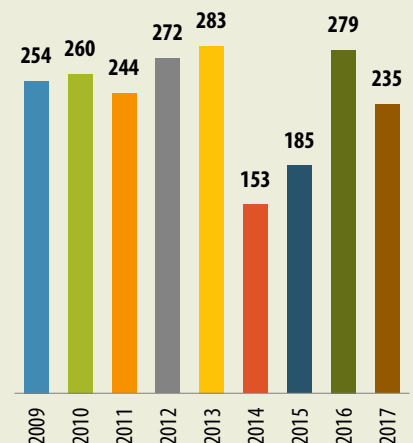


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■ **2017 Argentinean lemon campaign: good in terms of volumes.** With 235 000 t, exports registered a distinct fall from the exceptional 2016 season (big Spanish shortfall), yet still maintained a decent level (+ 4 % on the four-year average). The fall in shipments to the EU-28 explains on its own the overall downturn in exports (just under 150 000 t as opposed to more than 190 000 t in 2016). The other world markets imported stable volumes (approximately 50 000 t for Russia and Ukraine, and 10 000 t for Canada). The opening of the US market, in mid-August, came too late for exporters to enter this new outlet (the level of green-yellow coloration required is not present until May-June).

Source: SENASA

**Lemon - Argentina - Exports**  
(in 000 tonnes / source: SENASA)



PRICE	Source	Average monthly price euro/17-kg box equivalent	Comparison with average for last 2 years
	Mediterranean	15.15	+ 36 %
	Tropical	25.17	+ 20 %

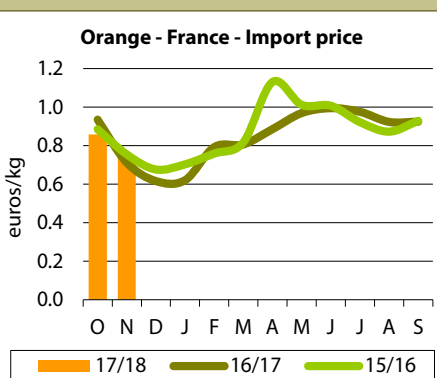
VOLUMES	Source	Comparison	
		previous month	average for last 2 years
	Mediterranean	↗	+ 31 %
	Tropical	↗	- 75 %

VOLUMES	Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Mexico	↘	-	Large last incoming shipments (delayed shipping), large stocks in view of lines switching to other origins.	-
	Florida	↗	na	Late start and well below-average (losses due to Cyclone Irma and greening). First incoming shipments in mid-November.	na
	Israel	↗	+ 29 %	Late start, though volumes rising in November.	- 16 %

## Orange

### October/November 2017

Despite a certain fragility at times, the balance held up during the transition between the summer and winter origins. Consumption was slack in October because of the mild temperatures. Stocks of South African Valencia Late were available, especially in small sizes, throughout the month. Given the predicted production shortfall, Spanish Naveline started off early with moderate volumes, exhibiting coloration problems (high temperatures in production zones). Hence prices continued to fall to seasonal levels, though they declined more significantly for the last South African stocks. In November, the context cleared up again with sales gathering pace, the end of South African stocks and the widening shortfall for Navelina and Salustiana. However, prices followed the seasonal trend at levels similar to previous years (quality still heterogeneous and pressure from programmes and supermarket promotions).



PRICE	Type	Average monthly price euro/15-kg box	Comparison with average for last 2 years
	Dessert orange	11.17	+ 2 %
	Juice orange	12.75	+ 0 %

VOLUMES	Type	Comparison	
		previous month	average for last 2 years
	Dessert orange	=	- 18 %
	Juice orange	↗	- 50 %

VOLUMES	Varieties by source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Spanish Navelina	=	- 18 %	After starting the campaign with average volumes, stabilisation at below-average levels because of the reduced production potential.	- 18 %
	Spanish Salustiana	↗	- 50 %	Late start to the campaign with volumes in shortfall.	- 50 %

### ■ Iran set for an assault on the world citrus market?

The Iranian parliament has proposed to set up a citrus exports system, with the allocation of a substantial aid fund of approximately 30 million USD. With a harvest of 4.5 to 5.0 million tonnes, the country is among the world top ten citrus producers, but is at present practically absent from world trade. Nearly half of production comes from the temperate zone situated on the Caspian Coast (Mazandaran province especially). The rest of the harvest is concentrated near the Persian Gulf (Hormuzgan) and a little further north (Kirman/Fars).

Source: Reefer Trends

### ■ Coca-Cola lends (some) support to sustainability of the Spanish citrus industry.

The multinational has decided to aid the promotion of irrigation and fertilisation water saving tools. It will provide financial and technical support to farmers wishing to invest in fertirrigation. While a fine idea, it currently only involves 50 producers, over a total of 750 hectares. For the manufacture of its drink Fanta, Coca-Cola purchases more than 4 500 tonnes of orange and lemon concentrate in Spain, the production of which requires more than double the surface area.

Source: El Pais

■ **Morocco: alert level!** Just as in Spain, water reserves are registering a critical level, after a dry year and hot summer. According to "l'Économiste", the national dams filling level is 35 %. The situation is worse for agricultural dams situated in the central-south region: the two main ones are below 20 % capacity (Bin El Ouidane and Al Massira). The National Water Plan, which is to set up domestic wastewater recycling and desalination infrastructures, is needed more than ever, but has been delayed.

Source: l'Economiste

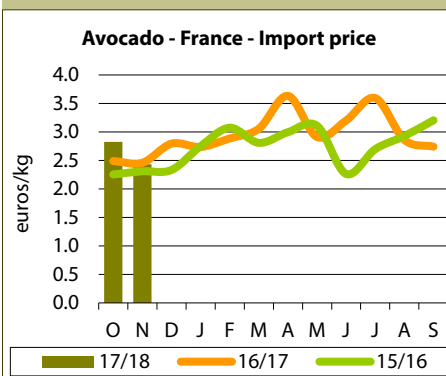




# Avocado

## October/November 2017

The tension observed in October dissipated in November. With the end of the summer/winter transition, Chile took hold of the market with a similar supply to 2016, while Mexico was on the wane because of shipping delays. Hence with the end of the summer stocks, prices strengthened in October to reach record levels, in particular for large and medium sizes. In November, the market swelled due to quieter demand at this time of year and a higher supply than in previous years. Chilean volumes were larger than in 2016, and fell only toward the end of the month. Mexico came back with a bigger supply, and the Mediterranean origins (Spain, Israel) came onto the market with limited volumes, though higher than in 2016. Hence prices declined slightly in November, while maintaining excellent levels for the season.



PRICE	Varieties	Average monthly price euro/box	Comparison with the last 2 years
	Green	8.36	+ 34 %
	Hass	13.48	+ 17 %

VOLUMES	Varieties	Comparison	
		previous month	average for last 2 years
	Green	↗	+ 5 %
	Hass	↗	+ 12 %

VOLUMES	Source	Comparison		Observations	Cumulative total / cumulative average for last 2 years
		previous month	average for last 2 years		
	Chile	↘	+ 21 %	Incoming shipments beginning to fall in November, though still higher than in 2016 and above average.	+ 44 %
	Mexico	↘	+ 34 %	After the October shortfall, supply up in November, with larger volumes than in previous years.	- 9 %
	Israel	↗	+ 18 %	Green varieties beginning their fall, though volumes larger than in previous years (+ 21 %). First Hass volumes around average.	+ 14 %
	Spain	↗	0 %	Hass campaign progressing with smaller volumes than in 2016, though around average.	+ 14 %

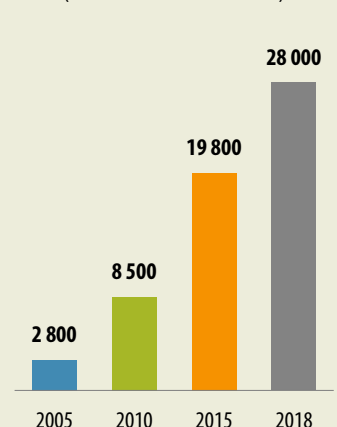
■ **Avocado in China: local production taking off?** Is a major Hass production centre being established in south-east China? Several local or foreign groups have already invested in it, or are planning to do so. In 2011 Pu'Er Green Silver Biological Control Ltd, in partnership with the Israeli company Mobius, set up approximately 500 ha of orchards on the border with Myanmar. The group is planning to own 3 000 ha of plantations by 2025. The Thai company Charoen Prokphand, already present in China through several investments in the agricultural sector, would also like to develop avocado production in this same zone, with the support of the provincial authorities. Other projects are also under study further east in Guangxi (north of the city of Nanning).

Source: Sixthtone

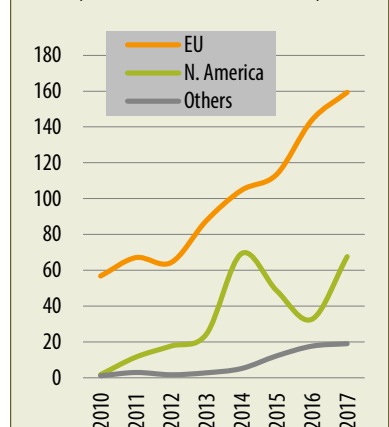
■ **Peruvian avocado: ever stronger!** 2018 should again be a growth year, according to PROHASS. The professional organisation is predicting a further 15 % increase in exports, which already set a record level of 245 000 tonnes in 2017 (Customs sources). This is no surprise given the growth in the cultivation area, which already comprises 28 000 hectares of Hass, and has been expanding at a rate of approximately 3 000 hectares per year in recent years. The main growth centres are currently Lambayeque province, for early production (3 700 hectares surveyed in the first half of 2017 in the Olmos irrigated area), and the Sierra zone (the foothills of the Andes, in Ayacucho, Cusco and Arequipa provinces).

Sources: Prohass, Reefertrends

**Hass avocado - Peru - Planted areas**  
(in hectares / source: ProHass)



**Avocado - Peru - Exports by destination**  
(in 000 tonnes / source: Customs)



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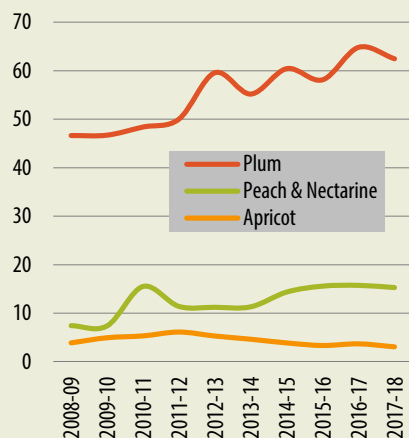


## Temperate fruits & vegetables



© Guy Bréhinier

**Stone fruits - South Africa - Exports**  
(in 000 tonnes / sources: Comtrade, SASPA)



### ■ South African stone fruits: resources in spite of water shortage!

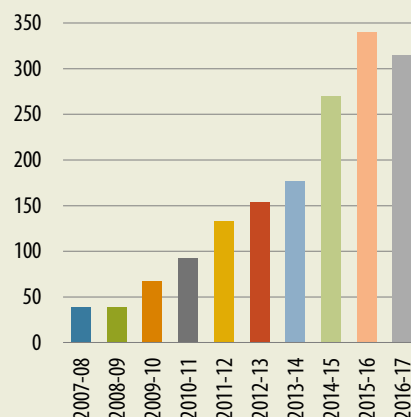
Although the drought is hitting South African production hard, optimisation of water management, coupled to cultivation area expansion, especially for the plum and nectarine, should limit the impact of water shortages on the 2017-18 harvest. Hence the industry is predicting a fall of just 4 % in exports in this campaign for the plum (11.9 million boxes) and 3 % for the peach and nectarine (3.99 million boxes for the nectarine, and 2.11 million for the peach). Only the apricot harvest should be considerably leaner, due to the alternate bearing effect (640 877 boxes forecast for export, i.e. - 17 % on 2016-17). However, the shortfall should be less considerable on the first varieties than on the latter part of the season, from February. Furthermore, the sugar content is set to be high and the diseases should subside due to the very dry weather.

Source: Infofruit

■ **Peruvian grape: on a short hiatus.** The Peruvian grape campaign has started, but volumes on the market are still anecdotal, especially in Europe. Surface areas now cover approximately 30 000 ha according to USDA figures, for a production of more than 600 000 t. However, this figure should be smaller this campaign due to the effects of El Niño last autumn and winter. The heavy rains hit yields fairly hard, especially in the Piura zone. Hence the fall could be 10 to 15% overall, and at least 30 % at the beginning of the season, given the shortfall in Piura. The decrease should be less marked from the end of the year, with the beginning of the season in Ica. Shipments are primarily aimed at the North American markets (nearly 100 000 t for the USA + 7 700 t for Canada, out of the 314 000 t exported overall in 2016-17), and to the Asian markets (22 000 t for China + 36 600 t for Hong Kong and 12 700 t for Thailand). Europe remains a major destination, though volumes seem to have reached a maximum (62 000 t during the last campaign).

Source: Infofruit

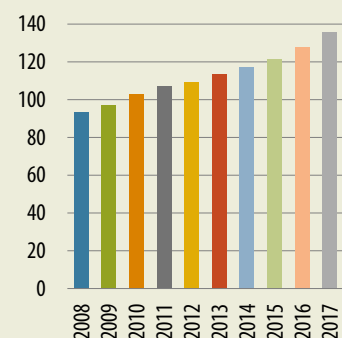
**Grapes - Peru - Exports**  
(in 000 tonnes / sources: USDA, Provid)



■ **Californian walnut: surface areas still seeing growth.** Walnut production in California has continued to expand. Planted surface areas have now reached 135 570 ha, which represents a further increase of 6 % on 2016, as opposed to less than 100 000 ha before 2010. However, this year the harvest should not exceed 650 000 t (- 6 % on 2016).

Source: Infofruit

**Walnut - California - Planted areas**  
(in 000 hectares / source: USDA)





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## Mango

October 2017

In the first half of October, the European mango market swelled due to the ongoing significant shortages from Spain and the rise in volumes shipped by Brazil in a context of stagnant demand. The final batches from Israel heightened this trend. In the third week of the month, Spain began withdrawing from the market with the end of Osteen, replaced with smaller shipments of Keitt. These products came up against competition from substantial volumes of Keitt from Brazil, already well established on the market. After a stable phase in the third week of October, the market strengthened again at the end of the month, with the near-disappearance of Spanish mangoes, which left the market in the grip of the Brazilian produce. Throughout the month, Brazilian Keitt imposed itself as the go-to variety in the absence of Kent, which made up only approximately 10 % of shipments. The share of Palmer also dwindled in favour of Keitt. The gradual recovery in demand consolidated this strengthening trend at the end of the month. However, considerable price variations were observed according to produce quality and sizing available. The predominance of large sizes led to overpricing of the rarer median sizes.

Air-freight mangoes from Brazil enjoyed a good market trend. While Red Moon and Palmer prices remained fairly stable in October, Kent prices, available in small quantities, soared with sales of up to 6.00 euros/kg at the end of the period. Some small Haden batches from Peru appeared in the second part of the month. Though still insignificant in terms of quantity, they traded at high prices (around 6.00 euros/kg).

### MANGO - INCOMING SHIPMENTS (estimates in tonnes)

Weeks 2017	40	41	42	43
<b>Air-freight</b>				
Brazil	70	60	50	80
<b>Sea-freight</b>				
Brazil	2 880	3 430	3 700	4 000

## Pineapple

October 2017

The situation remained fairly complicated in the pineapple market in October. In a context of flat demand and substantial supply, prices remained fairly low. However, the worst was avoided thanks to the numerous promotions implemented over the first three weeks of the month. Despite that, demand remained just as quiet, forcing several operators to considerably scale back their imports. The school holidays, from the last week of the month, led to concerns of a more marked slowdown in demand and a more pronounced fall in rates.

On the air-freight market, demand, invigorated by promotions in the first half-month, helped operators achieve good fruit sales and remain fluid. Some were even short of fruits at the end of the period. The second half-month was considerably more difficult. Demand, which had become lethargic, struggled to take in what volumes were on the

market, and several operators resorted to post-sale prices, though this brought no improvement in market conditions. The quality of Cameroonian fruit was more regular. The supply from Benin was very scarce because of numerous quality concerns (rapid development of fruits), which undermined confidence in the origin with many purchasers. A very limited top-up supply of air-freight Sweet from Central America sold more or less well at fairly high prices, of between 2.40 and 2.60 euros/kg.

The situation was also complicated on the Victoria market. At the beginning of the month, the supply was outstripping demand, forcing certain operators to considerably scale back their imports. Thanks to that, the market regained some fluidity in the second half-month, with the less abundant and more sought-after sizes 6 and 7 earning better value.

### PINEAPPLE - IMPORT PRICE IN FRANCE - MAIN SOURCES

Weeks 2017		40	41	42	43
<b>Air-freight (euro/kg)</b>					
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	2.10-2.30	2.10-2.30
	Côte d'Ivoire	1.80-2.00	1.80-2.00	1.80-2.00	1.80-2.00
Victoria	Reunion	3.00-3.50	3.00-3.70	3.00-4.00	3.00-3.80
	Mauritius	3.00-3.30	3.00-3.30	3.00-3.60	3.00-3.60
<b>Sea-freight (euro/box)</b>					
Smooth Cayenne	Côte d'Ivoire	5.00-7.00	4.00-8.00	4.00-8.00	5.00-7.00
Sweet	Côte d'Ivoire	7.50-9.50	7.50-9.50	7.50-9.00	7.50-8.00
	Ghana	7.50-9.50	7.50-9.50	7.50-9.00	7.50-8.00
	Costa Rica	5.00-7.00	5.00-7.00	5.00-7.00	5.00-7.00

### MANGO - IMPORT PRICE ON THE FRENCH MARKET

Weeks 2017		40	41	42	43	Oct. 2017 average	Oct. 2016 average
<b>Air-freight (euro/kg)</b>							
Brazil	Palmer/R. Moon	3.00-4.00	3.00-4.00	3.50-4.00	3.50-4.00	3.25-4.00	4.10-4.35
Brazil	Kent	5.00-6.00	4.00-5.50	4.50-5.50	5.00-5.50	4.60-5.60	5.10-5.35
<b>Sea-freight (euro/box)</b>							
Brazil	T. Atkins	3.50-5.00	3.00-4.00	3.00-4.00	4.00-5.00	3.35-4.50	4.25-4.50
Brazil	Keitt	5.00-6.00	4.50-5.50	5.00-6.50	5.00-7.00	4.85-6.25	6.00-7.25
Brazil	Palmer	5.00-6.00	4.00-5.00	4.00-5.00	4.25-6.00	4.30-5.50	6.00-7.30
Brazil	Kent	8.00-9.00	7.50-8.00	7.00-8.00	8.00	7.60-8.25	6.65-7.30
Israel	Keitt	6.00	-	-	-	6.00	6.00-6.65
<b>Road-freight (euro/box)</b>							
Spain	Osteen	7.00-8.00	7.00-8.00	8.00	7.00-8.00	7.25-8.00	6.50-8.50
Spain	Irwin per kg	5.00	-	-	-	5.00	4.00-4.85
Spain	Kent per kg	5.00-6.00	4.50-5.00	4.50-5.00	-	4.65-5.30	3.60-4.75



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## Sea freight

### October 2017

There was scant cheer for operators of large tonnage from Med banana charterers, which for the past two years have kept the mode busy in the downtime between the end of the southern hemisphere citrus and kiwifruit seasons and the start of the deciduous fruit season. To add insult to injury, two of the only three vessels that were chartered from Colombia/Central America into the Med were small units.

As the reefer industry lamented the loss of the Canary Island tomato business to the carriers, it transpired that the reason behind the decision to switch was related to factors outside the control of either mode. Put simply, there is no longer enough export volume to justify chartering specialized reefer vessels. The decline is partly due to increased competition from both mainland Spain and Morocco, but principally down to the spread of plant diseases, which have reduced crop yields.

In 2016/17 the Canary Islands shipped a total of 55K MT of tomatoes, a figure 6.7K MT lower than 2015/16. In order to make the trade viable, reefer vessels need a load factor above 55%, according to FEDEX Press Officer Gustavo Rodriguez. Last year the average was less than 50% - hence the switch!

On period business, while Geest extended, indeed amplified its Caribbean to UK and N Cont service to include Colombia port calls, it has emerged that the 4-vessel charter Maestro has with Chiquita for its Med service was for 24 months and not 12, and will therefore be up for discussion next autumn. There are three renewals still to be concluded for 2018 and beyond: the Solent and Southampton

Star with FCC, Chartworld tonnage with Cool Carriers, and the five Ecuadorian Line Island Class units, which are split between Baltic Shipping and Star Reefers.

Despite demand remaining disappointingly undynamic in the small segment, there was no material change in the benchmark rate on the Mauritania to West Africa voyage: port congestion in Africa kept tonnage off market and there was sufficient interest in Iceland and the Faroes to offset the poor fish catch in Moroccan and Mauritanian waters. Towards the end of the month, singleton operators re-appeared, which upset the delicate equilibrium and forced rates lower. Nevertheless, with operators positioning tonnage for what is expected to be a strong November/December potato season, the rate reduction is likely to be short lived.

## AgroFresh

■ **Agrofresh taking control of Tecnidex.** The US company has bought up 75 % of shares in Tecnidex, one of the leading suppliers of post-harvest solutions in the citrus growing sector. Through this acquisition, Agrofresh is diversifying its range in fungicides, waxes and other products of this type. It is also establishing a foothold in the citrus growing sector, and reinforcing its commercial network in Africa, Southern Europe and South America.

Source: Agrofresh

## amazonfresh

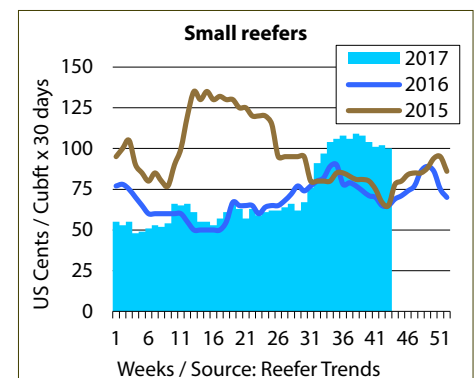
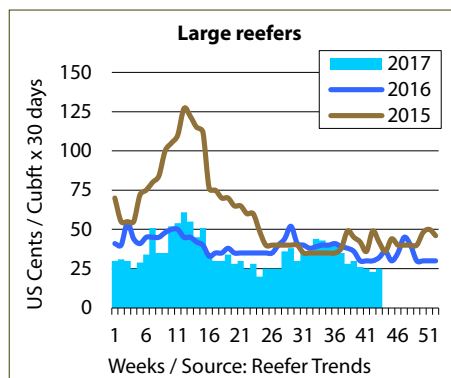
■ **Amazon fresh to assault the German market.** The world's e-commerce leader is extending its fresh fruits and vegetables range in Germany. After Berlin in May and Hamburg in July, now Bavarian consumers will be able to purchase fresh produce on-line: organic or conventional fruits and vegetables, but also dairy products, meat or fish. Purchases ordered before 11 o'clock are delivered the next day to the consumer between 8:00 and 22:00 (2-hour delivery window) or to a delivery hub between 05:00 and 22:00.

Source: Amazon

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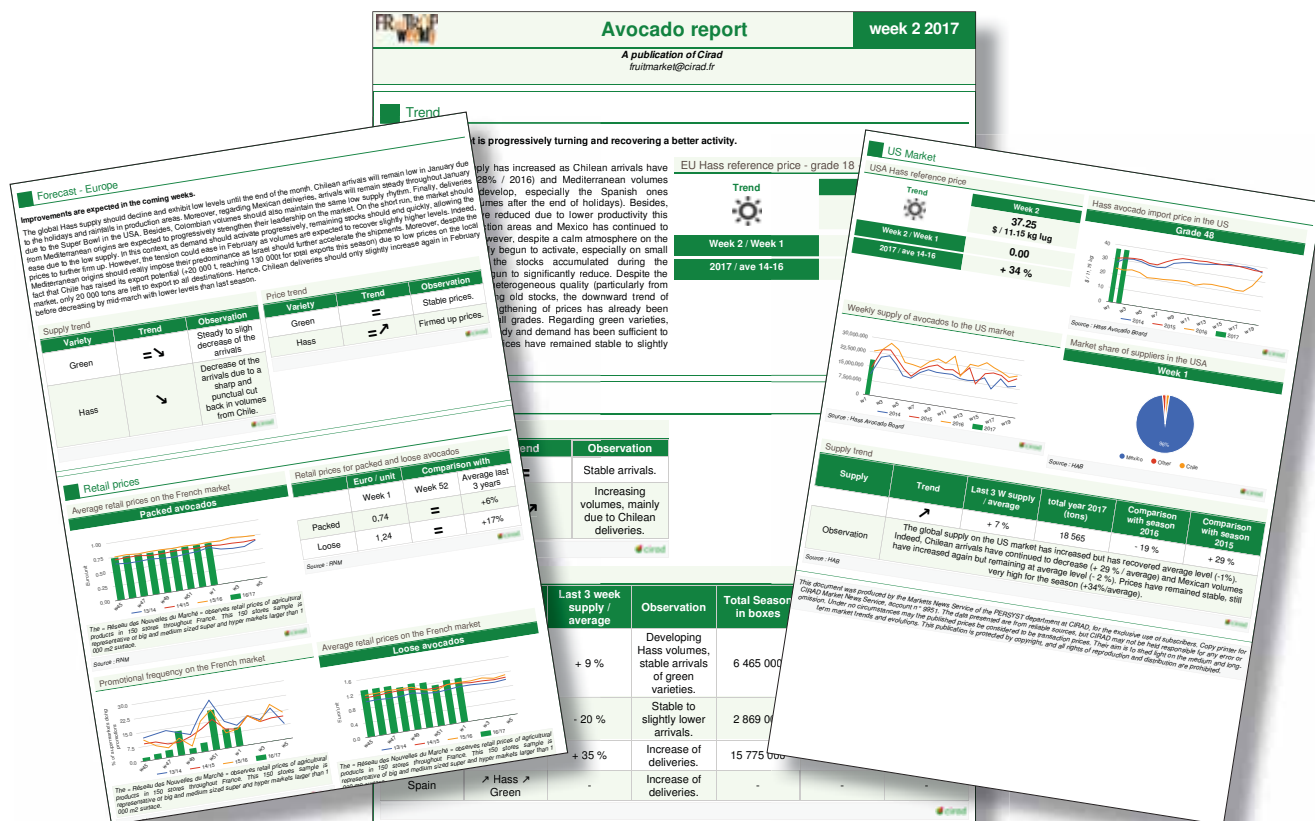
# reefer trends

Une information indépendante sur le secteur du transport maritime reefer



### MONTHLY SPOT AVERAGE

USD cents/cubic foot x 30 days	Large reefers	Small reefers
October 2017	25	99
October 2016	32	68
October 2015	38	78



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## 3<sup>rd</sup> World Banana Forum Conference

### Essential dialogue



The 3<sup>rd</sup> World Banana Forum Conference, held in November 2017 in Geneva (Switzerland), proved to be a great success, bringing together 300 delegates from 40 countries. Hence the process, aimed at leading to a change in both social and environmental practices in the export banana sector, made some headway.



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**W**hile good intentions, good feelings, unfounded declarations, etc., are always an integral part of this type of UN forum, the strategy of small steps seems nonetheless to be bearing fruit. True, we are still a long way off the much anticipated universal change, but we are moving forward, thanks to two main types of process: (1) individual trials at the initiative of some stakeholders; (2) the development of methodologies aimed at better understanding the workings of the industries and evaluating their effects, especially social, in terms of their organisation.

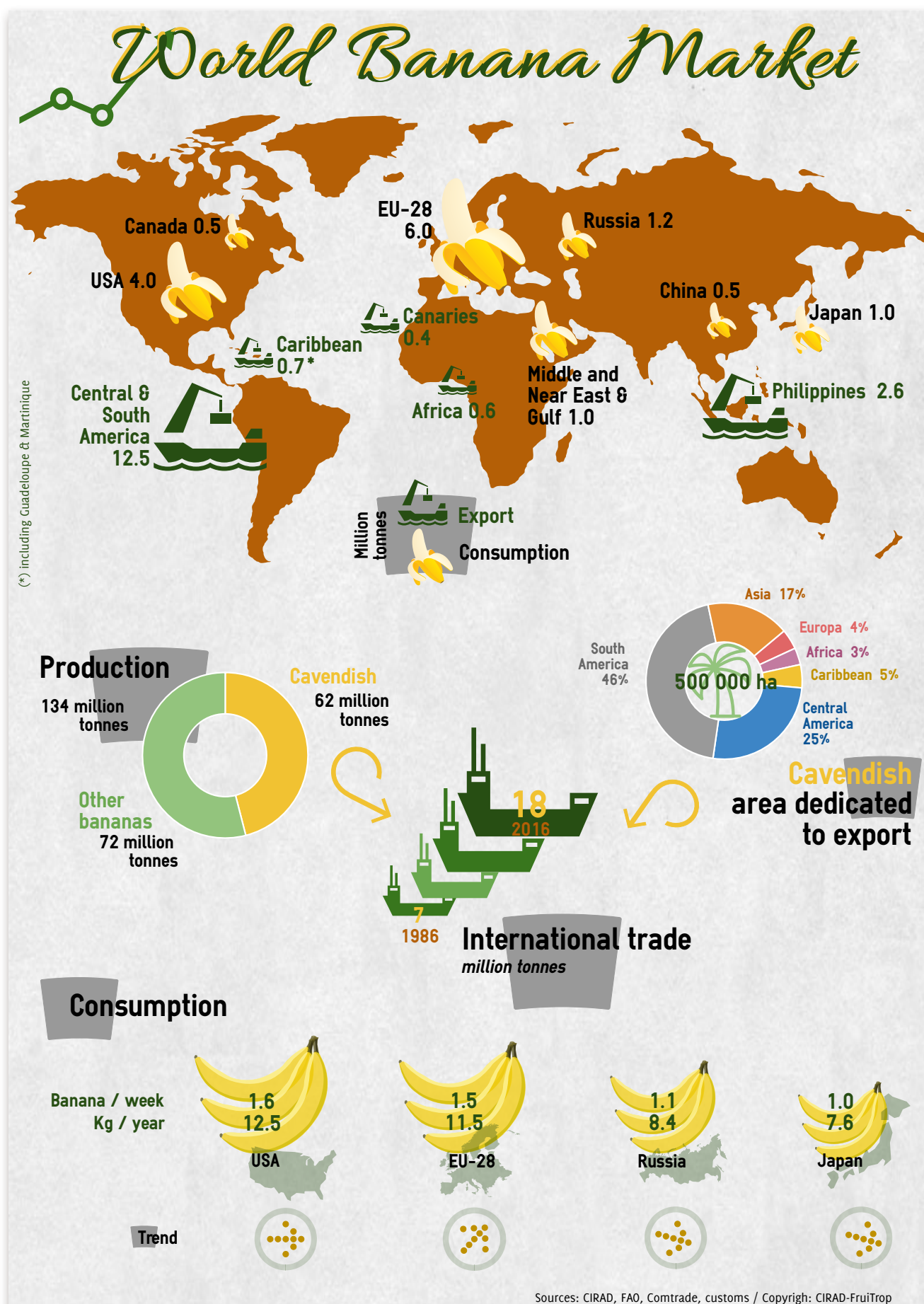
I will take just two examples. As regards trials, the Banana Occupational Health and Safety Initiative (BOHESI) project developed in Ecuador and Cameroon is worthy of mention. Among other things, it led to the publication in November 2017 by the Ecuadorian government of the first health and safety manual for banana sector labourers<sup>1</sup>. In the same vein, we might mention and hail the changes initiated by a big name of the African banana industry, "Compagnie fruitière", which has expressed its ambitions (organic production wherever possible, aiming to eliminate all synthetic products, renewable energy, etc.) and shared some of its trials in the field of developing more virtuous cropping systems. As regards methodologies, we might mention a number of initiatives in progress, many of which are based on assessing the performances or social impacts of value chains on banana cultivation producers and labourers: Ergon study on wage scales, value distribution (example of the Windward Islands), salary and decent living standard (Anker or Cirad-Irstea method), continuous monitoring of distribution of added value by origin and market (Le Basic-Cirad proposal), etc.

<sup>1</sup> <https://goo.gl/18gPuk> (shorten URL)

## TR4: the tree concealing the woods

With the sheer number of projects in place, it is difficult for the uninitiated to see things clearly in this array of initiatives. And this conference will not help clear up the picture, with declarations, demands and desires to create such or such a commission or such and such a discussion group, or even the multiple resolution requests which popped up throughout the four days of the conference (two days of plenaries, and two days of ancillary conferences on gender equality in the banana sector and management of TR4 disease). Yet far from criticising this big production, we might prefer to believe that this is the stakeholders' way of initiating and then developing a culture of dialogue, before ultimately achieving the desired changes. Nevertheless, the secretariat of the Forum, brilliantly run by the FAO, will not be able to fund all these initiatives; choices will need to be made. Resources are limited and the big operators are not making major financial commitments. In any case, it seems that management of Panama disease (Tropical race 4) has already been chosen as a main direction, even though other social problems (distribution of value, living conditions of labourers, etc.) or combating other diseases (e.g. Bunchy Top disease) are also having major negative impacts on the sector. So it is difficult to establish an order of priorities!

While we can be very positive about the ongoing process, we ought to be more rational about its actual direct effects. It is the big operators, the industry's purchasers, which have the ability to change things. Hence the media noise and public awareness raising provided by the work of the WBF can steer the guidelines and choices of purchasers throughout the chain towards more social and environmental sustainability. The most influential are of course the supermarket & hypermarket purchasers. If they move in the right direction, the system as a whole will move too. Unfortunately, they have dazzled by their absence or silence - which is a great shame! Those few in attendance who spoke up dodged the bothersome questions, especially on purchasing price policies. This made for a deafening silence. In a sort of non-aggression pact, their suppliers did not mention this taboo subject. It must be said that it is difficult to have constructive discussions on prices, since the market rules and mechanisms underpinning price setting are far from well-known, understood and shared by all stakeholders. Hence irrespective of all the market rules, insistent demands aimed at setting a coercive international price again popped up during the conference.



from Fruitrop special issue FOCUS No. 5: **International Banana Trade - The guide** (January 2017 - page 45)



## When CIRAD puts pesticides in their place

While there is no worldwide governance of the banana industry, which is a no-brainer in terms of the economic and social aspects, exactly the same applies to the environmental aspects. Besides some studies aimed at establishing environmental balances via the Life Cycle Analysis (LCA) method, whose results are practically impossible to compare, so different are the calculation hypotheses (study scope, emissions factors, etc.), concrete actions remain restricted to experience sharing and promoting good agricultural practices<sup>2</sup>. As elsewhere, there is a blatant lack of commitments that will change things. In this field, the only concrete proposal immediately applicable came from CIRAD. Setting the cat among the pigeons, Thierry Lescot proposed immediately banning use of nematocides and insecticides on all banana plantations worldwide. The negative, even seething reactions, but all the more so the silence of the production sector, starkly highlight the brakes on change. While there are technically operational and economically viable solutions, and they are already in common use (French West Indies, Dominican Republic, etc.) or in the process of being rolled out (Africa), in varied socio-economic and pedoclimatic contexts, the big production systems are refraining from this trend where the application of agro-ecological principles is providing dazzling results. As long as health damage to labourers, residents and natural environments also continue to carry little weight against the massive use of phytosanitary products, major production zones will remain outside of the double or even triple green revolution.

Yet fortunately, soft law players are on the ball! Certifiers of all kinds were in force and highly active, and fortunately understood everything. They are also setting themselves up as the big directors of globalised green and social thinking. A shame that many of these specifications are left back at the idea of performance stage (decision-making), without taking into account the real impacts (consequences of the decisions made). In our media-obsessed and unethical world, the main thing is to communicate on the actions, right?

A shame that during this conference, the Fairtrade movement (including Clac), which often has real effects on the poorest links in the chain, barely made itself heard.



© Régis Domergue

There were so many things said and actions proposed that I would refer the reader to the reports by the various panels and parallel sessions. To touch on the one regarding gender equality, it was a big success in terms of participation and identification of areas to work on. There as in other areas, there is huge scope for progress.

## Industry approach praised

I will end with the main conclusions of the recent "Global Wage Report 2016/17"<sup>3</sup> by the International Labour Organisation (ILO). Without being specific to the export banana sector, they say a lot about the effects of good or bad commercial practices on the quality of an industry, in particular social quality (wages and working conditions). The "price paid to supplier" criterion is the most obvious to understand. Yet it is accompanied by four others, which have just as big an effect: lack of clarity of information in customer-supplier contracts, imprecision in specifications for merchandise ordered leading to non-compliance, pressure on delivery times, and finally the absence of demand for the social standards and rules applied by the supplier. The ILO evaluated the positive effect of good commercial practices in an industry, and the results are indisputable. In a virtuous industry, wages are 98 % higher and hours worked are 13 % lower. If the idea of cross-industry collaboration still lacked credibility for some, the ILO report praises the multipartite approach of the World Banana Forum. In this long but essential process, it will be vital to give the weakest groups in terms of the negotiations a bigger role, by providing them with the information, analysis tools and methodologies. It is under these conditions that the dissymmetry between members will be overcome and things will get moving for real ■

**Denis Loeillet and Carolina Dawson**, CIRAD  
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<sup>2</sup> [www.idhsustainabletrade.com](http://www.idhsustainabletrade.com)

<sup>3</sup> <https://goo.gl/fjFvd3> (shorten URL)

## CIRAD's call for a ban on nematicides and insecticides in the banana sector

Thierry Lescot, a banana and plantain crop scientist at CIRAD, and a coordinator of working group 1 of the World Banana Forum, has proposed banning nematicides and insecticides on the 500 000 hectares of banana plantations dedicated for export. This might seem like a breakthrough innovation in cropping systems, but is already routinely applied over large area, in the French West Indies, the Dominican Republic and also Africa. The techniques (trapping, rational management strategy, biological control, mechanical weeding, etc.) are cutting-edge and economically viable, across very different pedoclimatic and socio-economic contexts.

So why target these product families? Because, according to the WHO, they are 400 times more toxic than fungicides or herbicides — which true ought also to be banned, but for which for the moment there are only dissatisfactory replacement solutions.

The drastic reduction in use of synthetic pesticides, regardless of the family, is a natural development of cropping systems which in many regards are running out of steam. It remains to be seen when the big production sectors of Asia or Latin America will take this path and turn their back on the social and agronomic impasse in which they find themselves.

**To find out more, see technical files on [fruitrop.com](https://fruitrop.com) (shorten URL):**

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Photographs © CIRAD



## Producer country file

### The blueberry in Chile

by Cécilia Céleyrette

This little berry has become within the space of a few years one of the jewels of the Chilean range, rapidly spreading over a large part of the country. While initially aimed primarily at the North American market, in fresh or deep-frozen form, it has rapidly conquered other markets such as Europe and now Asia. Boosted by a varietal renewal with plumper, firmer and more colourful fruits, the Chilean blueberry should over the coming years be able to withstand the increasingly strong competition issuing from other Southern Hemisphere countries.



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## Blueberry – Chile

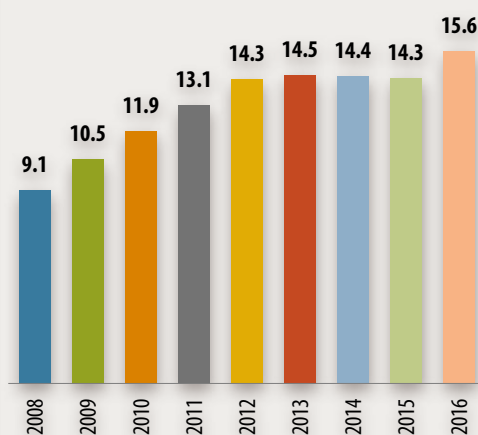
### Location

Chile's first plantations were set up in the late 1980s in the south of the country, though the high prices obtained in October and November encouraged operators to plant further north too. The country's central zones are those which have seen the biggest expansion in recent years. The bulk of the production is currently situated between Regions VI and X, between Copiapó and Puerto Montt, for a production peak going from January to mid-February. The majority of the production comes from the Bío and Maule regions.

### Production

Production has grown steadily, with a surge at the beginning of this decade which propelled it from less than 50 000 t before 2008 to more than 100 000 t after 2010. Thereafter the tonnage stagnated at around 100 000 t, with an ageing cultivation stock. It is now taking an upturn thanks to the planting of new, more productive varieties which are better-suited to demand and transport. The potential is reportedly now in excess of 130 000 t, and could reach 150 000 t this campaign, for a planted surface area also set to rise to at least 15 600 hectares. Production is diversifying with the development of an organic segment which reportedly already represents nearly 10 % of surface areas.

**Blueberry - Chile - Planted areas**  
(in 000 ha / source: CIREN)



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2018

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## Blueberry – Chile

### Production calendar and varieties

Blueberry – Chile – Production calendar

Variety	O	N	D	J	F	M
Emerald						
Star						
Ventura						
O'Neal						
Duke						
Legacy						
Birgitta						
Camellia						
Brightwell						
Ochlockonee						
Elliot						

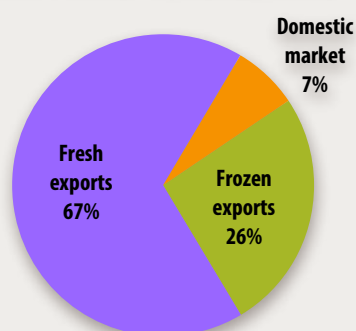
The blueberry season extends over nearly seven months in Chile, thanks to the planting of different varieties and to numerous local areas spread from north to south. Hence the season begins in early October in the northern regions, and ends in April with the southern regions. Numerous varieties have been planted in Chile since the introduction of this berry (at least fifty or so in thirty years), and the challenge for the producers today lies in selecting the varieties best-suited to the pedoclimatic conditions of each zone, with requirements in terms of yield but also size and transport & disease resistance. Also, more than twenty new varieties derived from programmes in Spain, Australia and the USA have recently been introduced to the country. And while old varieties such as O'Neal, Misty, and

of course Duke and Elliot are still highly representative (nearly 70 % of tonnages), others such as Star, Jewel, Emerald, Brightwell, Ochlockonee or Liberty have made room for themselves with yields of more than 20 t/ha, while the old varieties are stuck at around 8 to 12 t/ha. Some, such as Tifblue or Brightwell, are even registering 25 or 30 t/ha, and varieties such as Camellia or Primadonna are sought after for their size (> 20 mm) or their coloration. Other varieties such as Bluecrop are still retained for dual purposes, fresh and frozen, since they have good resistance to dehydration. The variety Legacy is very popular since it enables mechanised harvesting. New varieties such as Snowchaser, Farthing and Scintilla are also being tested. Producers are now targeting varieties for mid-season or late production, from December onward, to limit competition with Mexico and Peru.

### Outlets

Production is primarily aimed at the fresh exports sector, though this can be offset with frozen sales depending on the level of US stock in particular. Local consumption volumes are very low.

Blueberry - Chile - Outlets in 2016  
(sources: CIREN, ODEPA / processed by Infofruit)



Photos © Chilean Blueberry Committee

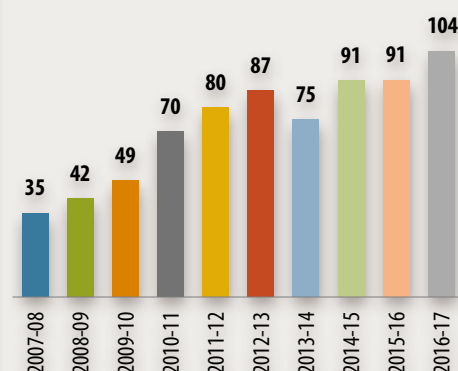
## Blueberry – Chile

### Exports

Exports have steadily increased in pace with the production growth and as markets have opened up, to reach more than 100 000 t today. The USA remains Chile's main customer, though shipments to this market have stagnated in recent years with increased competition from Peru and Mexico. Europe is also an important destination in the customer portfolio of Chilean exporters. It is still growing, with nearly 23 000 t imported in 2016-17 (+ 16 % on 2015-16), primarily by the United Kingdom and via the Netherlands, ahead of Asia which is still seeing steep growth (+ 53 %). Consumption has seen particular growth in China (9 500 tonnes in 2016-17, + 75 % on 2015-16), though other countries such as South Korea, Japan or Taiwan are also destinations registering distinct growth. Exports of organic production are also on the rise, reportedly reaching 8 500 tonnes last campaign.

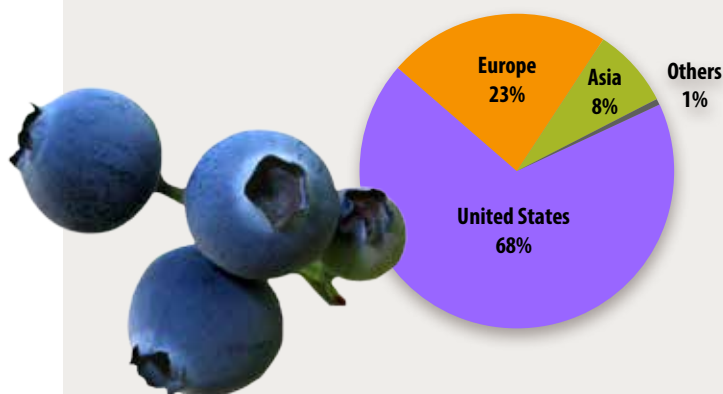
**Blueberry - Chile - Evolution of exports**

(in 000 tonnes / source: ODEPA, CBC)



**Blueberry - Chile - Exports in 2016-17**

(sources: ODEPA, CBC)



### Logistics

The blueberry's very good conservability has helped tonnages increase, including for long-distance exports, where voyage times may be around 25 days or more. Nonetheless the produce must be harvested and cooled rapidly in order to keep well. Packing in a modified atmosphere helps it better withstand the voyage for the most distant destinations.

**Blueberry – Chile – Sea freight**

Markets	Main lines		Transit time
	Port of departure	Port of arrival	
Northern Europe	Valparaiso, San Antonio, Coquimbo	France (Dunkirk, Marseilles, Le Havre)	20-21 days
		Germany (Hamburg, Bremen)	
		United Kingdom (Sheerness, Felixstowe, Tilbury)	
		Belgium (Zeebrugge, Antwerp)	
		Netherlands (Rotterdam, Flushing)	
Southern Europe	Valparaiso, San Antonio	Italy (Vado, Genova, Vilarno)	17 days
		Spain (Algeciras)	
Russia		St. Petersburg, Vladivostock	
United States	Valparaiso, San Antonio, Coquimbo	East Coast (Philadelphia)	15-22 days
		West Coast (Los Angeles, Long Beach, San Diego)	12-17 days
China	Valparaiso, San Antonio	Guangzhou, Shanghai, Dalian	
Japan	Valparaiso, San Antonio	Tokyo, Kobe, Yokohama,	25 days

Source: Infofruit



A report by  
Eric Imbert

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# Citruses







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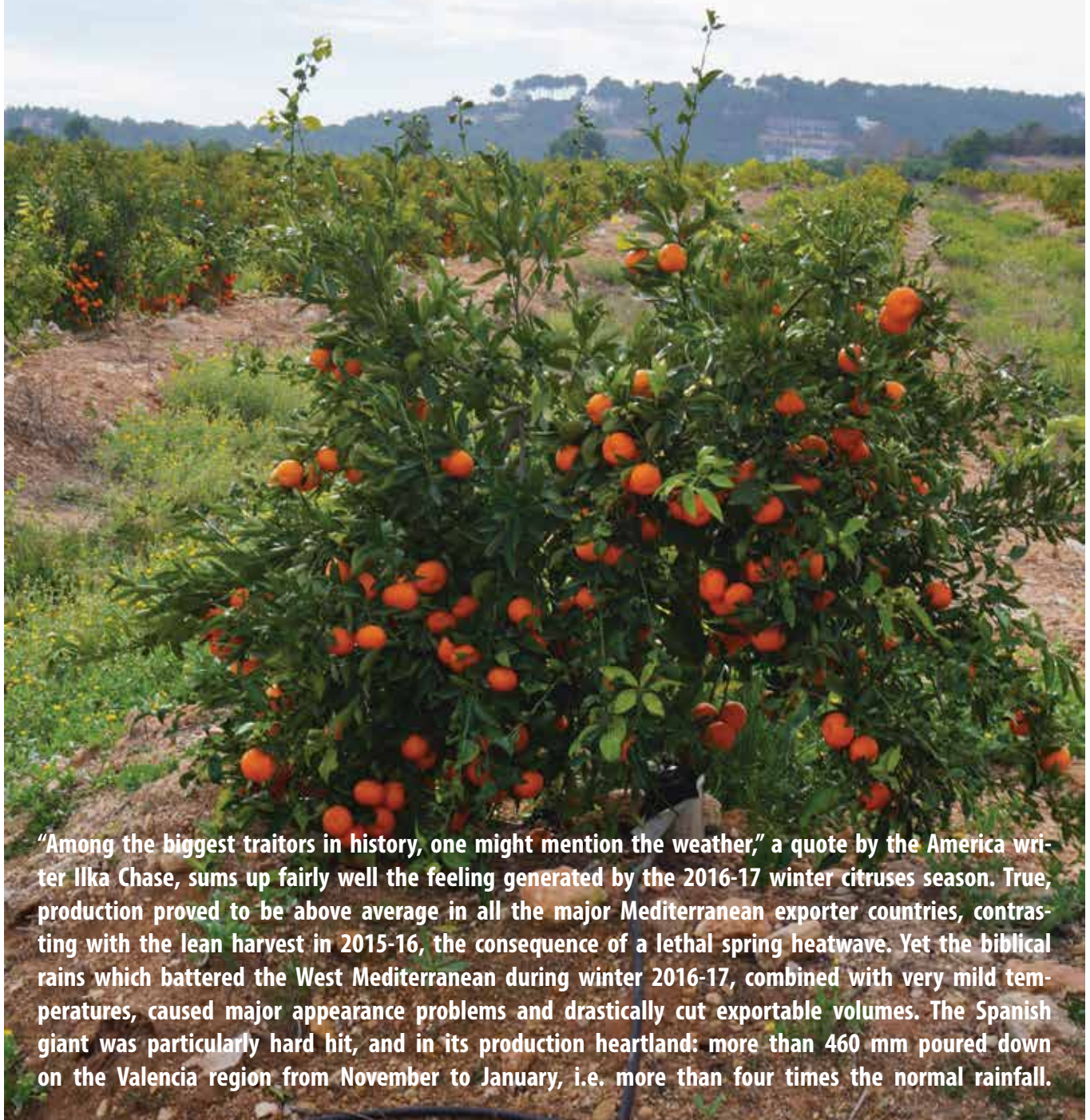
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# Citruses

## 2016-2017 winter season review

**A much lighter campaign than predicted**

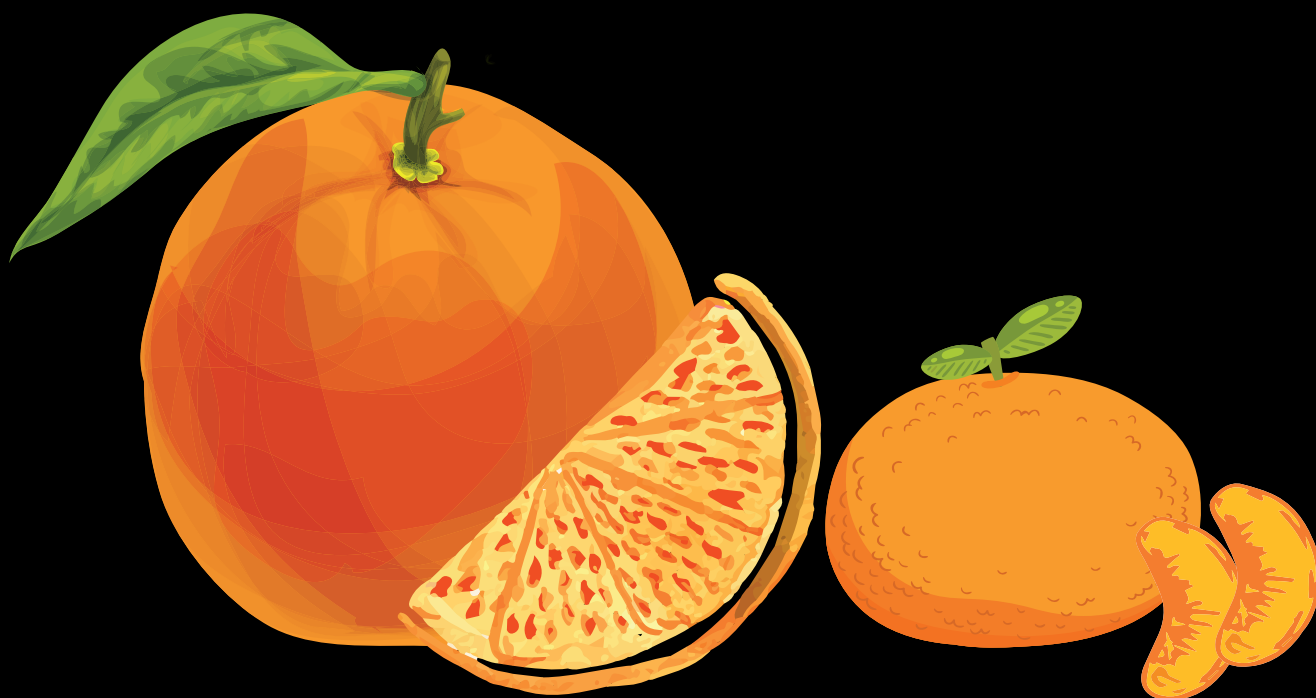


**"Among the biggest traitors in history, one might mention the weather," a quote by the America writer Ilka Chase, sums up fairly well the feeling generated by the 2016-17 winter citrus season. True, production proved to be above average in all the major Mediterranean exporter countries, contrasting with the lean harvest in 2015-16, the consequence of a lethal spring heatwave. Yet the biblical rains which battered the West Mediterranean during winter 2016-17, combined with very mild temperatures, caused major appearance problems and drastically cut exportable volumes. The Spanish giant was particularly hard hit, and in its production heartland: more than 460 mm poured down on the Valencia region from November to January, i.e. more than four times the normal rainfall.**

© Carolina Dawson

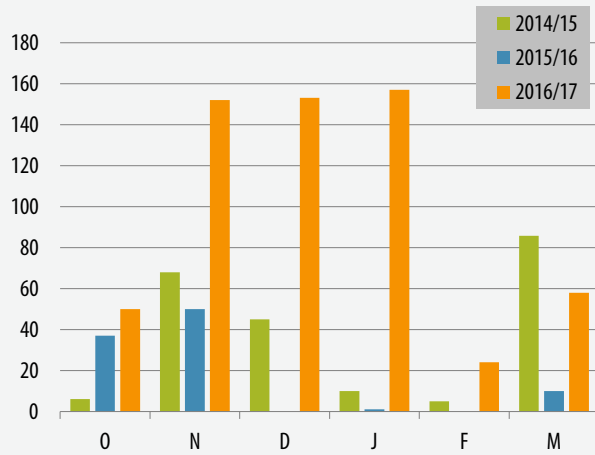


citrus specialist





**Valencia (Spain) - Monthly rainfall**  
(in mm / source: Infoclimat)



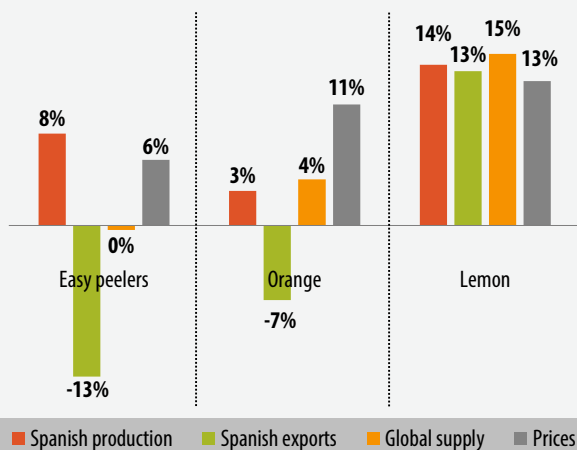
## A season bearing the footprint of a Spanish exports shortfall

Despite production returning to a level 6 % above the four-year average, Spanish exports ended up 6 % below the corresponding benchmark - lower even than in the lean 2015-16 season for the hardest hit products, such as easy peelers (in particular clementines) and oranges (in particular Navelines). This failure of the Iberian giant, which on its own controls more than two-thirds of the EC supply across all citruses, played a structuring role in the development of the season and in other supplier countries' export trade-offs.

## Positive balances, at least overall

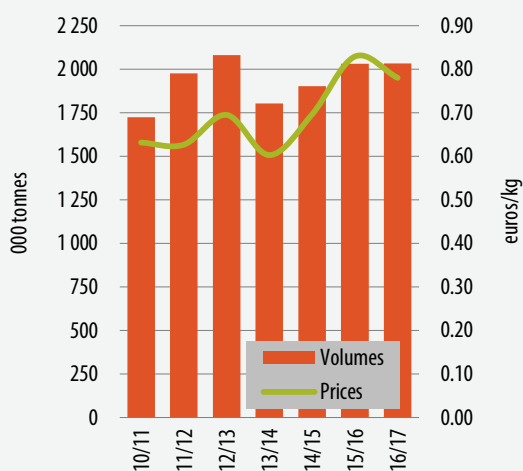
Overall, the economic balance was positive. For easy peelers, the orange and lemon, the campaign average prices registered a fall from the historic 2015-16 season, marked by a strong under-supply, yet maintained a level 6 to 10 % below average. However, for these three products, the supply ranged from near-average (easy peelers and orange) to rather heavy (lemon). Furthermore, we must emphasise the great performance registered once again this season by the latter product, which illustrates the consumption boom it is enjoying (see consumption article). As for the grapefruit, prices reached a record level, both for tropical and Mediterranean fruits. Yet unlike the other citrus families, the reason lies in a particularly limited supply, the structural fall more marked than in previous years due to a temporary production dip from Turkey.

**Citruses - EU-28 - Supply and prices in 2016-17**  
Deviation from the 4-year average (sources: Eurostat, CIRAD, professionals)

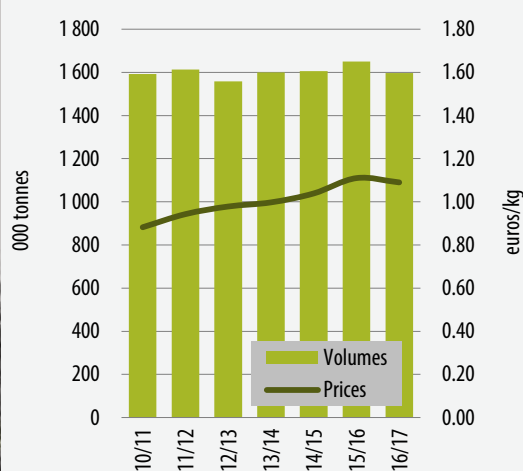


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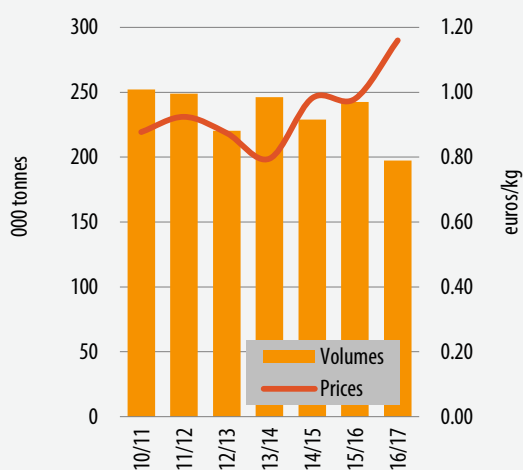
**Orange - EU-28 - Imported volumes and average import price in France** (sources: Eurostat, CIRAD)



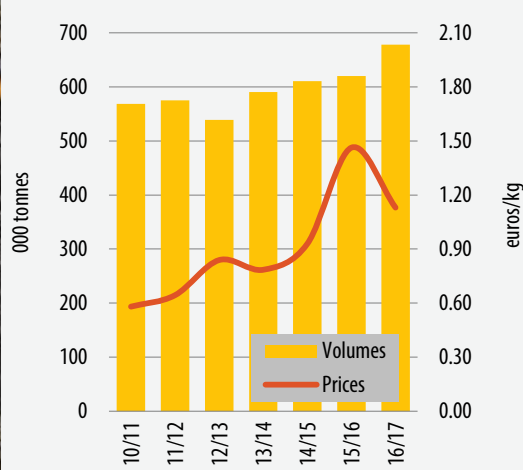
**Easy peelers - EU-28 - Imported volumes and average import price in France** (sources: Eurostat, CIRAD)



**Grapefruit - EU-28 - Imported volumes and average import price in France** (sources: Eurostat, CIRAD)



**Lemon - EU-28 - Imported volumes and average import price in France** (sources: Eurostat, CIRAD)



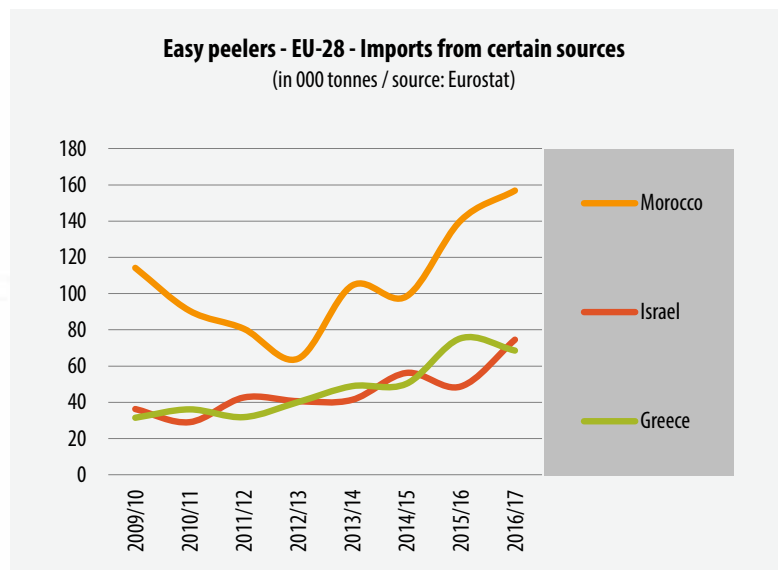
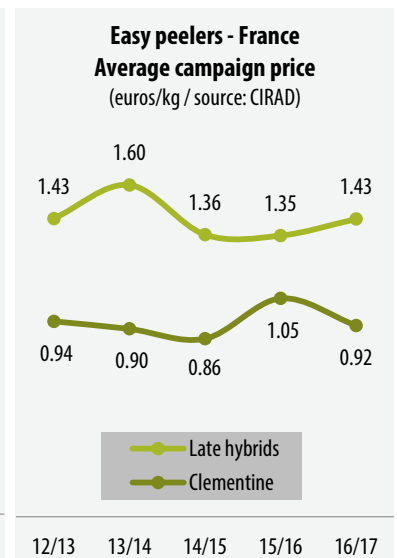
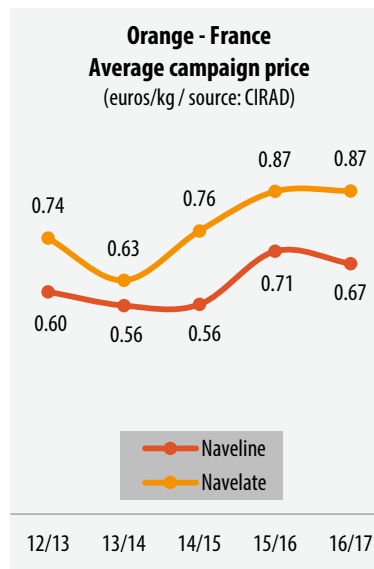


## A dark cloud over certain varieties

However, this bright balance is tempered by a dark cloud hanging over certain citrus families. Not all varieties were in the same boat, for either easy peelers or the orange. Major quality and appearance problems, due to the above-mentioned climate vagaries, distinctly tarnished the clementine and Naveline orange campaigns. Prices ranged from disappointing (Naveline), to very disappointing and below-average (clementine) for both these varietal groups.

## Suppliers of late hybrids, and entry-level oranges and grapefruits, consolidating their rise

As regards the suppliers, Spain's loss of form in certain products did not cause any transformation of market shares, but simply accentuated the underlying trends perceptible in recent seasons. On the easy peelers market, late slot extra-Community specialists continued their rise to prominence. Morocco illustrated this trend particularly clearly, based both on the growth of its Nadorcott cultivation area and on an increasingly marked repositioning toward the Community market, once more the leading outlet across all citrus in 2016-17. Israel also has an increasingly strong presence in this niche, thanks to increasing Orri production (and a slightly less unfavourable euro/shekel exchange rate this season).



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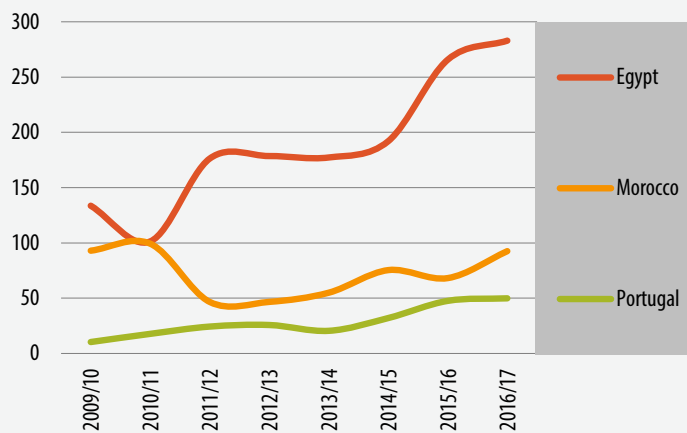
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**Orange - EU-28 - Imports from certain sources**  
(in 000 tonnes / source: Eurostat)



The extra-Community origins too continued their rise on the orange market. Egypt and to a lesser degree Morocco continued their rise, probably to feed a growing need for “entry-level” fruits aimed at the eastern EU-28 markets or juice machines. We might note that this quest for cheap fruits also seems to be the order of the day for the grapefruit. It has benefitted Turkey in recent years (except for the temporary dip in 2016-17), which has not only evaded the consumption decline, but actually seen its volumes rise. These trends, affecting both the orange and grapefruit markets, are raising questions as to the ability of EC producers to hold on, given that they obviously do not have the same costs structure as Morocco, Egypt and Turkey.

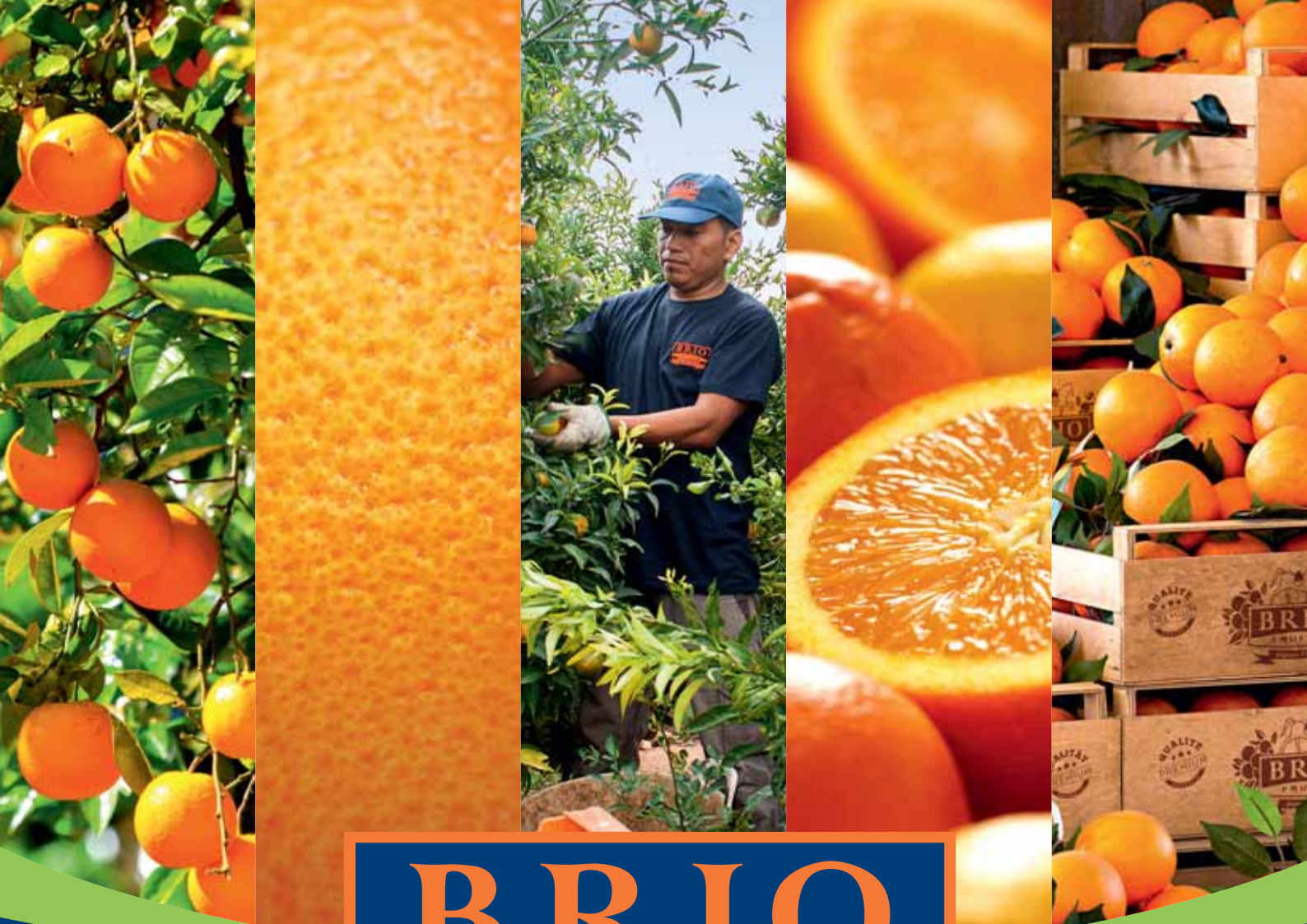
## The first torments of climate change

To conclude, we cannot help but wonder over the consequences of this succession of campaigns marked by climate events. The 2015-16 season bore the stigmas of major spring and summer heatwaves. As we have seen in this article, the abnormal level of winter rains completely changed the scenario for 2016-17, and 2017-18 is registering a major shortfall also due to an abnormal climate situation. True, optimists will say that natural regulatory mechanisms of supply are helping sustain prices, in particular in the industries with a structural over-supply. Nonetheless, how can producers in the most exposed zones withstand these increasingly regular shocks? Those in the EC, who must face both high production costs and the need to invest in innovation or communication to stand out from the competition, are clearly in the front line. This is a serious matter, even before we consider the other even more damaging consequences of ongoing climate change ■

**Eric Imbert**, CIRAD  
eric.imbert@cirad.fr



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# Citruses

## 2017-2018 forecast

### High prices, to offset a distinct production shortfall

**FRUITROP provides a detailed look at the following in the articles below:**

- **the 2017-18 forecasts for each fresh citrus supplier country and product,**
- **the main consumption trends in the EU-28,**
- **the 2017-18 forecasts for the concentrated orange juice market.**

### Renewed interest in fresh citruses

Meanwhile, demand is giving off rather positive signals. After years of flat sales, the western part of the EU-28 has seen an upturn, while the markets in the east of the Community have awoken, probably thanks to the return of economic growth. The news from Russia is rather positive too: demand picked up in 2016-17 boosted by a slightly less weak rouble and the end of the embargo on Turkish produce. More anecdotally, the emerging Asian markets are also purchasing more, although they represent only a minor outlet for most Mediterranean countries. The only cloud over the horizon is the stagnation of Mediterranean exports to the enormous US market, which remains as much an easy peelers under-consumer as ever.

### The weather again!

The weather hit the 2016-17 campaign hard. It will continue to drag Mediterranean production down in 2017-18. While of course not all countries are in the same boat, the majority of the big production and export players in the region are approaching this campaign with lower harvests than in 2016-17, and very often below average. This is the case with Spain, a heavyweight of the sector, which is registering a major production shortfall, especially for its specialities, due to a rotten winter 2016-17. Turkey, which has become the region's number two export power in recent years, is no better off, seeing its harvest dip too after significant frosts during the winter. Similarly, production is set to be rather smaller than the previous year in Morocco, with a hot summer and persistent drought preventing the big surface area expansions over recent years from being implemented. Among the big leaders, only Egypt is seeing a production rise, though in very limited proportions, and after a 2016-17 season in shortfall.

### A rather promising context

Hence the context appears relatively positive. Regarding industrial citruses, the market trends remain rather positive for most derivatives. The most iconic, namely orange juice, should see its prices strengthen. True, Brazilian production is back to a high level, though there is a historic shortfall from the Floridian harvest and concentrate stocks have not been as low for years. Finally, in terms of competing products, trends are mixed. The European apple harvest is well below average (- 20 %, see Fruitrop 251), while the banana supply promises to remain fairly large (surface areas expanding in West Africa, reinvestment in production in countries such as Colombia, absence of major climate problems during the critical autumn period, except for the French West Indies) ■

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## 2017-2018 citrus forecast

**Spain****A number one in poor form**by *Eric Imbert*

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**Alternate bearing effect and climate problems, especially in the Valencian Community**

The world's leading citrus exporter is exhibiting poor form at the start of this 2017-18 season. With an expected 6.3 million tonnes, the harvest is a long way off its normal level, of around 6.7 to 7.2 million tonnes since the beginning of the decade. There are multiple factors behind this fall. Firstly, the alternate bearing phenomenon is coming into play. 2016-17 saw a very good harvest level in 2016-17, contrary to what might have been expected from exports clearly below normal given the major quality problems due to highly unfavourable weather. Secondly and more importantly, the climate again had a power negative impact in particular in the Valencian Community, the heartland of Spanish export citrus growing. The deluge of winter 2016-17 left its marks (chlorosis of trees, causing irregular flowering), while on top of that spring temperatures were unfavourable for fruit-setting. In addition, the drought took on catastrophic proportions, in particular on the Levant coast where a large part of citrus production is concentrated (another year of water deficit, a recurrent phenomenon since 2013, draining dam levels to 38 % of their capacity, for the first time since 1995).

**Citruses – Valencian Community – Harvest forecast**

in 000 tonnes	2014-15	2015-16	2016-17	2017-18	2017-18 compared to	
					2016-17	2015-17 average
Satsuma	112.3	96.3	189.2	130.1	- 31 %	- 9 %
Clementine	1 236.5	938.4	1 193.2	843.6	- 29 %	- 21 %
Hybrids	358.2	350.1	391.0	371.8	- 5 %	0 %
<b>Total easy peelers</b>	<b>1 707.0</b>	<b>1384.8</b>	<b>1 773.4</b>	<b>1 345.5</b>	<b>- 24 %</b>	<b>- 15 %</b>
Navel group	1 526.8	1 266.5	1 544.8	1 243.6	- 19 %	- 12 %
Juice oranges	340.6	284	301.0	278.7	- 7 %	- 5 %
<b>Total oranges</b>	<b>1 867.4</b>	<b>1 550.5</b>	<b>1 845.8</b>	<b>1 522.3</b>	<b>- 18 %</b>	<b>- 10 %</b>

Source: GVA

## Nules and Naveline particularly hard hit

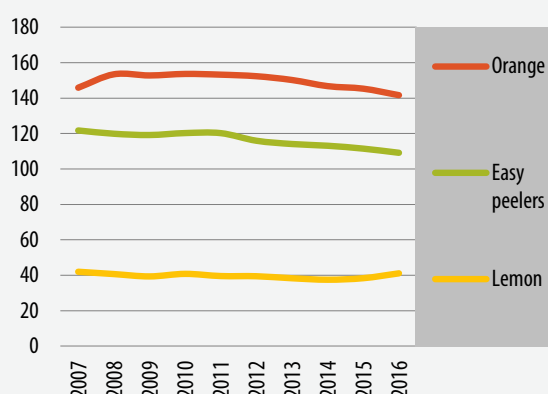
The consequences of these multiple problems vary according to the varieties. The specialties of the Valencian Community in the first part of the season were very hard hit, starting with the most iconic clementine and orange varieties of Spanish citrus growing, i.e. Nules and Naveline. These two cultivars, which represent more than 70 % of the region's clementine harvest for Nules, and more than 45 % of its orange harvest for Naveline, are seeing their production slide to more than 20 % below average. So there will be a major shortfall during the mid-season (November/December), since both key products are hard hit. The grapefruit, which has little weight in Spain's huge production figures, but a great deal on the European market, will also see its production drop to below average. Conversely, late easy peelers, late oranges and the lemon are set for good harvest levels.



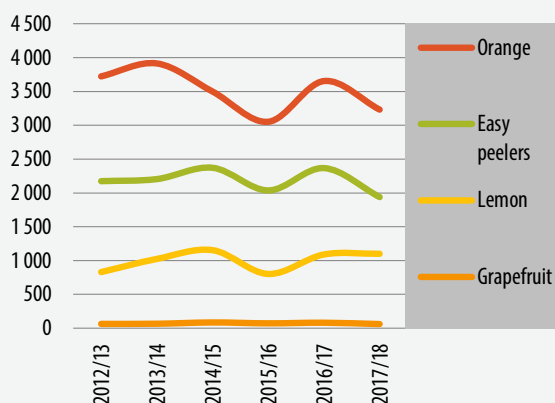
## Production growing for the lemon, easy peelers and late oranges

The good performance by these three citrus families illustrates the dynamic of the Spanish cultivation area in recent years. True, the general shrinkage trend in surface areas is continuing. The cultivation area has decreased by 20 000 ha since the beginning of the decade, especially because of the endemic difficulties of traditional "small-scale" citrus growing in the Valencian Community. Nonetheless, while certain clementine varieties such as Nules or Marisol, certain hybrids such as Fortuna or Ortanique and certain oranges such as Naveline have been widely uprooted, surface areas have distinctly expanded for other cultivars. This is the case in particular for the lemon, whose cultivation area now extends over more than 41 000 ha, according to the Ministry of Agriculture (+ 3 600 ha on the low point seen in 2014). Production, currently at around 1.1 million tonnes, could approach 1.4 to 1.5 million tonnes by the end of the next decade. This is also the case for certain late hybrids. Surface areas have now stabilised for Orri and Nadorcott, at 2 200 ha and 4 600 ha respectively (no more licences granted). However, the export potential should continue to rise as the young orchards come into their prime (approximately 200 000 t expected for Nadorcott, as opposed to 156 000 t in 2016-17, and 70 000 t for Orri, as opposed to 26 000 t in 2016-17). The same applies to Tango, which is entering the market for real this season (25 000 t expected), whose surface areas are not precisely known (estimated at 3 000 ha). Finally, it is also the case for late oranges (super-late Navel, widely planted at the end of the last decade, and enhanced Valencia, planting of which has progressed in recent years). One issue remains, a major one at that in certain regions: will water resources allow this potential to be expressed? ■

**Citruses - Spain - Planted areas**  
(in 000 hectares/ source: MARM)



**Citruses - Spain - Production**  
(in 000 tonnes / sources: GVA, Ailimpo, Junta Andalucía)



**Citruses – Spain – Harvest forecast**

in 000 tonnes	2013-14	2014-15	2015-16	2016-17	2017-18	2017-18 compared to	
						2016-17	2013-17 average
Easy peelers	2 204	2 372	2 037	2 367	1 938	- 18 %	- 14 %
Orange	3 914	3 499	3 052	3 654	3 231	- 12 %	- 8 %
Lemon	1 024	1 154	802	1 090	1 150	+ 6 %	+ 13 %
Grapefruit	66	85	72	81	61	- 25 %	- 20 %
<b>Total</b>	<b>7 209</b>	<b>7 110</b>	<b>5 963</b>	<b>7 192</b>	<b>6 381</b>	<b>- 11 %</b>	<b>- 7 %</b>

Sources: GVA, Ailimpo, Junta Andalucía



## 2017-2018 citruses forecast

**Morocco****“Maroc Vert” plan and climate change**by *Eric Imbert*

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Once more this season, the weather has prevailed over the major planting efforts undertaken in recent years as part of the “Maroc Vert” plan. The long heatwave which prevailed for most of the summer and autumn, and its consequences in terms of irrigation water availability, should lead to a production decrease, with professionals predicting a 10 to 15 % fall. Though this is very much an estimated figure in the absence once more this season of an official forecast by the Ministry of Agriculture. Quite logically, easy peelers would appear to be less hard hit than oranges, given the highly unequal increases in surface areas between these two groups in recent years. The clementine export potential remains an enigma at the time of going to press, because of the limited sizing of a large part of production (especially in Souss and the Berkane region). Despite the early start to the marketing season thanks to production being ahead of schedule, overall exports might not reach last year’s level. The Nour campaign on the other hand is set for a similar level to 2016-17, i.e. average. Only the Nadorcott export potential should see a considerable rise (+ 10 to + 15 %), thanks to the major expansions in surface area over recent years (6 000 ha planted) and to the cutting-edge techniques used for its production. After a very clear recovery in export dynamic for the orange in recent years, it could well be curbed by the production shortfall and the increase in local sales during the Ramadan period (right in the middle of the Maroc Late campaign again this season).

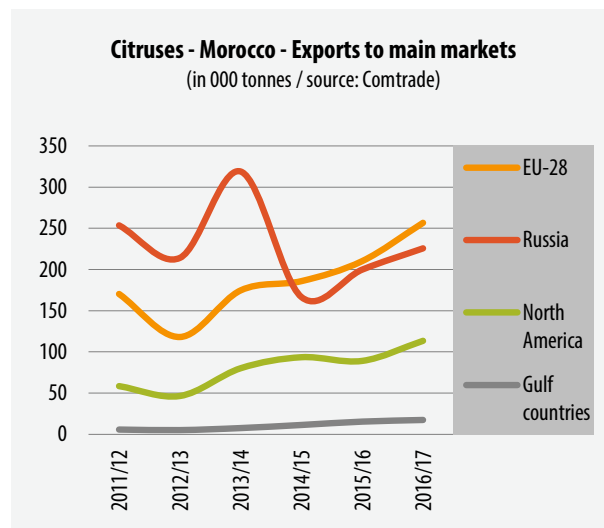
**Citruses – Morocco – Planted areas**

in hectares	2016	Evolution from 2006
Clementine	40 415	+ 19 187
Nour	7 330	+ 1 652
Nadorcott	5 810	+ 5 088
Others	8 100	+ 1 587
<b>Total easy peelers</b>	<b>61 655</b>	<b>+ 27 514</b>
Navel	21 930	+ 5 903
Maroc Late	25 630	+ 4 150
Blood oranges	3 300	+ 794
Others	7 285	+ 5 569
<b>Total oranges</b>	<b>58 145</b>	<b>+ 16 416</b>
<b>Total lemon</b>	<b>2 800</b>	<b>- 29</b>
<b>Total citruses</b>	<b>122 600</b>	<b>+ 43 901</b>

Source: Maroc Citrus

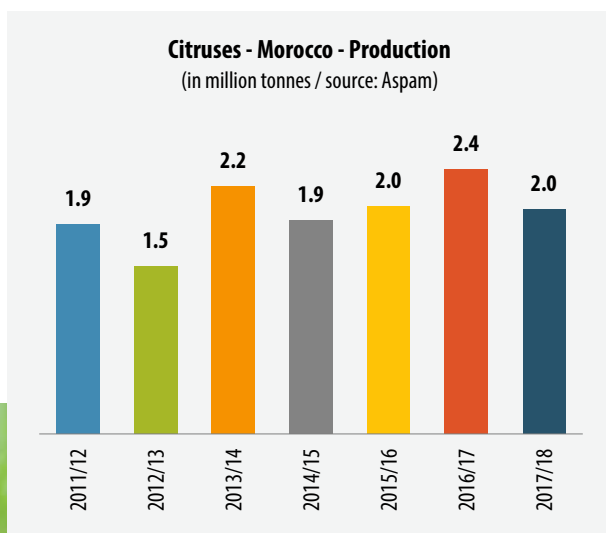
## Russian market not as central as previously

The breakdown of shipments by destination should continue to change. Russia, very much a central figure, indeed too central, until 2013-14, has seen its market share halved to approximately one third. The recent strengthening of the partnership between these two countries, especially in the field of trade, and the launch of a direct Morocco/Russia line by CGA-CGM, could contribute to halting this decline. Nonetheless, exports diversification remains a strategic avenue. It has the EU-28 in its sights, and has clawed back some ground. After hitting a ceiling of between 170 000 and 180 000 t in a normal production year until 2013-14, shipments neared the 260 000-t mark in 2016-17. The objective is to target markets where the Spanish heavyweight is least competitive (United Kingdom, which has responded well, Northern Europe), while in particular setting up downstream distribution/marketing tools. North America is another strategic avenue, where Moroccan citruses have also gained ground. Despite imports of Mediterranean citruses being desperately stagnant in the United States, Morocco is tending to gain market share over Spain. Furthermore, exports to Canada are progressing, while a free trade agreement between the two countries should be signed shortly.



## A pressing need for progress in exports and in the field of processing

Morocco is obliged to win its gamble on development and diversification of its outlets, not only in the export sector but also in processing (equivalent of 120 000 t of fresh citruses imported in juice form, while the country processes just 50 000 t per year). Production, after climbing by a million tonnes in ten years, has yet not finished its surge. The production target of the “Maroc Vert” plan (2.9 million tonnes) is more than realistic, and will probably be exceeded, in view of the expansion in surface areas registered since its launch. Moroccan surface areas now extend over 123 000 ha, i.e. 40 000 ha more than in 2006 and 18 000 ha above the targets of the “Maroc Vert” plan ■





## 2017-2018 citruses forecast

# Israel

## A good harvest, though not quite so much so for export specialities

by Eric Imbert

**W**ith approximately 570 000 t expected, the Israeli harvest is registering one of its best levels this decade, more than 10 % above average. Nonetheless, this fine performance will not equate to a bumper export campaign. The big increase in the orange harvest, due not only to the alternate bearing phenomenon but also to the growth trend of surface areas, conceals a stability or shrinkage trend for the families which make up the bulk of Israeli exports. For the grapefruit, the harvest is only similar to 2016-17, i.e. somewhat below average, given the mass uprooting carried out over recent years (more than 1 400 ha of coloured grapefruits currently in production, as opposed to 2 700 ha previously). There is a very considerable fall in production for easy peelers, because of a very powerful alternate bearing effect due to the exceptional 2016-17 harvest. Hence exports of Orri, the current jewel of Israeli citrus growing, should be down by approximately 30 %.

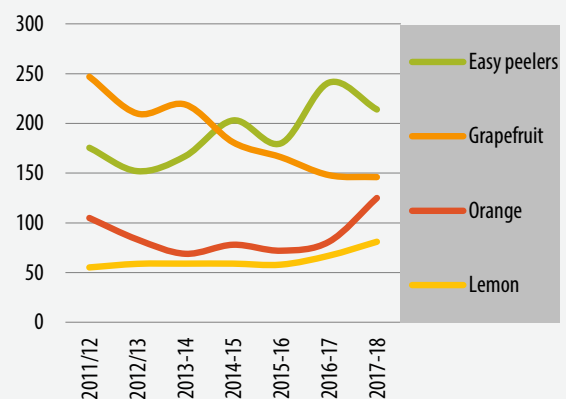
### Diversification to dollar-based markets

The EU-28 will remain the central outlet for Israeli exporters. Nonetheless, its market share should continue to ebb (barely more than 60 % in 2016-17). The high level of the shekel against the euro risks continuing to weigh down on shipments to the Old Continent (despite a slightly less punishing level this season). Israeli exporters are now primarily targeting dollar-based markets. Hence North America and the Far East (Japan, but also China and South Korea) have seen their respective market shares climb to more than 10 % in recent seasons.

### Cultivation area stabilised for export varieties

Given the current trends of the Israeli cultivation area, few changes should be expected in the export sector in the coming years. Despite the very good price levels registered in recent seasons, producers remain hesitant to set up new coloured grapefruit plantations. Similarly, surface areas have stabilised for Orri (with certain unproductive orchards actually being uprooted). The only current developments relate to oranges (mainly late Navel), to feed a local market fairly buoyant after the mass uprooting of traditional varieties such as Jaffa Late or Shamouti carried out in recent years ■

**Citruses - Israel - Production**  
(in 000 tonnes / source: CMBI)



**Citruses – Israel – Harvest forecast**

in 000 tonnes	2013-14	2014-15	2015-16	2016-17	2017-18	2017-18 compared to	
						2016-17	2013-17 average
Easy peelers	167	203	180	241	214	- 11 %	+ 8 %
Orange	69	78	72	81	125	+ 54 %	+ 67 %
Lemon	59	59	58	67	81	+ 21 %	+ 33 %
Grapefruit	219	181	166	148	146	- 1 %	- 18 %
<b>Total</b>	<b>514</b>	<b>521</b>	<b>476</b>	<b>537</b>	<b>566</b>	<b>+ 5 %</b>	<b>+ 11 %</b>

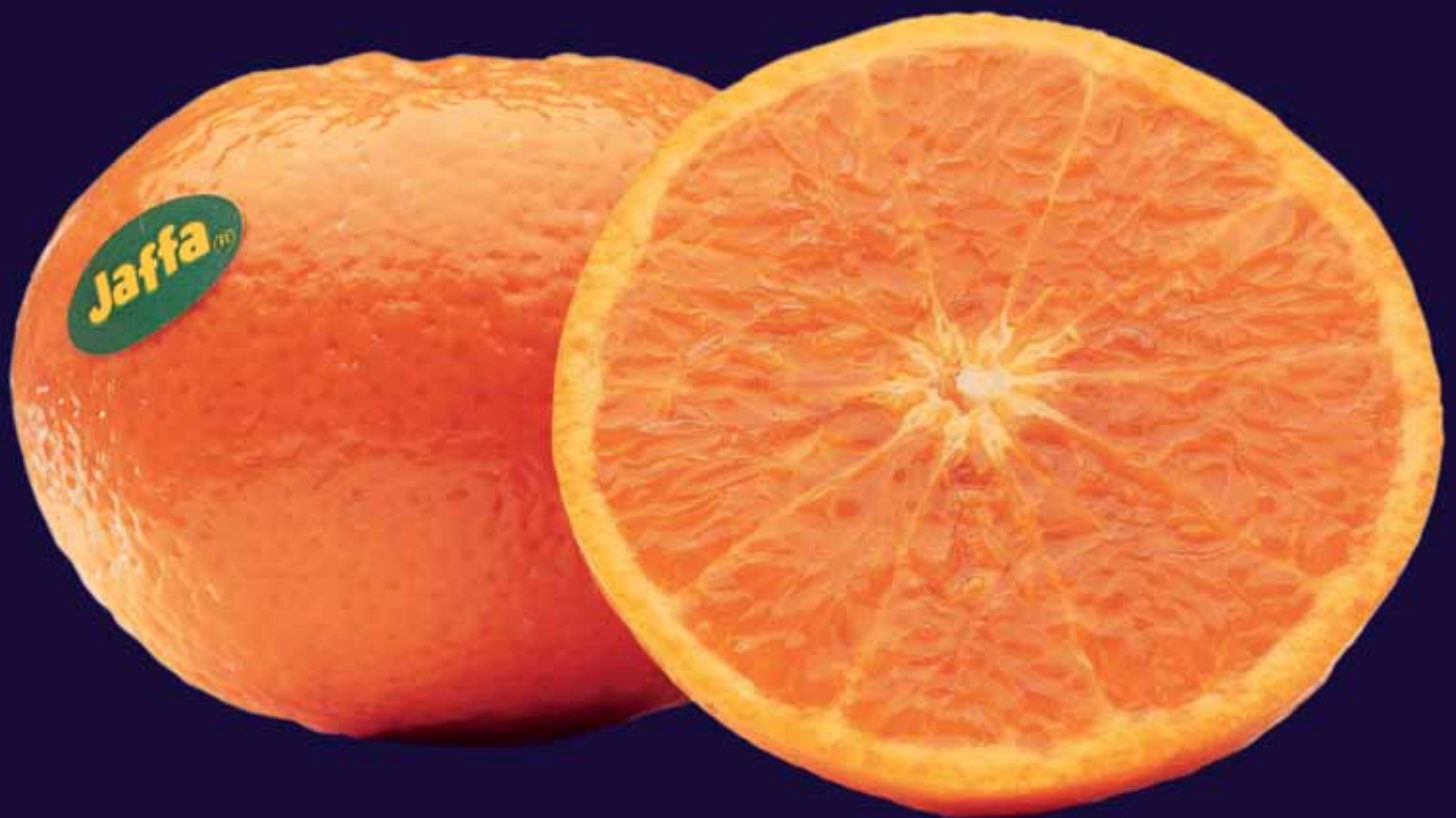
Source: CMBI



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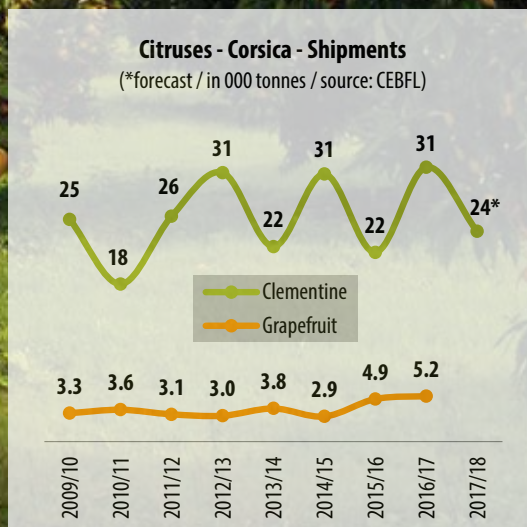


# 2017-2018 citruses forecast

## Corsica

### A small harvest, but with a better-rooted approach than ever

by *Eric Imbert*



The 2016-17 campaign demonstrated more clearly than ever the power of the quality and identity-based approach implemented by Corsican producers. Clementine prices approached the historic 2015-16 level, despite record volumes (more than 30 000 t shipped) and a highly unfavourable market context (abundant Spanish Nules clementine supply, often fragile in quality terms). It should be noted that the Corsican grapefruit is also increasingly well rooted on the French market, taking advantage if truth be told of a market increasingly open during the winter/summer season transition. Volumes sold exceeded 5 000 t for the first time, with prices reaching a record level.

Clementine availability is set to be much lower in 2017-18 (approximately 24 000 t). Clementine surface areas have practically stabilised (approximately 1 550 hectares, of which just over 1 300 under PDO). However, a severe summer drought and a spring frost added to the effects of the classic alternate bearing phenomenon. The downturn in production is more marked for the early varieties (Corsica Caffin, 2000) than for main seasonal variety (SRA). Hence the last volumes should be sold from late December. Despite the irrigation restrictions implemented in June, fruit sizing is up from last season. The initial information on the grapefruit harvest indicates a normal potential ■

#### Corsican citruses

	Grapefruit	Clementine
Areas (ha)	141*	1552
Number of PDO producers	35	137
including organic	12	21

\* PDO (Protected Designation of Origin) only  
Sources: Agreste, CEBFL 2016

## 2017-2018 citrus forecast

**Other Mediterranean****A cold snap in Turkey**by *Eric Imbert*

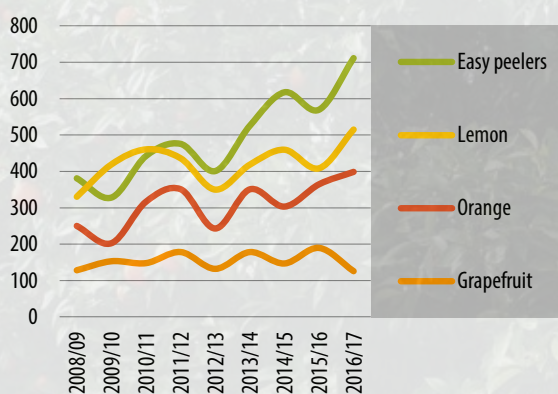
**T**rends are highly varied among the other big Mediterranean producers. Turkey, whose exports increased by a million tonnes in ten years, will see its production wane very considerably, following heavy frosts during winter 2016-17 and a particularly hot summer. Easy peelers, oranges and lemons should see their production fall by approximately 20 %, with the grapefruit harvest climbing back to an average level after a 2016-17 season marked by a big shortfall. The fall in the export potential of this origin will have a major impact on the Russian market, and consequently on origins supplying this destination (Morocco & Egypt especially).

Italy is set for a return to normal. After a big shortfall in 2016-17, the blood orange harvest, the country's flagship produce, will return to average, though with limited sizing. Nonetheless the situation remains critical, both in terms of climate (drought after a summer heatwave) and plant health (more than 30 000 ha of orchards affected by tristeza in Sicily). Just as in 2016-17, the lemon will have a good harvest level, thanks to expanding surface areas especially in south-eastern Sicily (Syracuse, Avola).

In Greece, production will for the first time in fifteen years or so climb back above the 1.2-million tonnes mark. This good performance can be explained by a good harvest level for the orange, by far the country's leading citrus family, and by the surge in clementine production, increasingly present on the international market (cultivation area up by nearly 2 000 ha since 2013-14).

The Tunisian orange harvest will be approximately 15 % below average, after a record 2016-17 harvest ■

**Citruses - Turkey - Exports**  
(in 000 tonnes / source: Comtrade)

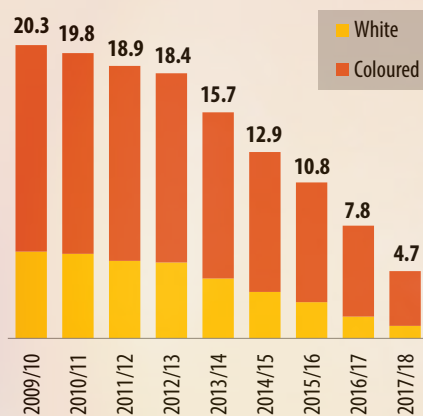




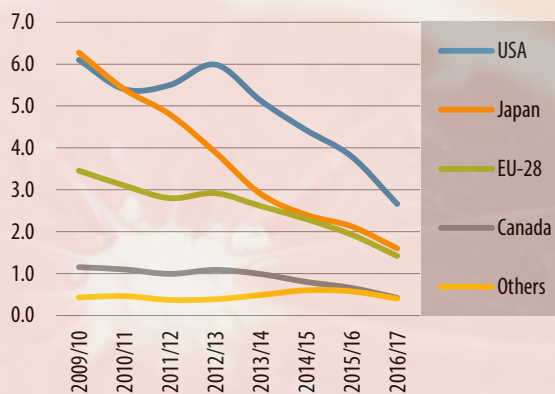
## 2017-2018 citrus forecast

**Florida****Industry more weakened than ever**by *Eric Imbert***Grapefruit - Florida - Production**

(in million 38.6-kg boxes / source: FDOC)

**Grapefruit - Florida - Exports and local sales**

(in million 17-kg boxes / source: FDOC)

**Grapefruit – Florida – Production**

in million field boxes	2017-18	2017-18 compared to	
		2016-17	4-year average
White	0.85	- 43 %	- 70 %
Coloured	3.80	- 40 %	- 58 %
<b>Total</b>	<b>4.65</b>	<b>- 40 %</b>	<b>- 61 %</b>

Source: FDOC

**F**ate seems to have it in for Floridian producers. The industry has been faced since 2005 with a mortal enemy, greening, which has literally flattened production, with levels reduced fivefold in the space of a decade. Now it must also cope with the consequences of Hurricane Irma, which hit the State in early September with category 3 winds. Although it made landfall on the West coast, i.e. opposite the big Indian River orchards, it will have major direct consequences on the 2017-18 harvest. With fewer than 4.65 million field crates (180 000 t), production is registering its lowest level since the end of WW2, and is 40 % down on last season. To make things worse, big fruits seem to have been hardest hit by the winds. Hence the fall in export potential could be of a level comparable to or greater than for production. The US press is reckoning on levels being halved. As a reminder, Florida shipped 1.4 million export boxes to the EU-28 in 2016-17. The sole reasons for any satisfaction for tropical grapefruit lovers on the Old Continent is the slight bounce-back by Texan production (+ 10 %), to register for the first time a level comparable to Florida.

Unfortunately, this second stroke of fate will also have long-term consequences. Production infrastructures have been affected, starting with the trees themselves. Leaving aside the uprooted trees, certain orchards remained flooded for a long period, which can cause sometimes lethal asphyxia. So the reduction in the number of trees in production could gather pace, augmenting an already clear trend (1 million trees lost between 2010 and 2016, i.e. approximately 20 % of the total). While this makes for a very gloomy outlook, there are still reasons for hope. The creation of greening resistant varieties is no longer a mirage, but a question of years given advances in research (whether or not public opinion accepts them, for certain promising options employing genetic engineering). Yet will producers be able to wait that long? It is the sum of local or Federal aid allocated to heal the wounds of Irma that will decide. Nothing has been achieved for the moment, but the lobbying groups are active and the sector is an economic and social heavyweight ■

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2017-2018 forecast

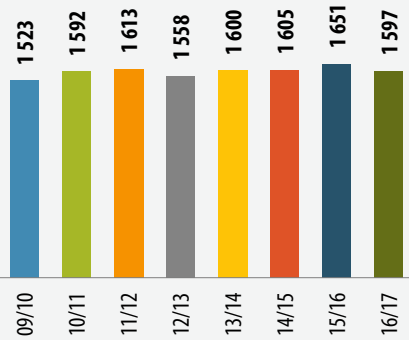
# Easy peelers

## Large and structural Spanish shortfall

by Eric Imbert



**Easy peelers - EU-28 - Supply in winter**  
(in 000 tonnes / source: Eurostat)



**Mediterranean easy peelers  
2017-18 production forecast**

in 000 tonnes	2017-18	Comparison	
		2016-17	4-year average
Spain	1 938	- 18 %	- 14 %
Morocco	1 150	- 10 %	+ 2 %
Israel	214	- 11 %	+ 8 %
<b>Total</b>	<b>3 302</b>	<b>-15%</b>	<b>- 8 %</b>

Professional sources

**Easy peelers — EU-28 — Winter season imports**

in tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Spain	1 305 726	1 284 121	1 277 044	1 249 991	1 236 100	1 148 000
Morocco	80 606	64 056	104 445	98 442	140 300	156 830
Italy	91 426	77 519	66 054	81 804	81 400	93 593
Israel	42 652	40 623	41 387	56 232	48 700	74 554
Greece	31 816	40 105	48 920	50 232	75 300	68 547
Turkey	45 571	36 849	46 637	41 056	48 500	34 335
Portugal	5 428	5 458	5 237	12 078	13 700	13 318
Cyprus	5 840	6 883	6 863	6 376	5 300	6 186
Egypt	1 197	345	1 543	1 559	1 200	1 756
Pakistan	2 568	2 170	1 747	-	-	149
<b>Total N. Hemisphere</b>	<b>1 612 829</b>	<b>1 558 129</b>	<b>1 599 879</b>	<b>1 605 170</b>	<b>1 650 500</b>	<b>1 597 268</b>

Source: Eurostat

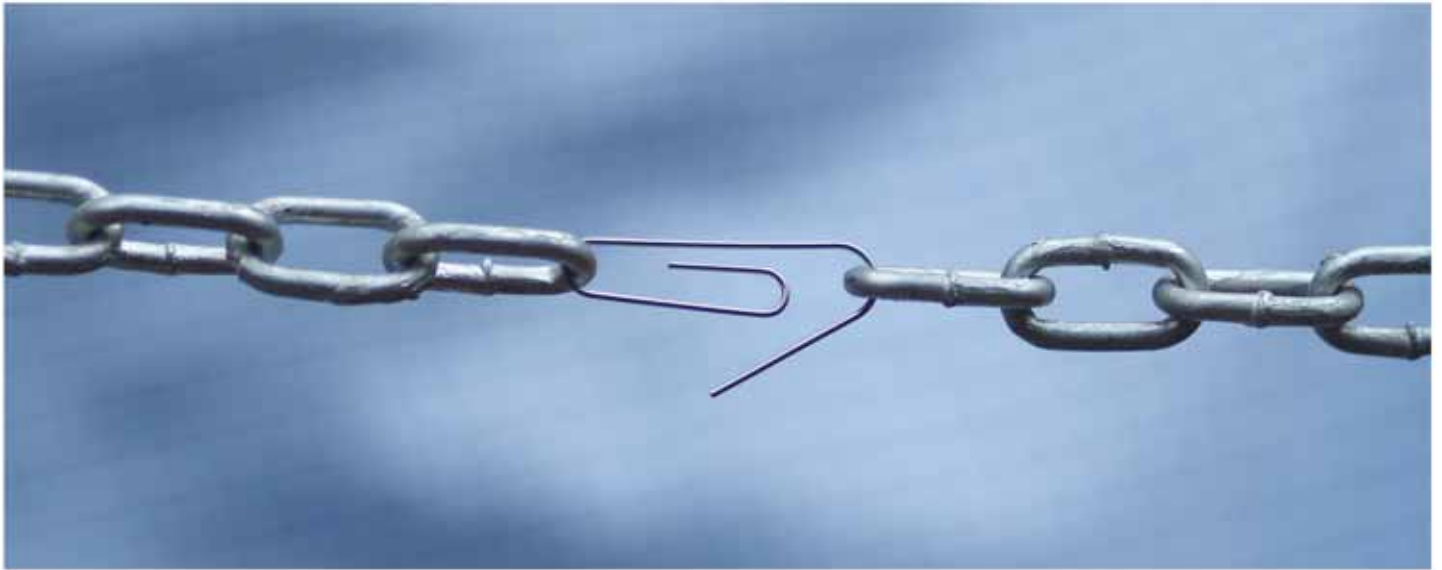
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**T**ension and high prices: this is the scene set for the 2017-18 campaign. Most of the main suppliers to the Community market are registering a significant production shortfall. Spain, which on its own accounts for nearly three-quarters of the supply, is the country hardest hit with a harvest of less than 2 million tonnes (its lowest level for a decade), a figure which is 13 % below the two-year average. The shortfall is particularly significant for the clementine, including the flagship variety Nules (20 % below average for this group). Hence the supply to the European market is set for a considerable shortfall during the mid-season. The other suppliers to the Community market play only a minor role during this first part of the season. Corsica, which practically exclusively supplies the French market, has a big shortfall after a record 2016-17 season. The export potential of the clementine is still very uncertain in Morocco. Despite the boom in surface areas, production is disappointing and sizing limited, in particular in the Souss and Oriental regions, where the irrigation infrastructures are still insufficient. So November and December should see good rates levels, in particular for big and average fruits.

Volumes available should return to an average level in the first part of the season, with the young hybrid orchards planted in recent seasons entering into production or their production prime, thereby offsetting the damaging climate or alternate bearing phenomena. In Morocco, Nadorcott production is reportedly up by approximately 10 % on last season, despite the cultivation area practically stabilised at approximately 6 000 ha. Similarly, in Spain, the Nadorcott harvest is set to be slightly bigger than the previous one, and likewise for Orri. Furthermore, this season should also see Iberian production of the Tango variety really get going on the Community market, with volumes estimated 25 000 t according to the official source. However, these modest rises should be counterbalanced by a considerable fall in Israeli Orri production (- 30 %, rebounding from the record 165 000 t in the previous campaign). So in this context of stable volumes, prices should be high during this second part of the season, especially since the transition between clementines / early season hybrids and end-of-season hybrids should proceed in a less troubled context than in 2016-17 (when major qualitative problems weighed down on prices of all varieties).

The EU-28 is not expected to be the only very open market. Russia, an outlet taking in more than 700 000 t (i.e. the equivalent of 40 % of EC consumption) returned to the market in 2016-17, thanks to a slight rise in the rouble and the end of the embargo on Turkish produce (though the one on EC produce remains in force). The big production shortfall from Turkey (- 25 % on the 2016-17 season), its main supplier, should benefit Morocco, which also serves the Community market. Conversely, the small decrease in Californian production (- 4 % on 2016-17 to 870 000 t) should hardly change the deal, with the big US market still just as low-consuming (2.5 kg/capita) and just as restricted to Mediterranean produce, exports of which stagnated at 75 000-80 000 t (Morocco on the up to the detriment of Spain) ■

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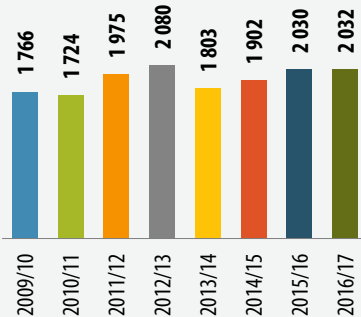
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## 2017-2018 forecast

**Orange****A season taking a similar shape to the easy peelers, though with a dark cloud**by *Eric Imbert*

**Orange - EU-28 - Supply in winter**  
(in 000 tonnes / source: Eurostat)



Just as for easy peelers, the scenario for this campaign will bear the mark of the big Spanish production shortfall. Which is only logical, since while the Spanish giant occupies a slightly less dominant position for the orange than for easy peelers, it nonetheless controls practically two-thirds of the winter Community market. With 3.2 million tonnes, the Spanish harvest is registering a level approximately 8 % below average. The relatively good performance of produce from Andalusia, a region which plays a fairly significant role for this citrus family, is helping offset the big fall in volumes from the Valencian Community. As with easy peelers, there will be high tension during the mid-season (November-December-January), with Naveline registering a particularly marked production shortfall in the Valencian Community, the leading zone for this variety (23 % below average).

**Mediterranean orange**  
**2017-18 production forecast**

in 000 tonnes	2017-18	Comparison	
		2016-17	4-year average
Spain	3 231	- 12 %	- 8 %
Italy	1 550	+ 29 %	- 3 %
Egypt	3 200	+ 7 %	+ 15 %
Greece	961	+ 11 %	+ 8 %
Tunisia	310	- 14 %	+ 21 %
Morocco	900	- 13 %	- 6 %
Israel	125	+ 54 %	+ 67 %
<b>Total</b>	<b>10 277</b>	<b>+ 1 %</b>	<b>- 8 %</b>

Professional sources

The supply is set for a better level during the second part of the season. On the one hand, production of late Navel (Lanelate) and super-late Navel (especially Powell and Chislett) is set to be 12 % less than in 2016-17 in the Valencian Community, though around average, since the production prime phase of the young orchards is helping to attenuate the effects of climate. On the other hand, there will also be a normal harvest once more for the Valencia and Valencia-like group, particularly Delta and Midnight, which have been heavily planted in recent years. Nonetheless, this return to normal production levels will not entail an average supply level, since these varieties, whose season will probably start early for lack of a sufficient Naveline supply, will need to cover a wider market period.

**Orange — EU-28 — Winter season imports**

in tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Spain	1 382 095	1 464 457	1 210 809	1 323 336	1 233 704	1 297 293
Egypt	176 339	178 600	177 304	192 069	265 830	283 013
Greece	196 100	214 532	206 232	152 492	236 559	168 650
Morocco	46 570	46 628	54 944	75 392	68 153	92 537
Italy	89 942	93 565	83 294	84 196	115 493	81 111
Portugal	24 291	25 708	20 447	32 012	47 559	49 844
Turkey	13 338	13 449	16 527	8 473	29 560	24 792
Tunisia	19 445	19 445	15 174	17 055	15 741	16 592
Cyprus	7 444	7 587	4 980	4 545	2 605	2 852
Israel	6 436	6 434	5 863	4 154	4 452	2 820
Others	13 195	9 939	7 520	8 728	10 696	12 758
<b>Total N. Hem.</b>	<b>1 975 193</b>	<b>2 080 343</b>	<b>1 803 093</b>	<b>1 902 452</b>	<b>2 030 351</b>	<b>2 032 262</b>

Source: Eurostat

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The trends are highly variable in terms of the top-up origins. Egypt, which has been constantly rising to prominence over the past three seasons, actually seizing 15 % of the winter market in 2016-17 with nearly 300 000 t, will have a bigger harvest (+ 5 to + 10 %). Similarly, Italy will regain a less meagre production level than in 2016-17, although it will barely reach average (good harvest once again good for Tarocco/Moro blood oranges). There will be a two-fold effect on the Community market supply: exports should climb slightly, and above all imports from other Mediterranean countries will return to a normal level (rise of 100 000 t in 2016-17), releasing additional volumes for the other markets. Conversely, Morocco, which is tending to return to the Community market after practically deserting it, will see its production ebb ■

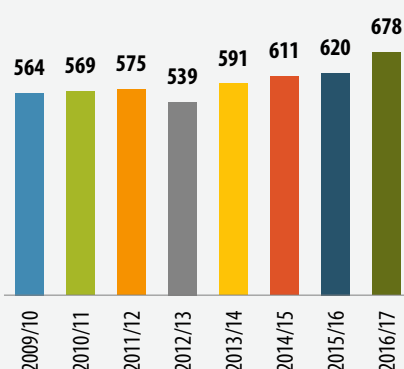
## 2017-2018 forecast

**Lemon**

## Another season of high prices

by *Eric Imbert*

**Lemon - EU-28 - Supply in winter**  
(in 000 tonnes / source: Eurostat)



**Lemon — EU-28 — Winter season imports**

in tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Spain	432 293	426 860	452 051	500 692	447 968	517 719
Turkey	106 512	72 299	95 305	75 684	107 077	104 337
Italy	29 210	33 377	34 955	29 539	42 406	43 094
Greece	2 624	3 658	4 951	2 792	15 319	7 101
Egypt	572	236	810	166	1 023	2 931
Cyprus	2 169	1 883	1 121	635	1 205	1 335
Morocco	970	192	693	443	1 886	678
Tunisia	12	9	53	38	1 257	463
Israel	200	262	520	492	1 214	314
Iran	68	88	82	99	103	93
United States	22	31	22	42	331	57
<b>Total N. Hem.</b>	<b>574 652</b>	<b>538 895</b>	<b>590 562</b>	<b>610 622</b>	<b>619 789</b>	<b>678 122</b>

Source: Eurostat

Just as for the orange and easy peelers, it is of course Spanish production which we need to look at first, since this origin controls more than 80 % of the Community market. Unlike the above-mentioned fruits, Iberian production is registering an above-average level, similar to last season. This trend is highly symptomatic of the considerable increase in surface areas registered in recent seasons! However, this forecast made at the beginning of the season could be revised downward, especially for Primofiore, if the rains do not show up during the winter. The top-up origins are exhibiting very different production trends. Turkey should not be able to recover its market share, which has tended to decline since the beginning of the decade (going from approximately 20 % to 15 % in recent seasons, when Spanish production was normal). The harvest was hard hit by the 2016-17 winter frost, and by a very hot summer. The shortfall, which was large for Interdonato (a half-harvest), will remain significant for Lama (- 20 % approximately). Conversely, this season Italy will see a good harvest. This trend too is symptomatic of the young orchards planted in Sicily in recent seasons coming into their prime.

Overall, the combined production of the Mediterranean leaders is set to be smaller than in 2016-17, while demand is exhibiting real growth dynamic in both the eastern and western EC. So prices should register a very good level again this season, indeed slightly higher than in 2016-17 ■

**Mediterranean lemon**  
**2017-18 production forecast**

in 000 tonnes	2017-18	Comparison	
		2016-17	4-year average
Spain	1 100	+ 1 %	+ 8 %
Italy	525	+ 7 %	+ 13 %
Turkey	510	- 20 %	- 26 %
<b>Total</b>	<b>2 135</b>	<b>- 4 %</b>	<b>- 2 %</b>

Professional sources

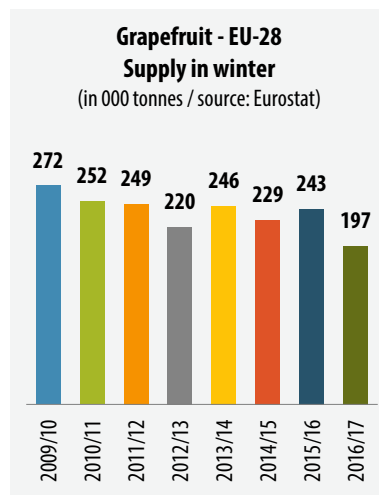


## 2017-2018 forecast

# Grapefruit

**A slightly less marked shortfall for Mediterranean fruits, but an enormous trough in the tropical segment**

by **Eric Imbert**



The 2016-17 campaign was marked by a boom in prices and a deep supply trough on both segments of the European grapefruit market. This scenario will be repeated on a bigger scale for the tropical grapefruit, whose supply prospects are more meagre than ever. Florida, this season facing not only the dramatic consequences of rampant greening, but also those of Hurricane Irma, saw its production plummet to hitherto unexplored depths (- 40 % on 2016-17, i.e. below 200 000 t). It is set for a lean and short season with medium to small sizes dominating. So excellence will more than ever come at a price this season, despite a really considerable rise by the euro against the dollar.

The scarcity of Mediterranean grapefruit will not be as marked as in 2016-17, where the Turkish production trough led to an export level 25 % below average. Nonetheless, it will not regain its nominal level. The harvest is set for a level similar to last season in Israel, i.e. well below average, because of the major uprooting carried out in recent years. The euro, a little less weak against the shekel than in 2016 upon the start of the campaign, could have a positive effect on exports. Spanish production will undergo a big negative alternate bearing effect, after a record 2016-17 campaign. It will register a figure 30 % below average, with barely more than 60 000 t expected. The issue of sizing remains in the air, given the lack of precipitation hitherto and the very low level of the water reserves. Only Turkey should enjoy an above-average production level, according to professionals, climbing by approximately 25 % from last year's lean season. For this origin too, the sizing seems to be rather in the low-average bracket. Prices should not be as exceptional as in 2016-17, but will maintain a good level, in particular for large to medium fruits ■

### Tropical grapefruit 2017-18 production forecasty

in 000 tonnes	2017-18	Comparison	
		2016-17	4-year average
Florida	181	- 40 %	- 61 %

Source: FDOC

### Mediterranean grapefruit 2017-18 production forecast

in 000 tonnes	2017-18	Comparison	
		2016-17	4-year average
Israel	146	- 1 %	- 18 %
Spain	61	- 25 %	- 20 %
Turkey	215	+ 25 %	+ 8 %
<b>Total</b>	<b>422</b>	<b>+ 6 %</b>	<b>- 4 %</b>

Professional sources

### Grapefruit — EU-28 — Winter season imports

in tonnes	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Turkey	75 004	66 286	81 960	52 786	87 702	70 729	95 573	60 821
Spain (Ailimpo)	47 900	51 825	44 560	52 324	48 463	63 291	52 454	58 000
Israel	58 101	48 576	44 170	45 401	41 664	37 887	33 820	30 290
United States	55 132	52 721	45 988	40 676	41 760	38 243	31 421	23 334
Mexico	9 167	14 385	13 472	13 428	11 949	9 725	14 612	13 683
Cyprus	10 617	11 773	13 081	11 031	8 364	5 557	6 811	5 341
Honduras	6 063	1 109	76	73	20	54	37	53
Cuba	754	-	-	-	-	-	-	-
Others	9 140	5 406	5 701	4 578	6 233	3 500	7 798	5834
<b>Total N. Hemis.</b>	<b>271 878</b>	<b>252 081</b>	<b>249 008</b>	<b>220 297</b>	<b>246 155</b>	<b>228 986</b>	<b>242 525</b>	<b>197 356</b>

Source: Eurostat

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# Citruses

## Consumption in the EU-28

### Back to growth

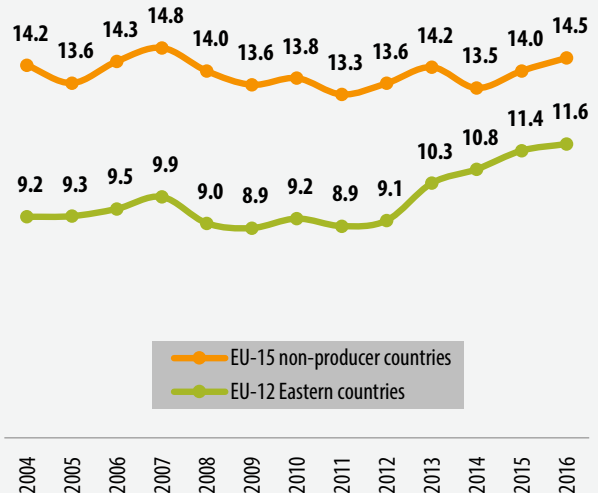
Stability, maturity or even decline have for a very long time been the only suitable words to describe the evolution of citrus consumption in the European Community. The 2015 and 2016 figures will force analysts to enrich their vocabulary, adding terms such as growth or rise.



### A boom in the eastern EC

The world's number one fresh citrus market seems to be back in form! The 2016 figures show that a consumption level at its highest for more than a decade. Besides this very decent record, we should emphasise above all the confirmation of an underlying trend of recovery in growth, though the dynamic varies between the geographic zones. In the eastern EC, a genuine revolution seems to be in progress. Consumption, previously completely static, has risen by nearly 30 % over the last four years, to reach 11.6 kg per capita in 2016. The trend is more subtle in the western EC. Nonetheless, there definitely seems to be a bounce-back: the consumption level of 14.5 kg/capita is close to the absolute record from 2007, marking a 1.2 kg rise from the low point of 2011. Regardless of the geographic zone, the trend is not being driven by a handful of countries, but all of them. Countries with the biggest rises are France (15.1 kg/capita, i.e. + 2.0 kg on 2011), Poland (11.4 kg, i.e. + 2.0 kg) and the United Kingdom (11.3 kg, i.e. + 1.2 kg).

**Citruses - EU-28 - Consumption**  
(in kg per capita / source: Eurostat / CIRAD calculation)





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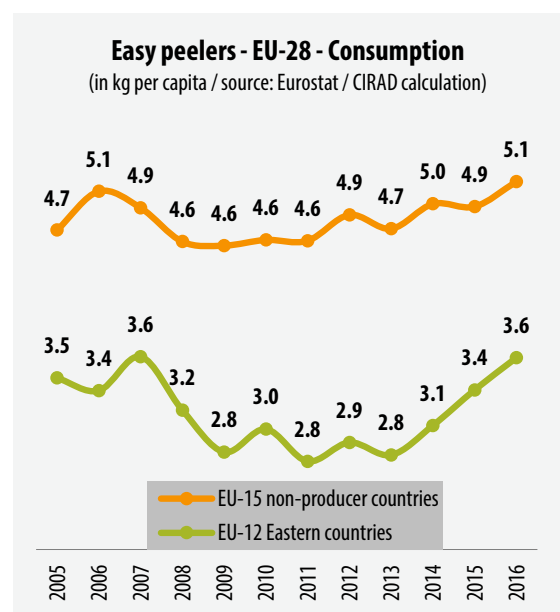
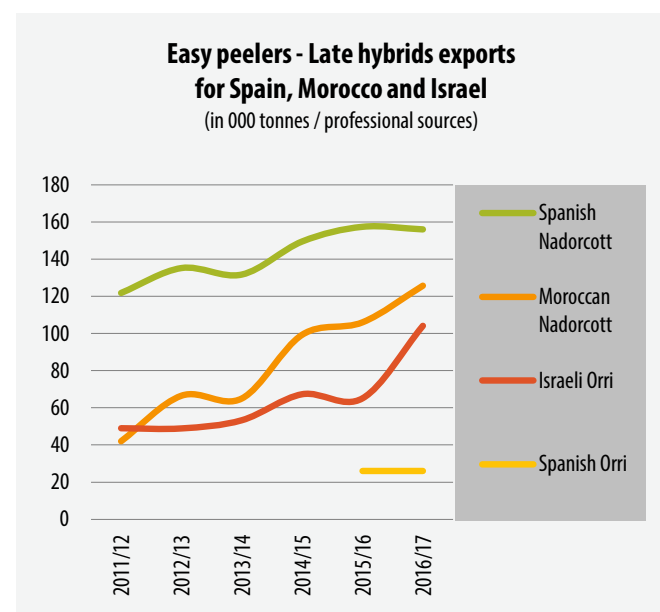
## Easy peelers: on the charge!

The trend is more or less the ideal. Easy peeler consumption growth in the European Community is generalised, fairly strong and with fine prospects. This follows on from a period of such flatness that observers were left wondering whether growth could actually make a comeback. In the western EU-28, consumption volumes per capita have risen by 500 g since the beginning of the decade. While the movement is generalised, its intensity is nonetheless highly marked in Germany and the United Kingdom, which saw their consumption levels approach the average mark. France has seen a rise too, though a little less dynamic, while Scandinavia is back on form after a deep depression. The markets in the east of the EU-28, overwhelmingly flat until 2013 after a period of collapse in the middle of the last decade, are rousing themselves and on the charge! Consumption per capita has gained more than 700 g in three years, to reach 3.6 kg. This is a generalised increase, though it is proving to be most hesitant in Poland.

This development is in tune with the rise by the other big world markets. A strong increase has also been seen in countries such as Canada (4.3 kg/capita, i.e. + 700 g since the beginning of the decade) or the USA, where the level is nonetheless still very low (+ 600 g since the beginning of the decade, yet reaching just 2.5 kg/capita). Russia is the sole exception: the embargo policy, which has meant cutting off major procurement sources at least temporarily, has reduced the volumes taken in by the former world number one consumer to below the European average (from 6.1 kg/capita in 2014 to 4.9 kg in 2016). The 2017 figures seem to be confirming a return to normal, which is also good news for the Community market, which could be potentially destabilised by this "export shortfall" to the Russian market.

## Wager on end-of-season varietal innovation paying off

This boom in easy peeler consumption seems primarily due to the roll-out of a renewed range of end-of-season hybrids, with higher quality and covering a later market window (in particular the spring). Furthermore, it is the supplier countries of these innovative varieties which are behind the volume growth in recent years. Morocco, which was tending to fall off the radar, has recovered its footing in the EU-28 thanks in particular to its Nadorcott supply (nearly 160 000 t of easy peelers exported to the EU-28 in 2016-17, as opposed to barely more than 60 000 t in 2012-13). Israel has managed a similar comeback, in its case thanks to its Or/Orri supply (exports to the EU-28 across all varieties of 75 000 t in 2016-17, as opposed to less than 30 000 t in 2010-11). There is a similar process for Spain, although it is going rather unnoticed in terms of volumes due to the substitution effects (rise of Nadorcott, Orri and other top-end late varieties, but other cultivars such as Fortuna or Ortanique slowing down or disappearing).





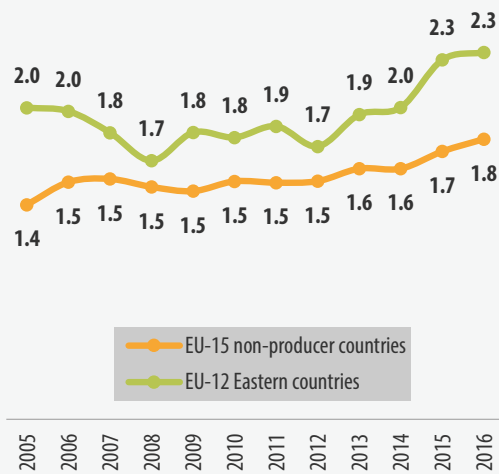
© Régis Domergue

## Lemon: a gold star performance

Who would have believed it? The lemon, which on the face of it seemed the least likely citrus to climb, saw a genuine consumption boom after a long period of complete flatness. This is not a solely European but worldwide movement, since world trade in this product has been up by approximately 100 000 t per year for the past three years, i.e. an increase of 15 % between 2013 and 2016. The EU-28 is leading the way in this trend. In the western EC, consumption in non-producer countries increased by 300 g/capita between 2012 and 2016, to reach 1.8 kg. All the major countries rose in comparable proportions, reaching a near-average consumption level (and up to 2.5 kg/capita in Sweden). This popularity of acidic citrus has also benefitted the lime: volumes taken in by the EU-15 doubled between 2010 and 2016, to reach 460 g/capita. The lemon is still flavour of the month in the eastern EC, where its consumption increased by 400 g between 2013 and 2016. This makes an increase greater than that registered in the EU-15, rather paradoxical given that the overall consumption level was already higher (2.5 kg/capita in the east, as opposed to 1.8 kg in the west at present). The dynamic is affecting all countries in this part of the continent too.

### Lemon - EU-28 - Consumption

(in kg per capita / source: Eurostat / CIRAD calculation)



## Thanks Beyoncé!

While the recovery in the popularity of easy peelers is based on in-depth work on the range, the renewed interest in the lemon seems to be due to a little nudge by destiny. The lemon has become a trendy fruit, promoted for its beneficial effects on health by the popular press and a handful of iconic figures (including Beyoncé and her famous "lemonade diet"). These virtues are justified, since 100 g of lemon provides 30 % of the recommended daily intake of vitamin C, recognised for its benefits on a great many of the body's systems (immune, metabolic, energy, antioxidant, etc.). All the market players are taking advantage, in particular the number one Spain.



## A more mixed trend for the orange

The orange is also seeing a favourable period. However, the trend is more difficult to discern, since it is at times more short-lived or less universal than for easy peelers or the lemon. In the eastern EC, the latest figures do not reveal any rise, though they are excellent nonetheless. They confirm the astounding – and hitherto suspect – change in pace of the market which occurred in 2013, with a sudden leap of more than 1 kg in one year. The only dark spot on this bright horizon is that a new ceiling of 4.5 kg per capita seems to have been established, except in Romania and Bulgaria, the only countries in the zone which still saw a distinct rise in 2015 and 2016. This part of Europe has nonetheless made up for lost time. In Western Europe, the trend is more heterogeneous. Paradoxically, stability is prevailing in countries where consumption lies at the extremes of the range: it remains desperately stable in the United Kingdom, despite a level barely higher than 4.0 kg/capita, and still sky-high in Sweden with nearly 10 kg. Consumption has regained some lost ground prior to 2014 in Germany. Yet the most interesting case is without doubt the French market, where there has been a steady rise since 2012, barring production vagaries. The efforts made to increase availability and quality of supply during the end of the winter season (super-late Spanish Navel) and new consumption modes (boom in fleet of freshly-squeezed juice machines in the supermarket sector) seem to be bearing fruit.

**Late Navel oranges – Mediterranean Basin – Harvest calendar**

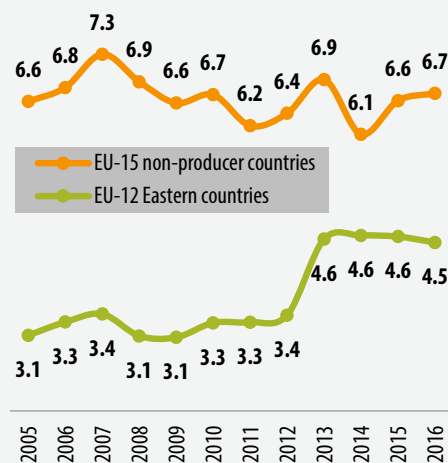
Varieties	D	J	F	M	A	M	J
Washington Navel							
Lane Late							
Rhode Summer Navel							
Barnfield							
Powell Summer Navel							
Chislett Summer Navel							

Professional sources



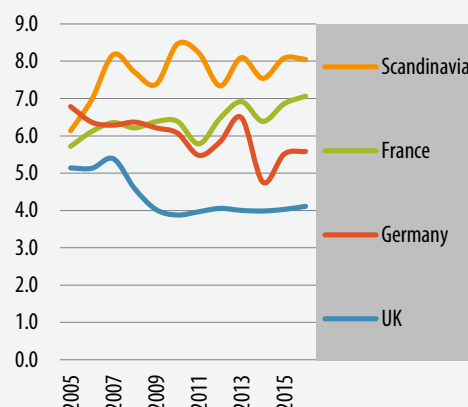
### Orange - EU-28 - Consumption

(in kg per capita / source: Eurostat / CIRAD calculation)



### Orange - Evolution of consumption on leading West European markets

(in kg per capita / sources: Customs, Comtrade, professionals)

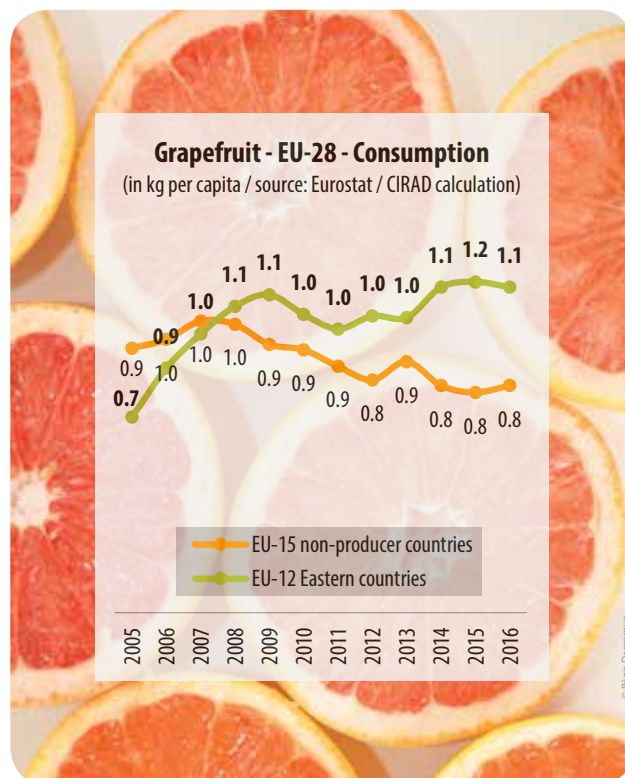


## “Entry-level” suppliers on a roll

The big winner of this renewed orange consumption growth in the EU-28 does not seem to be the expected players. It is Egyptian imports which have literally boomed in recent years, going from 100 000-130 000 t to more than 280 000 t in 2015-16. Could it be that this entry-level product is well-suited to the East European markets and juice machines? Spain, which greatly benefitted from its innovative range at the beginning of the decade (approximately + 100 000 t) has seen its volumes on the EU-28 market stagnate in recent years. We should also note the awakening of Portugal (volumes shipped doubled between the beginning of the decade and 2016-17, reaching 50 000 t) and a comeback trend by Morocco (more than 90 000 t in 2016-17, as opposed to barely 50 000 t at the beginning of the decade).

## Grapefruit still struggling, though only in Western Europe

It is widely believed that every family has its black sheep. We cannot help but observe that the grapefruit continues to occupy this role in the citrus family. The trend is very mixed depending on the geographic zone. In Western Europe, there is a prevailing decline, with the relative stability at 0.8 kg/capita of 2015 and 2016 not confirmed in 2017 according to the initial figures available. This a phenomenon common to markets across the developed countries, where the lack of top-end Floridian production is weighing heavily on the consumption balances. Western Europe is doing somewhat less badly than the rest, with a fall of approximately 100 g over the past three years, as opposed to 300 g in the United States and 400 g in Japan. All countries in the former EU-15 have been affected by this decrease, to a slightly greater extent for "Florida fans" such as France. Conversely, a bounce-back is at work in the Eastern EC. The consumption level of 1.1 to 1.2 kg per capita in 2015 and 2016 marked a rise of approximately 100 g from 2013, nearing the record set in 2009. However, growth is not generalised, relating primarily to the heavyweights of the zone, i.e. Poland and above all Romania and Bulgaria.



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## Entry-level taking the prize for the grapefruit too

This shift in the market's centre of gravity toward the eastern EU-15 consumer countries, mainly seeking entry-level or mid-range fruits, has major consequences on the EU-28 supply profile. Israel, which suffers from a high cost price and an unfavourable euro/shekel exchange rate, is on the wane with 30 000 t of shipments to the EU-28 in 2016-17, half of the volumes in 2010-11. Conversely, Turkey and Spain are gaining ground. Meanwhile the Floridian decline mentioned above is primarily due to a different production problem.

## A message of hope!

After a long flat period, European citrus consumption seems to have recovered the growth trend of recent years. While the durability of the dynamic is questionable for the orange, conversely it seems well-established in easy peelers and the lemon, which is most fortunate since the surface area extensions potentially required to feed this trend already seem to be in place. This return to growth is in any case a great message of hope. It shows that a well-targeted varietal innovation (range of spring easy peelers and oranges), the establishment of new modes of consumption (spread of fresh juice machines in supermarkets), or communication on the benefits of this product family, often under-promoted, are powerful vectors for development. It remains for the industry to get itself organised to continue to harness them, if possible with even greater intensity ■

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# Orange

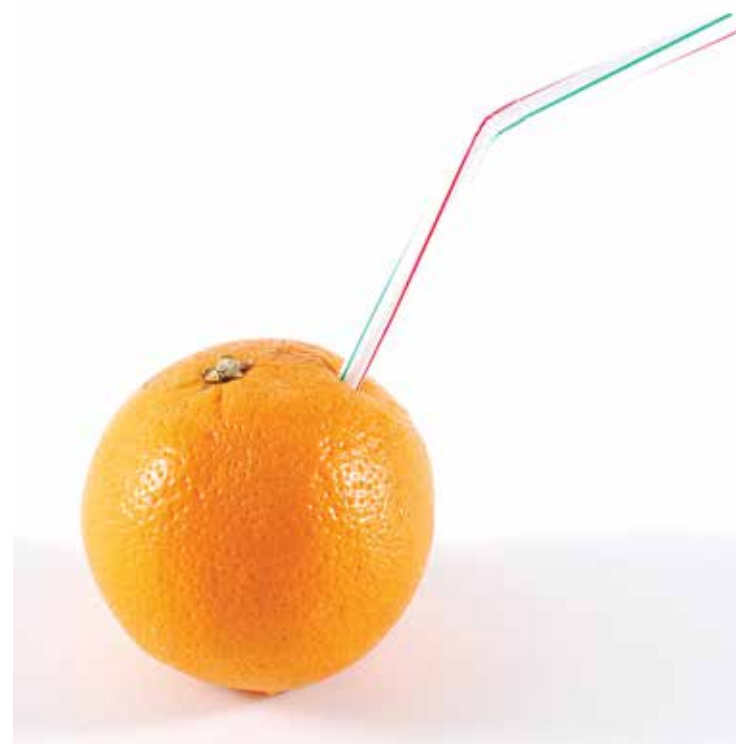
## World concentrated juice market

Perfect season in Brazil, but a perfect storm in Florida

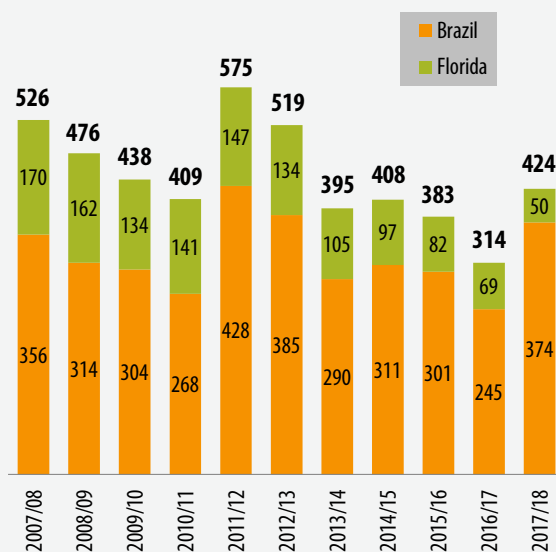
Concentrate prices on the rise in 2017-18, with the Brazilian orange harvest back to a high level, and world demand still depressed? Astounding as it might seem, that is the expected market trend.

### Brazil: no record, but back to a fine harvest

Four successive small or medium harvests had practically led us to forget how enormous Brazilian production could be. The 2017-18 campaign should set things straight, with a harvest which without being a record, is 35 % up on 2015-16 to register a level of 19.5 million tonnes; in the end, a level worthy of the world's number two orange producer. This boom should largely be credited to Brazilian citrus growing's leading zone, the Sao Paulo region, where the harvest is set to soar by more than 50 %. This staggering increase is nonetheless utterly credible. As is often the case after a very small harvest (2016-17 was the leanest season of the past 25 years), there is a particularly strong alternate bearing effect in production. Furthermore, the climate conditions have been favourable, with in particular the return of more generous rainfall levels. Hence, given less bad processing yields than in previous seasons, Brazilian juice production should climb to 1.3 million tonnes of 65°Brix concentrate (+ 58 % on 2015-16).



**Orange - Florida and Brazil cumulative productions**  
(in million field boxes / sources: FDOC, IEA)





## Florida: doubly penalised

The fate of the two main protagonists on the world market seems to be direct opposites in this 2017-18 campaign. While Brazilian producers have reason to celebrate, their Floridian counterparts have been literally afflicted. Hurricane Irma wreaked devastation on an industry already greatly weakened by the damaging effects of greening, as ravaging as it is widespread. According to the press the cultivation area, which extends over a total of 180 000 ha, was 70 % affected by winds of between 120 and 180 km/h, and 15 % affected by winds of more than 180 km/h. Hence the 2017-18 season, which had been set to be the first marked by a slight but encouraging production bounce-back, is now expected to be the worst on record for the past 70 years. According to the USDA, the harvest should barely exceed 50 million field crates (2.2 million tonnes). Furthermore, this already historically lean figure is considered to be a big overestimate by highly representative professional authorities such as Florida Citrus Mutual, which is banking on 35 million field crates (1.4 million tonnes) instead. Hence Florida should produce no more than 150 000 to 250 000 t equivalent of concentrated juice in 2017-18. Overall, the combined production of the two main juice market protagonists should be around 1.45 to 1.50 million tonnes, a level slightly above the four-year average (+ 6 %).

**Orange - Floridian and Brazilian harvests**

in million 90-lb (40.8 kg) field boxes	2017-18	2016-17	average	2017-18 compared to	
				2016-17	average
Florida	50	70	88	- 29 %	- 43 %
Brazil	374	245	287	+ 53 %	+ 30 %
<b>Combined</b>	<b>424</b>	<b>315</b>	<b>375</b>	<b>+ 35 %</b>	<b>+ 13 %</b>

Sources: FDOC, Abecitrus

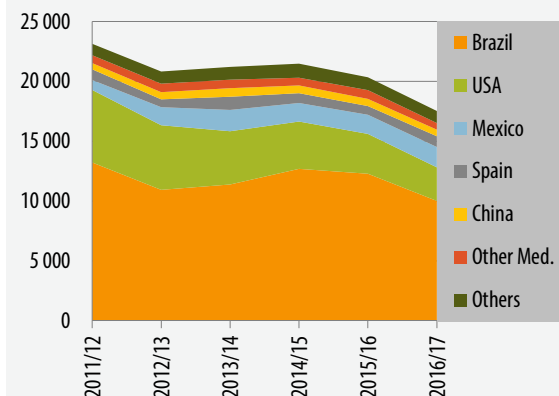


## World concentrated juice production only slightly above average

What of the other market players? No significant production increase movement seems to be taking shape. In Mexico, the sector's world number three responsible for 10 % of total processing, there should barely be any change in the harvest. The cultivation area seems to be shrinking, especially in the main production centre of Veracruz, where the threat of greening is increasingly strong. Spain, which controls approximately 5 % of the world market and is the fourth biggest player, is in poor form with its orange harvest approximately 10 % below average. Finally in China (3 % of the world market), volumes for the industrial sector have seen a considerable and constant decline since 2013-14, because of greening increasingly ravaging the big, warm-climate production provinces in the south (Jiangxi, Hunan, Guangxi). Hence if we factor in these hypotheses and assume stable volumes from the other minor players, which together represent approximately 5 % of the market, concentrate production should be around 1.9 million tonnes (+ 6 % on the four-year average).

**Orange - Processed volumes**

(in 000 tonnes / sources: FDOC, professionals)



**Orange - Processed volumes**

in 000 tonnes	2016-17	Evolution from 2011-12	Market share
Brazil	10 008	- 3 212	57 %
United States	2 807	- 3 257	16 %
Mexico	1 700	+ 870	10 %
Spain	901	+ 6	5 %
China	550	+ 30	3 %
Other Mediterranean	555	- 104	3 %
Others	1 007	+ 52	6 %
<b>Total</b>	<b>17 528</b>	<b>- 5 589</b>	

Sources: FAO, professionals

## Demand still distinctly on the wane

In terms of demand, the latest available figures (civil year 2016) did not bring any nice surprises. The trend is still clearly a waning one, with an average drop in marketed volumes of approximately 2 % per year for the past four years. There is still a distinct and steady fall in consumption in the USA and EU-28, the world's main markets which together take in approximately 70 % of the world supply. It is still not being offset by the interest from Latin America, increasingly marked every year (especially Brazil, Argentina, Chile), the sole remaining growth region in the world. The Asian markets have been completely stable since 2013, while the East European markets are continuing to decline. If we extend these trends for 2017 and 2018, probably a fairly pessimistic scenario since the expensiveness of apple juice could play in orange juice's favour, potential consumption nearly perfectly matches the expected production level.

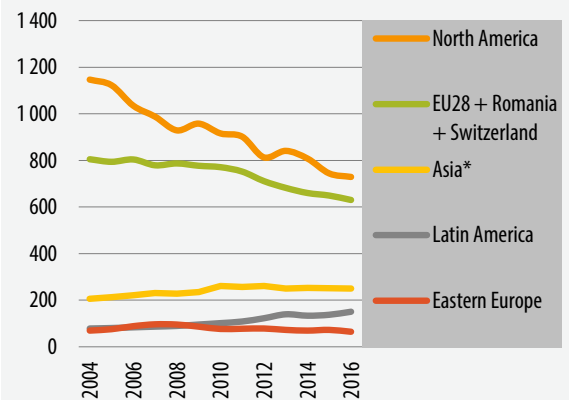
**Orange juice - World consumption**

in 000 tonnes concentrated juice equivalent	2016	% of world consumption	2016 compared to	
			2015	2010
EU	630	32 %	- 3 %	- 18 %
North America	729	37 %	- 2 %	- 20 %
Latin America	150	8 %	+ 9 %	+ 49 %
Asia	250	13 %	0 %	- 4 %
Eastern Europe	64	3 %	- 11 %	- 16 %
Others	131	7 %	+ 3 %	+ 6 %
<b>Total</b>	<b>1 954</b>		<b>- 1 %</b>	<b>- 13 %</b>

Source: Marketstraat

**Orange juice - Consumption by market**

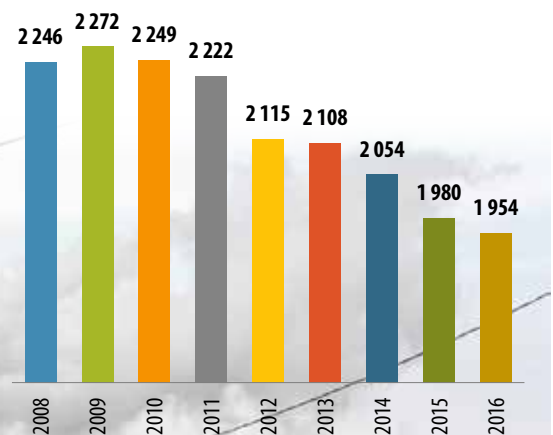
(in 000 t 65°Brix concentrate / source: Marketstraat)



\* Japan, China, South Korea, India, Indonesia, Taiwan, Philippines, Turkey

**Orange juice - World consumption**

(in 000 t 65°Brix concentrate / source: Marketstraat)

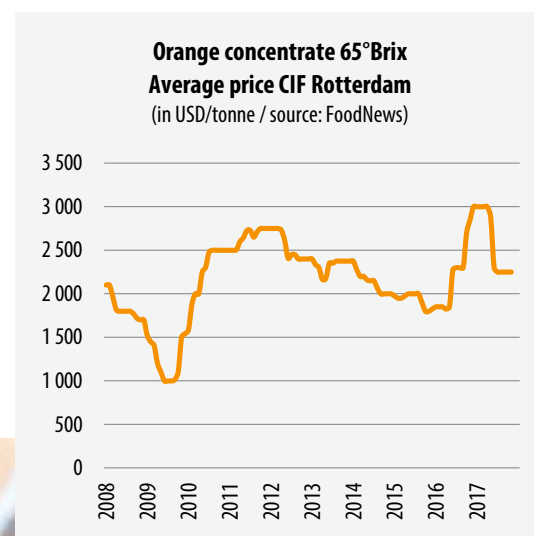
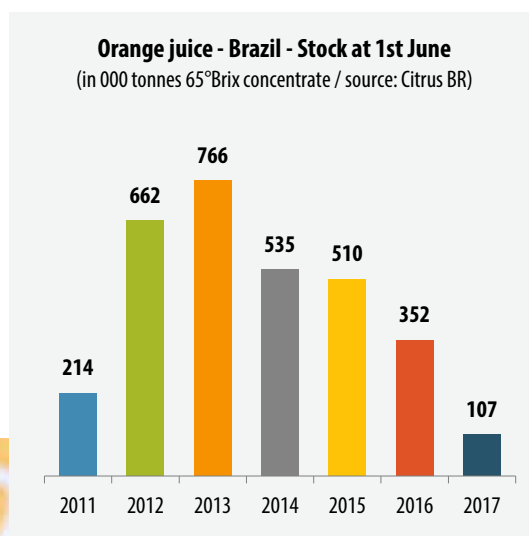




## Lean stocks and a balance between production and demand providing an argument for high prices

Hence the big increase in Brazilian production should be put into perspective, since it will only restore a production level just sufficient to supply world demand. Furthermore, the market is no longer weighed down by stocks. The combined Floridian and Brazilian juice volumes, available in the production countries and the rest of the world, had dropped to less than 350 000 t equivalent of concentrate by the end of the 2016-17 season. These volumes literally choked the market between 2012 and 2016, with a level of close to one million tonnes (and even nearly 1.3

million tonnes at the end of the 2012-13 season). Brazil actually closed its 2016-17 season with barely more than 100 000 t of concentrated juice available, a level not seen for at least a decade! It is no surprise in this context to hear rumours of price increases. Operators are even talking of approximately + 350 to 400 USD per tonne of concentrated juice, according to reports in Foodnews. This revision would take the price to 2 600 USD, a level still far off last year's 3 000 USD, while supply and demand are balanced and stocks have fallen.



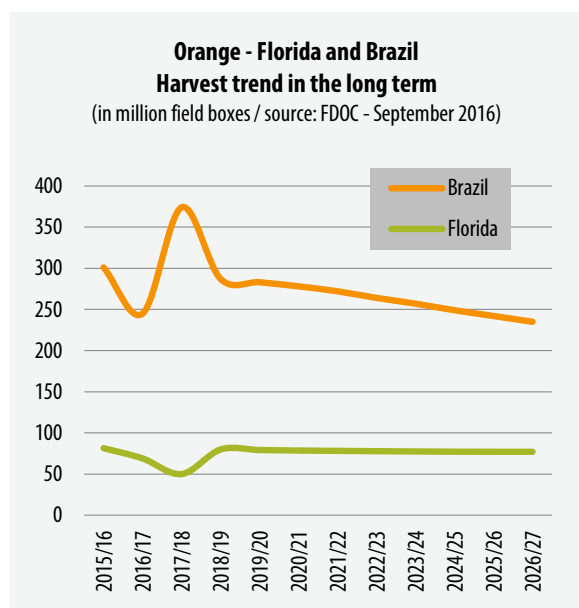
## Brazilian sector in better health, but indicating only stability

A glass of orange juice should remain an expensive part of breakfast over the coming years. True, demand should barely see any favourable development, with decline probably prevailing. However, world production should remain restrained. True, the world number one Brazil is in better health than in the past. In plant health terms, the infestation rate of the cultivation area by greening registered for the first time a hesitant but encouraging fall in 2016-17, going from 17 to 16 %. Furthermore, the downward trend in cultivated surface areas seems to be slowing down (16 000 ha lost between 2015 and 2016, and approximately 1 000 ha between 2016 and 2017). While the shrinkage is based in the centre and north-west of Sao Paulo State, the trend is for stabilisation, or even sometimes increases in the north, south and above all the south-west, less hit by greening and better supplied with water. Finally, production yields have increased with the constant rise in mean density (687 trees per hectare on average for new plantations in 2015-16 as opposed to less than 500 until 2007 and less than 600 until 2012). Nonetheless, according to the USDA's latest model, these factors should only be able to limit the decline in production, with the harvests from the Sao Paulo centre maintaining a level below 300 million field crates, a long way off this season's mark. Furthermore, juice yields, although on the rise (267 field crates for one tonne of concentrate in 2016-17), remain a long way off those seen for the majority of the last decade (230 to 240 field crates per tonne of concentrate).



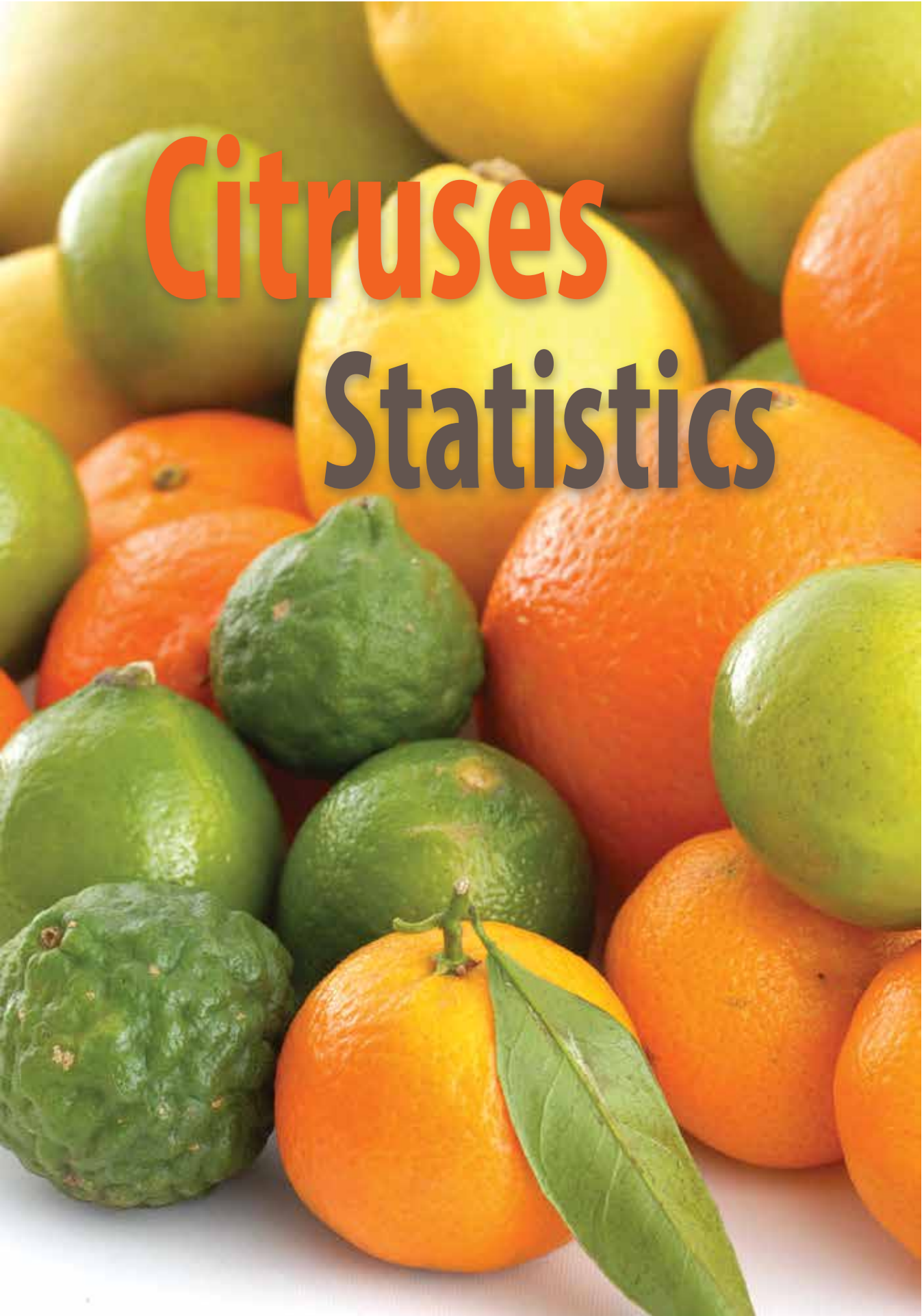
## Sector more endangered than ever in Florida

In Florida, the uncertainties around the long-term future of the industry, already intense because of greening, are sharper than ever since Hurricane Irma. According to the USDA, the losses sustained by the citrus growing sector amount to more than 760 million USD (2.5 billion USD for Floridian agriculture). Dreyfus, a heavyweight of the sector, has declared a pessimistic outlook. Conversely, many producers are keeping up their spirits and not losing hope. Dan Richey, CEO of Riverfront Packing, said of the sector, paraphrasing Mark Twain, that "rumours of its demise had been greatly exaggerated". It is true that greening control is more effective and that research is contemplating the release of tolerant varieties in the medium term. The refloating of the sector will depend largely on the level of the aid package to be allocated by the local and Federal authorities. It is hard to imagine that the authorities will abandon the citrus growing sector, as recently as 2015-16 generated more than 45 000 direct jobs (full-time or part-time), and a turnover of approximately 4 billion USD (without counting the indirect knock-on effects) ■



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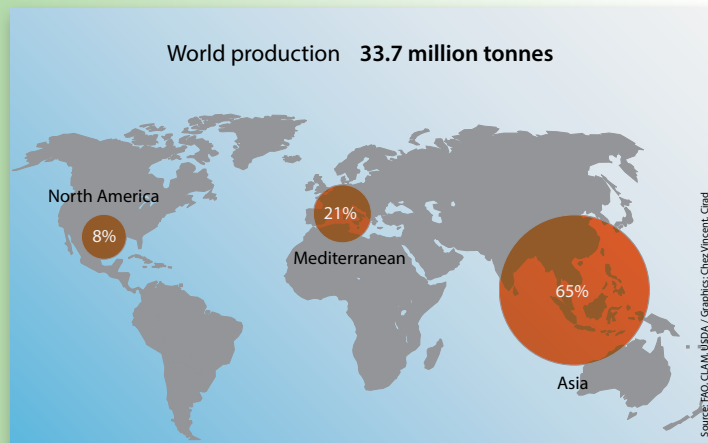




# Citruses Statistics

# EASY PEELEERS

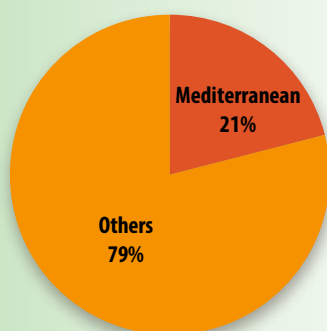
## Production (2016-2017)



Easy peelers - Top 10 producer countries	
000 tonnes	2016-2017
China	19 300
Spain	2 367
Morocco	1 278
Turkey	1 200
United States	1 033
Japan	994
Brazil	965
South Korea	635
Italy	630
Egypt	625*

\* Estimate / Sources: FAO 2014, professionals

Easy peelers - World  
Mediterranean production share

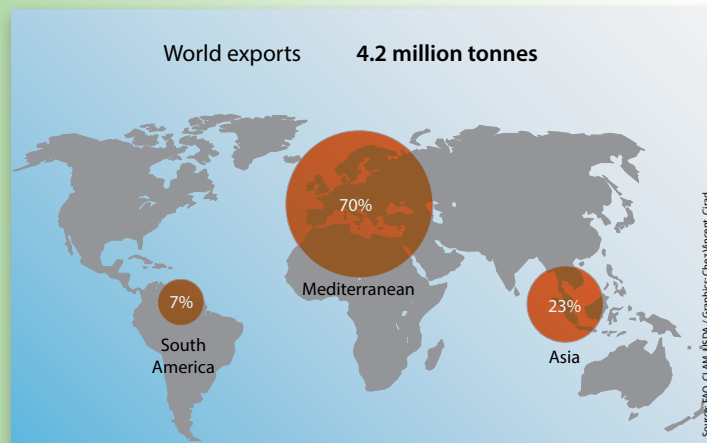


Easy peelers - Mediterranean - Production	
000 tonnes	2016-2017
Spain	2 367
Morocco	1 278
Turkey	1 060
Italy	630
Egypt	625*
Israel	241
Greece	175
Tunisia	106
Cyprus	75

\* Estimate / Source: professionals

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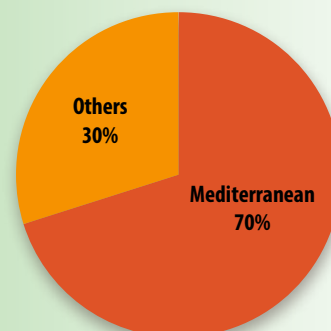
## Exports (2016-2017)



Easy peelers - Top 10 exporter countries	
000 tonnes	2016-2017
Spain	1 353
Turkey	711
China	589
Morocco	514
Pakistan	340*
South Africa	190
Peru	112
Israel	119
Chile	97
Greece	94

\* Estimate / Sources: national Customs, professionals

Easy peelers - World  
Mediterranean exports share



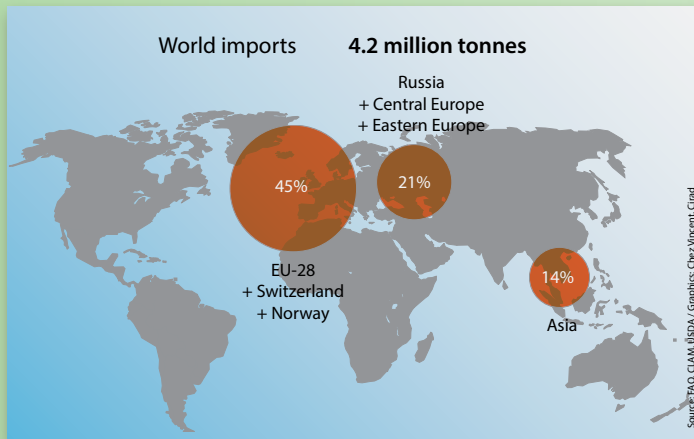
Easy peelers - Mediterranean - Exports	
000 tonnes	2016-2017
Spain	1 353
Turkey	711
Morocco	514
Israel	119
Italy	94
Greece	94
Egypt	50*
Cyprus	10

\* Estimate / Source: professionals



# EASY PEELEERS

## Imports (2016)

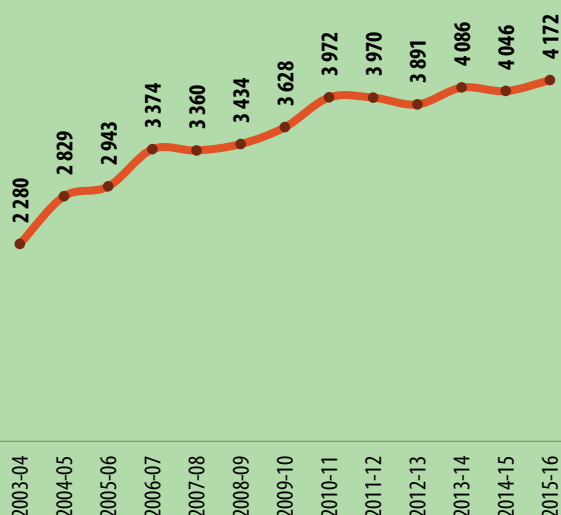


### Easy peelers - Top 8 importer countries

000 tonnes	2016
Russia	685
Germany	411
France	368
United Kingdom	316
United States	230
Iraq	201
Netherlands	118
Ukraine	100

Source: national Customs

### Easy peelers - World trade (in 000 tonnes)



### Easy peelers - United States - Main supplier countries

000 tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Total</b>	<b>146.5</b>	<b>150.1</b>	<b>181.9</b>	<b>211.9</b>	<b>229.8</b>	-
<b>Total N. Hemis., incl.</b>	<b>66.9</b>	<b>65.3</b>	<b>85.8</b>	<b>84.4</b>	<b>71.0</b>	<b>75.8</b>
Morocco	16.2	11.5	37.7	44.4	32.2	43.0
Spain	47.5	47.6	40.5	32.2	23.3	17.0
Israel	2.0	2.3	2.5	4.4	8.3	9.4
Mexico	1.1	3.9	5.1	2.2	6.3	5.0
<b>Total S. Hemis., incl.</b>	<b>79.6</b>	<b>84.8</b>	<b>96.1</b>	<b>127.5</b>	<b>158.8</b>	-
Chile	53.5	60.2	52.8	71.2	90.6	-
Peru	17.2	19.6	30.1	34.4	41.7	-
Uruguay	-	-	4.5	12.1	13.3	-
South Africa	7.0	3.4	7.7	8.1	9.8	-
Australia	1.9	1.6	1.0	1.7	3.4	-
<b>Local production (tangerine, tangelo)</b>	<b>711</b>	<b>660</b>	<b>700</b>	<b>811</b>	<b>864</b>	<b>937</b>
California	472	472	533	679	787	867
Florida	232	182	161	126	77	70
Arizona	7	6	5	6	-	-

Source: US Customs, code 080520

### Easy peelers - Canada - Main supplier countries

000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>123.9</b>	<b>129.9</b>	<b>129.7</b>	<b>123.4</b>	<b>146.0</b>	<b>146.6</b>
<b>Total N. Hemis., incl.</b>	<b>103.2</b>	<b>104.5</b>	<b>104.9</b>	<b>94.7</b>	<b>119.6</b>	<b>117.1</b>
Morocco	38.6	37.3	33.8	28.1	53.4	58.6
China	28.5	28.7	33.4	21.5	19.8	21.4
United States	22.4	17.0	20.2	16.7	18.9	15.8
Spain	7.6	11.7	7.5	18.4	16.6	14.2
Japan	2.2	2.0	2.3	2.6	1.8	1.2
<b>Total S. Hemis., incl.</b>	<b>20.7</b>	<b>25.4</b>	<b>24.8</b>	<b>28.7</b>	<b>26.4</b>	<b>29.5</b>
Peru	8.9	11.1	10.5	13.1	11.3	12.4
South Africa	4.5	6.0	6.2	6.9	5.9	6.1
Argentina	3.0	3.5	3.0	3.9	4.1	3.9
Chile	2.3	2.5	2.3	2.1	3.6	3.3
Brazil	0.4	0.9	0.3	-	0.1	1.9
Uruguay	1.6	1.4	1.9	2.4	1.4	1.9

Source: COMTRADE, code HS 085020

Easy peelers - European Union - Main supplier countries (September to May)						
000 tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Total</b>	<b>1 776.9</b>	<b>1 717.5</b>	<b>1 765.4</b>	<b>1 766.9</b>	<b>1 827.3</b>	-
<b>Total N. Hemis., incl.*</b>	<b>1 612.8</b>	<b>1 558.1</b>	<b>1 599.9</b>	<b>1 605.2</b>	<b>1 650.5</b>	<b>1 597.3</b>
Spain	1 305.7	1 284.1	1 277.0	1 250.0	1 236.1	1 148.0
Morocco	80.6	64.1	104.4	98.4	140.3	156.8
Italy	91.4	77.5	66.1	81.8	81.4	93.6
Israel	42.7	40.6	41.4	56.2	48.7	74.6
Greece	31.8	40.1	48.9	50.2	75.3	68.5
Turkey	45.6	36.8	46.6	41.1	48.5	34.3
Portugal	5.4	5.5	5.2	12.1	13.7	13.3
Cyprus	5.8	6.9	6.9	6.4	5.3	6.2
Egypt	1.2	0.3	1.5	1.6	1.2	1.8
Pakistan	2.6	2.2	1.7	-	-	0.1
<b>Total S. Hemis., incl.</b>	<b>164.1</b>	<b>159.3</b>	<b>165.5</b>	<b>161.7</b>	<b>176.8</b>	-
South Africa	70.0	80.9	85.3	94.9	115.4	-
Peru	48.5	44.1	48.7	47.1	47.8	-
Uruguay	19.4	15.4	17.0	10.1	6.0	-
Argentina	24.0	15.8	12.0	4.1	3.9	-
Chile	1.3	1.0	1.5	3.3	2.9	-
Australia	0.5	1.9	0.7	1.9	0.8	-
Brazil	0.3	0.1	0.3	0.3	-	-

\* Extra-EU imports and shipments from main EU producer countries (Spain, Italy, Greece)  
Source: EUROSTAT, code 080520

Easy peelers - Other West European countries - Main markets						
000 tonnes	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Total</b>	<b>69.0</b>	<b>72.7</b>	<b>70.2</b>	<b>73.0</b>	<b>75.2</b>	<b>76.4</b>
Switzerland	41.4	43.4	40.8	42.7	44.7	44.3
Norway	26.6	28.2	28.3	29.1	29.2	30.9
Iceland	1.0	1.1	1.1	1.1	1.3	1.2

Source: COMTRADE, code HS 080520

Easy peelers - Russia - Main supplier countries						
000 tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Total</b>	<b>763.5</b>	<b>767.4</b>	<b>860.2</b>	<b>754.1</b>	<b>684.9</b>	-
<b>Total N. Hemis., incl.</b>	<b>696.8</b>	<b>697.6</b>	<b>785.5</b>	<b>700.2</b>	<b>635.9</b>	<b>749.0</b>
Turkey	185.3	170.9	197.8	302.2	167.4	328.2
Morocco	203.5	192.6	287.7	139.1	190.7	214.5
China	72.7	79.2	82.2	77.4	90.5	82.7
Pakistan	95.7	79.8	74.4	100.3	97.8	65.3
Georgia	12.3	30.9	47.7	44.3	43.2	29.3
Israel	25.4	21.5	14.0	18.4	16.8	13.2
Egypt	3.5	4.7	3.2	7.1	16.4	6.5
Belarus	0.4	2.2	7.9	9.5	7.6	5.6
Spain	56.5	52.5	39.4	-	-	-
Others	4.3	8.0	7.1	1.9	5.5	3.7
<b>Total S. Hemis., incl.</b>	<b>66.7</b>	<b>69.8</b>	<b>74.7</b>	<b>53.9</b>	<b>49.0</b>	-
Argentina	42.0	44.0	47.0	28.9	24.3	-
South Africa	13.0	14.1	12.2	15.3	14.3	-
Uruguay	7.0	8.0	10.5	6.1	6.8	-
Peru	4.7	3.7	5.0	3.7	3.6	-

Source: COMTRADE, code 080520

Easy peelers - Ukraine - Main supplier countries						
000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total, incl.</b>	<b>181.8</b>	<b>175.7</b>	<b>215.7</b>	<b>158.1</b>	<b>112.5</b>	<b>100.0</b>
Turkey	85.5	70.0	114.6	82.9	62.3	-
Spain	34.1	35.2	34.9	26.8	15.4	-
Italy	16.9	16.8	12.4	9.7	12.1	-
Pakistan	20.9	25.4	13.8	21.1	9.6	-
Greece	5.6	5.8	6.0	4.9	6.5	-
Georgia	10.8	13.4	21.4	7.0	3.3	-
Egypt	1.7	1.9	3.5	1.3	1.7	-
Cyprus	1.6	2.2	2.0	0.4	0.5	-

Source: COMTRADE, code 080520

Easy peelers - Japan - Main supplier countries						
000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>21.3</b>	<b>20.3</b>	<b>16.9</b>	<b>10.2</b>	<b>11.6</b>	<b>3.1</b>
<b>Total N. Hemis, incl.</b>	<b>17.7</b>	<b>16.7</b>	<b>13.7</b>	<b>8.0</b>	<b>9.3</b>	<b>2.5</b>
USA	17.6	16.6	12.4	7.5	8.8	2.4
Taiwan	0.1	0.1	0.1	0.1	-	-
<b>Total S. Hemis, incl.</b>	<b>3.6</b>	<b>3.6</b>	<b>3.2</b>	<b>2.2</b>	<b>2.3</b>	<b>0.6</b>
Australia	2.3	2.1	2.5	1.6	1.6	0.5
New Zealand	0.9	1.0	0.6	0.6	0.7	0.1
Chile	0.5	0.3	0.1	-	-	-

Source: Japanese Customs, code HS 080520

Easy peelers - South-East Asia - Main markets						
000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>463.6</b>	<b>536.9</b>	<b>423.1</b>	<b>447.3</b>	<b>413.2</b>	<b>532.1</b>
Thailand	73.8	144.8	142.6	148.2	125.2	135.6
Vietnam	20.1	21.0	12.2	10.6	9.8	120.6
Philippines	46.7	72.6	57.6	49.8	52.6	77.1
Malaysia	72.8	59.3	77.8	60.3	72.3	74.7
China	37.5	31.7	25.4	34.5	40.1	58.6
Indonesia	182.3	179.4	76.3	116.4	82.3	39.6
Singapore	19.8	17.5	21.7	20.4	22.1	22.6
Sri Lanka	10.5	10.6	9.5	7.1	8.9	3.3

Source: COMTRADE, code HS 080520

Easy peelers - Central Asia - Main markets						
000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>68.9</b>	<b>77.0</b>	<b>96.4</b>	<b>83.4</b>	<b>75.3</b>	<b>67.9</b>
Kazakhstan	51.6	65.9	84.2	72.3	63.7	56.9
Kyrgyzstan	7.3	10.2	10.3	11.1	11.5	11.1
Azerbaijan	10.1	0.9	1.9	-	-	-

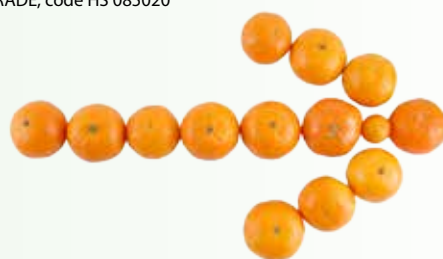
Source: COMTRADE, code HS 080520

Easy peelers - Persian Gulf - Main markets						
000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>329.7</b>	<b>162.5</b>	<b>198.6</b>	<b>255.4</b>	<b>363.1</b>	<b>373.7</b>
Iraq	105.0	-	-	19.7	152.7	201.5
Saudi Arabia	59.3	58.0	71.7	74.3	65.5	91.9
United States Em.	50.0	59.6	88.5	107.1	101.7	33.6
Kuwait	17.9	15.3	19.0	23.8	16.8	27.8
Oman	23.0	7.6	4.6	11.5	9.8	12.3
Bahrain	3.9	3.9	5.3	10.3	6.2	3.9
Qatar	5.0	5.4	6.2	8.5	9.2	2.8
Iran	65.6	12.7	3.3	0.3	1.3	0.0

Source: COMTRADE, code HS 080520

Easy peelers - Other East and Central European countries - Main markets						
000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total, incl.</b>	<b>103.4</b>	<b>108.5</b>	<b>105.9</b>	<b>127.8</b>	<b>116.0</b>	<b>129.7</b>
Belarus	32.5	38.9	42.9	50.4	53.5	47.6
Serbia	23.0	24.4	21.1	25.1	21.1	27.3
Bosnia	16.2	17.3	13.8	20.0	15.6	22.3
Macedonia	6.5	7.5	8.1	10.0	8.9	10.8
Moldova	7.6	8.2	9.3	9.7	9.1	10.2
Armenia	10.1	3.7	4.8	4.6	2.6	6.2
Albania	7.7	8.4	5.7	7.4	4.5	3.2
Georgia	-	0.1	0.2	0.6	0.7	2.1

Source: COMTRADE, code HS 080520

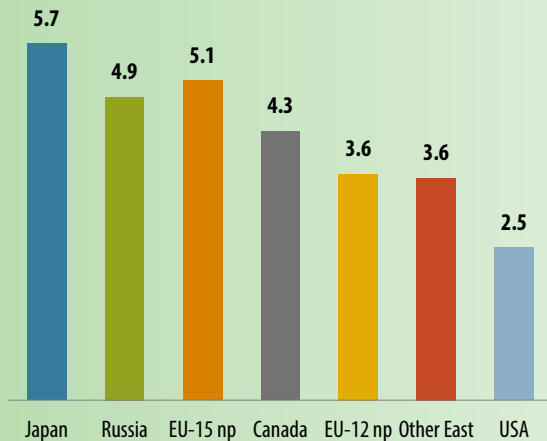




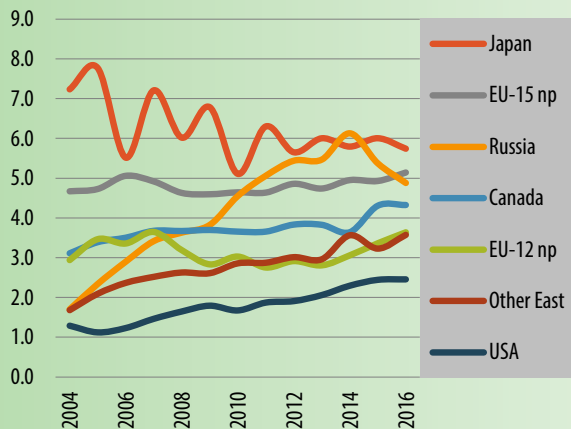
# EASY PEELERS

## Consumption (2016)

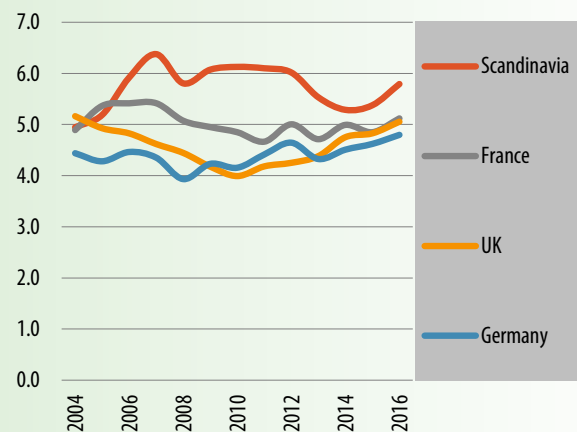
**Easy peelers - Consumption in 2016**  
(np: non producing country / in kg/capita  
sources: Customs, Trade map, professionals)



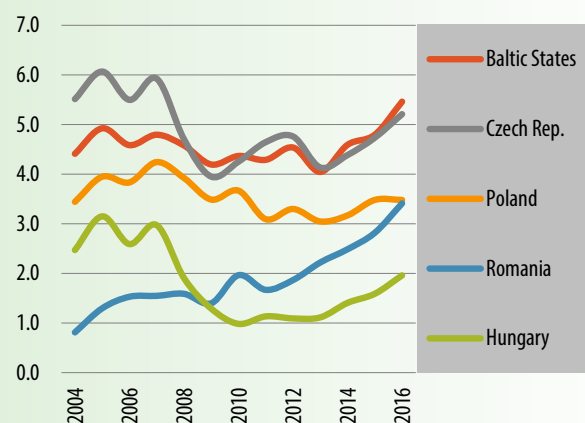
**Easy peelers - Evolution of consumption on the leading markets**  
(in kg/capita / sources: Customs, Trade map, professionals)



**Easy peelers - Evolution of consumption on leading West European markets**  
(in kg/capita / sources: Customs, Trade map, professionals)

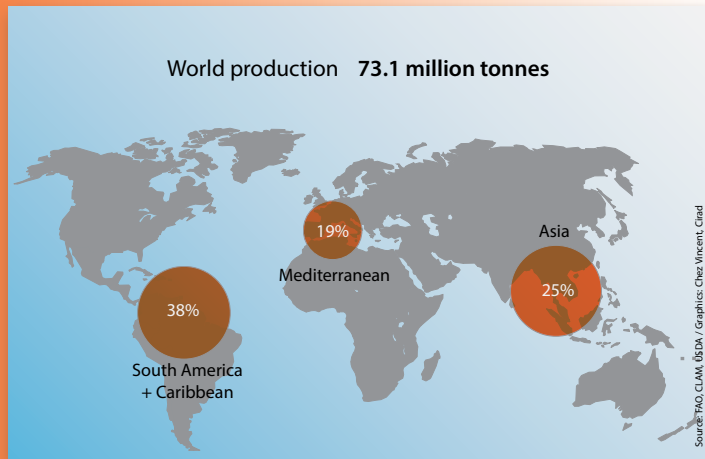


**Easy peelers - Evolution of consumption on leading East European markets**  
(in kg/capita / sources: Customs, Trade map, professionals)



# ORANGE

## Production (2016-2017)

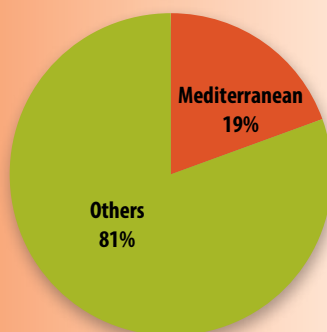


### Orange - Top 10 producer countries

000 tonnes	2016-2017
Brazil	19 200
India	7 318
China	6 200
United States	5 164
Mexico	4 375
Spain	3 654
Egypt	3 000
Turkey	1 854
Pakistan	1 517
South Africa	1 450

Sources: FAO 2014, professionals

### Orange - World Mediterranean production share



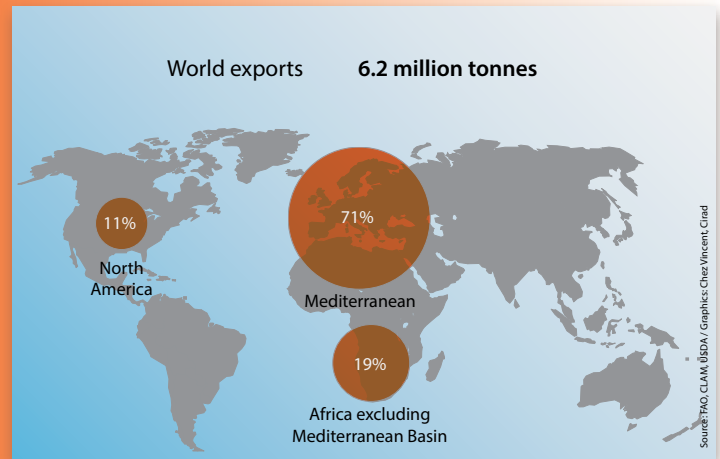
### Orange - Mediterranean - Production

000 tonnes	2016-2017
Spain	3 654
Egypt	3 000
Turkey	1 854
Italy	1 200
Morocco	1 037
Greece	866
Tunisia	363
Cyprus	123*
Israel	81

\* Estimate / Source: professionals

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## Exports (2016-2017)

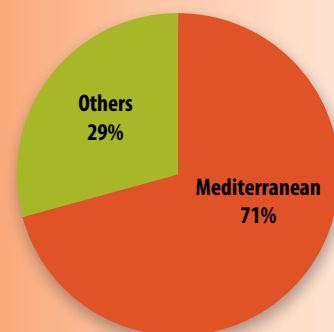


### Orange - Top 8 exporter countries

000 tonnes	2016-2017
Spain	1 595
Egypt	1 500*
South Africa	1 064
United States	636
Turkey	399
Greece	292
Morocco	134
Italy	109

\* Estimate / Sources: national Customs, professionals

### Orange - World Mediterranean exports share



### Orange - Mediterranean - Exports

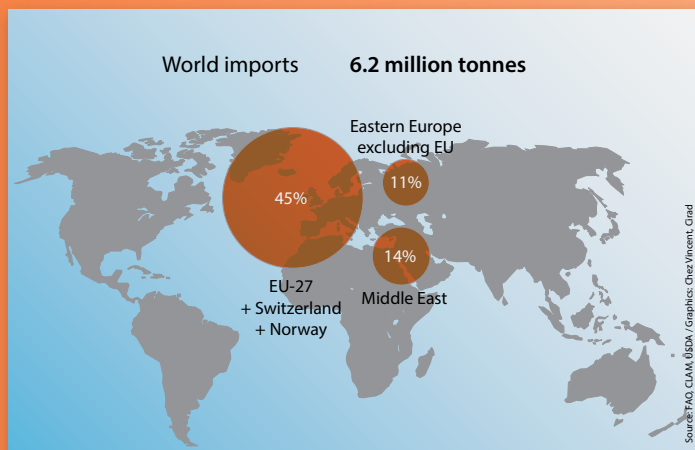
000 tonnes	2016-2017
Spain	1 595
Egypt	1 500*
Turkey	399
Greece	292
Morocco	134
Italy	109
Tunisia	16
Cyprus	5
Israel	5

\* Estimate / Source: professionals



# ORANGE

## Imports (2016)

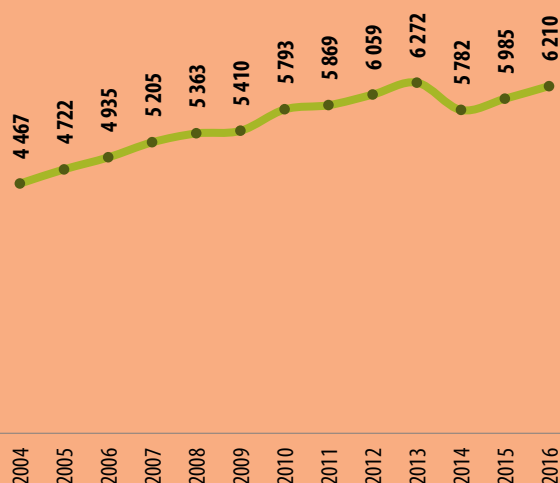


### Orange - Top 8 importer countries

tonnes	2016
Netherlands	547 685
China	523 343
France	503 292
Germany	488 048
Russia	451 822
Saudi Arabia	416 818
United Kingdom	283 369
United Arab Emirates	187 184

Source: national Customs

### Orange - World trade (in 000 tonnes)



### Orange - United States - Main supplier countries

tonnes	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Total</b>	<b>103 285</b>	<b>115 370</b>	<b>137 958</b>	<b>142 580</b>	<b>155 540</b>	<b>163 968</b>
<b>Total N. Hemis., incl.</b>	<b>14 158</b>	<b>16 429</b>	<b>32 530</b>	<b>49 529</b>	<b>44 162</b>	<b>51 970</b>
Mexico	11 268	15 092	27 612	43 650	41 070	50 374
Dominican Rep.	2 084	1 178	1 547	2 571	972	1 340
Italy	710	20	82	364	261	185
Morocco	0	0	3 189	2 634	1 842	54
<b>Total S. Hemis., incl.</b>	<b>89 127</b>	<b>98 941</b>	<b>105 428</b>	<b>93 051</b>	<b>111 378</b>	<b>111 998</b>
Chile	44 933	51 510	58 856	48 537	59 878	66 142
South Africa	35 662	35 961	36 013	36 293	41 838	37 926
Australia	7 959	11 100	10 433	6 801	7 968	5 663
Uruguay	0	0	0	1 420	1 694	2 267

Source: US Customs

### Orange - Canada - Main supplier countries

tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>208 119</b>	<b>194 473</b>	<b>197 951</b>	<b>182 262</b>	<b>188 734</b>	<b>206 582</b>
<b>Total N. Hemis., incl.</b>	<b>163 728</b>	<b>149 348</b>	<b>149 663</b>	<b>139 448</b>	<b>143 032</b>	<b>160 900</b>
United States	161 300	145 021	145 415	112 472	124 344	153 296
Spain	1 149	3 001	2 957	23 612	13 644	6 450
Morocco	272	453	677	2 447	4 413	601
Italy	444	407	279	594	305	505
China	563	466	335	323	326	48
<b>Total S. Hemis., incl.</b>	<b>43 588</b>	<b>44 472</b>	<b>47 377</b>	<b>41 121</b>	<b>43 987</b>	<b>43 283</b>
South Africa	33 094	36 302	38 504	35 571	38 250	32 285
Australia	3 255	3 107	3 563	2 130	2 780	4 823
Chile	4 928	3 562	4 013	2 107	2 098	2 334
Uruguay	821	457	940	890	397	2 122
Argentina	1 329	935	289	355	416	1 565
Peru	161	109	68	68	46	154

Source: COMTRADE

### Orange - South America - Main markets

tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>223 964</b>	<b>257 264</b>	<b>236 754</b>	<b>194 714</b>	<b>187 784</b>	<b>217 249</b>
Costa Rica	74 284	84 001	66 637	55 399	34 851	57 533
Guatemala	40 698	53 066	48 791	27 523	23 522	36 451
Paraguay	28 707	31 471	29 353	27 184	30 215	12 324
El Salvador	18 859	21 694	27 898	19 349	34 767	28 773
Mexico	25 132	35 501	27 912	26 173	25 418	32 564
Ecuador	2 562	3 321	9 449	12 648	12 059	11 728
Brazil	11 527	11 873	14 598	16 056	15 450	18 886
Chile	889	1 456	2 571	2 546	1 180	2 086
Nicaragua	1 352	1 330	3 030	2 692	5 131	6 551
Colombia	17 408	11 203	1 070	1 156	833	1 000
Argentina	988	2	-	68	21	4 306
Peru	104	829	3 914	2 447	2 818	3 381
Barbados	1 454	1 517	1 531	1 473	1 519	1 666

Source: COMTRADE

### Orange - Oceania - Main markets

tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>36 645</b>	<b>32 722</b>	<b>35 058</b>	<b>28 335</b>	<b>28 711</b>	<b>26 088</b>
Australia	24 023	19 223	20 794	16 611	17 701	14 750
New Zealand	12 622	13 499	14 264	11 724	11 010	11 338

Source: COMTRADE

Orange - European Union - Main supplier countries						
tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Total</b>	<b>2 513 265</b>	<b>2 687 113</b>	<b>2 340 100</b>	<b>2 464 702</b>	<b>2 577 987</b>	-
<b>Total N. Hemis., incl.</b>	<b>1 975 193</b>	<b>2 080 343</b>	<b>1 803 093</b>	<b>1 902 452</b>	<b>2 030 351</b>	<b>2 032 262</b>
Spain	1 382 095	1 464 457	1 210 809	1 323 336	1 233 704	1 297 293
Egypt	176 339	178 600	177 304	192 069	265 830	283 013
Greece	196 100	214 532	206 232	152 492	236 559	168 650
Morocco	46 570	46 628	54 944	75 392	68 153	92 537
Italy	89 942	93 565	83 294	84 196	115 493	81 111
Portugal	24 291	25 708	20 447	32 012	47 559	49 844
Turkey	13 338	13 449	16 527	8 473	29 560	24 792
Tunisia	19 445	19 445	15 174	17 055	15 741	16 592
Cyprus	7 444	7 587	4 980	4 545	2 605	2 852
Israel	6 436	6 434	5 863	4 154	4 452	2 820
Others	13 195	9 939	7 520	8 728	10 696	12 758
<b>Total S. Hemis., incl.</b>	<b>538 071</b>	<b>606 770</b>	<b>537 007</b>	<b>562 251</b>	<b>547 636</b>	-
South Africa	396 015	433 637	380 210	428 472	403 441	-
Argentina	47 971	49 653	44 737	36 607	49 128	-
Zimbabwe	19 257	28 903	31 918	27 642	28 000	-
Uruguay	36 012	50 268	48 413	34 508	27 779	-
Brazil	13 276	21 248	18 690	21 192	23 261	-
Peru	7 254	10 565	8 672	6 315	10 232	-
Swaziland	12 005	9 801	2 494	6 526	5 070	-
Chile	5 730	2 208	1 557	800	547	-
Australia	553	487	318	188	179	-

Source: EUROSTAT

Orange - Other West European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>102 085</b>	<b>100 538</b>	<b>108 110</b>	<b>98 127</b>	<b>107 511</b>	<b>111 035</b>
Switzerland	62 758	62 924	68 025	62 966	69 218	70 465
Norway	37 484	35 644	37 985	33 323	36 311	38 560
Iceland	1 842	1 970	2 100	1 838	1 982	2 010

Source: COMTRADE

Orange - Russia - Main supplier countries						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>568 339</b>	<b>489 149</b>	<b>504 390</b>	<b>468 707</b>	<b>463 660</b>	<b>451 822</b>
<b>Total N. Hemis., incl.</b>	<b>433 964</b>	<b>361 281</b>	<b>365 856</b>	<b>338 791</b>	<b>367 641</b>	<b>364 503</b>
Egypt	218 941	197 299	233 790	210 221	232 818	269 178
Turkey	102 458	69 888	66 525	76 415	108 572	70 278
Morocco	69 968	50 733	24 531	26 008	21 515	10 933
Syria	2 600	1 087	1 762	2 477	1 676	9 894
China	10 348	13 980	9 636	4 812	3 060	4 220
Spain	22 404	25 008	27 518	17 840	-	-
Israel	1 081	7	7	-	-	-
United States	1 861	492	158	193	-	-
Greece	3 142	1 276	1 787	683	-	-
Cyprus	1 161	1 511	142	142	-	-
<b>Total S. Hemis., incl.</b>	<b>132 712</b>	<b>126 863</b>	<b>138 534</b>	<b>129 916</b>	<b>96 019</b>	<b>87 319</b>
South Africa	114 601	118 110	128 853	123 035	89 170	66 101
Uruguay	4 699	2 872	3 698	1 440	1 310	9 405
Argentina	10 981	4 144	493	651	497	5 306
Brazil	1 713	20	443	-	1 181	736

Source: COMTRADE

Orange - Ukraine - Main supplier countries						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>143 659</b>	<b>117 953</b>	<b>133 185</b>	<b>94 639</b>	<b>66 233</b>	<b>65 000</b>
<b>Total N. Hemis., incl.</b>	<b>127 736</b>	<b>104 184</b>	<b>122 855</b>	<b>80 110</b>	<b>60 479</b>	-
Egypt	80 474	67 361	72 596	38 136	31 909	-
Turkey	36 793	25 633	38 637	35 102	23 725	-
Spain	7 324	8 259	10 790	6 055	4 372	-
Greece	2 270	1 849	711	690	386	-
<b>Total S. Hemis., incl.</b>	<b>15 588</b>	<b>13 361</b>	<b>9 799</b>	<b>13 879</b>	<b>5 683</b>	-
South Africa	14 640	12 758	8 609	13 289	4 944	-
Zimbabwe	64	438	1 082	532	625	-

Source: COMTRADE

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Orange - Japan - Main supplier countries						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>115 330</b>	<b>130 476</b>	<b>111 882</b>	<b>83 553</b>	<b>84 113</b>	<b>101 543</b>
<b>Total N. Hemis., incl.</b>	<b>83 626</b>	<b>97 304</b>	<b>74 976</b>	<b>51 953</b>	<b>51 495</b>	<b>64 556</b>
United States	83 589	97 304	74 942	51 953	50 824	64 225
<b>Total S. Hemis., incl.</b>	<b>31 704</b>	<b>33 172</b>	<b>36 906</b>	<b>31 260</b>	<b>32 457</b>	<b>36 839</b>
Australia	23 762	27 717	32 479	26 106	27 909	33 222
South Africa	7 258	4 930	4 085	5 130	4 548	3 594

Source: Japanese Customs

Orange - Central and South-East Asia - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>726 247</b>	<b>768 832</b>	<b>730 529</b>	<b>705 715</b>	<b>787 257</b>	<b>1 007 946</b>
China	314 197	301 449	322 188	334 562	418 067	523 343
South Korea	141 961	173 943	152 714	98 371	111 743	154 944
Malaysia	88 671	95 044	90 353	103 688	95 661	102 812
Vietnam	7 079	8 500	9 574	11 359	10 570	57 172
India	24 770	32 566	34 242	49 004	49 055	56 014
Singapore	43 138	43 460	45 026	48 461	45 142	43 773
Philippines	29 670	35 939	24 748	19 740	17 723	22 404
Indonesia	33 074	32 492	17 328	17 048	14 036	12 212
Azerbaijan	12 021	10 128	937	234	643	10 600
Thailand	9 877	12 516	10 994	6 585	6 468	9 809

Source: COMTRADE

Orange - Persian Gulf - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>1 058 657</b>	<b>1 031 677</b>	<b>1 008 477</b>	<b>1 088 938</b>	<b>1 090 284</b>	<b>981 980</b>
Saudi Arabia	359 451	388 912	374 023	402 475	400 163	416 818
Iraq	147 131	176 737	215 432	210 000	211 768	213 646
United Arab Em.	202 920	201 046	226 271	241 943	250 826	187 184
Kuwait	87 145	88 474	91 235	104 602	106 492	81 314
Oman	43 547	45 304	43 796	56 561	42 256	43 494
Qatar	25 332	27 891	27 528	30 580	30 972	18 409
Bahrain	7 719	19 434	17 137	19 342	19 029	15 529
Yemen	1 125	2 549	11 006	17 092	16 912	5 242
Iran	184 287	81 330	2 049	6 343	11 866	344

Source: COMTRADE

Orange - Mediterranean - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>96 196</b>	<b>93 189</b>	<b>102 060</b>	<b>112 946</b>	<b>102 703</b>	<b>89 649</b>
Turkey	44 259	30 816	33 472	28 213	45 697	36 797
Jordan	26 482	36 485	35 435	50 852	31 913	26 982
Algeria	8 531	19 357	27 376	26 719	19 709	25 000

Source: COMTRADE

Orange - Africa - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>71 671</b>	<b>86 598</b>	<b>130 873</b>	<b>123 194</b>	<b>110 195</b>	<b>51 083</b>
Sudan	29 158	17 761	45 954	40 000	36 398	11 698
Algeria	8 531	19 358	27 376	26 719	19 709	6 331
Zambia	7 252	8 802	10 139	12 367	8 168	5 811
Kenya	5 460	7 092	7 330	8 408	18 061	5 712
Mauritius	4 220	5 385	5 013	4 764	4 821	5 128
Namibia	3 515	4 272	5 255	4 473	2 100	3 665
South Africa	1 349	9 809	19 292	12 782	7 991	3 468

Source: COMTRADE

Orange - Other East European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total, dont</b>	<b>148 509</b>	<b>127 156</b>	<b>147 540</b>	<b>157 863</b>	<b>147 826</b>	<b>158 503</b>
Serbia	48 156	38 433	44 425	46 732	40 976	47 173
Belarus	23 999	26 904	36 432	32 695	39 488	27 945
Bosnia	21 101	17 821	20 040	22 117	20 524	22 958
Macedonia	13 032	11 392	11 913	15 806	13 936	18 727
Albania	22 791	17 670	16 687	20 344	13 362	18 520
Armenia	8 102	5 458	7 253	8 699	9 035	10 970
Montenegro	5 415	5 038	5 512	6 514	6 125	8 008
Moldova	5 913	4 440	5 278	4 956	4 380	4 202

Source: COMTRADE

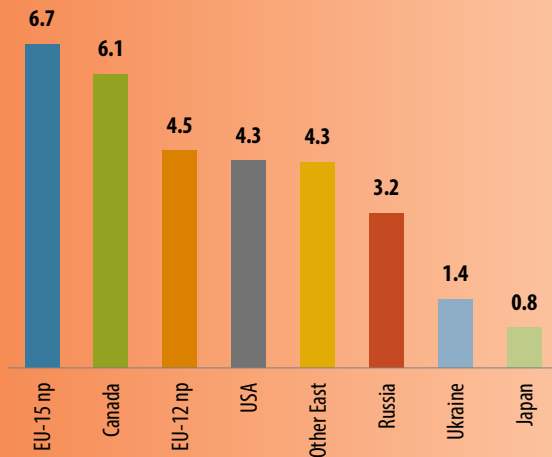


# ORANGE

## Consumption (2016)

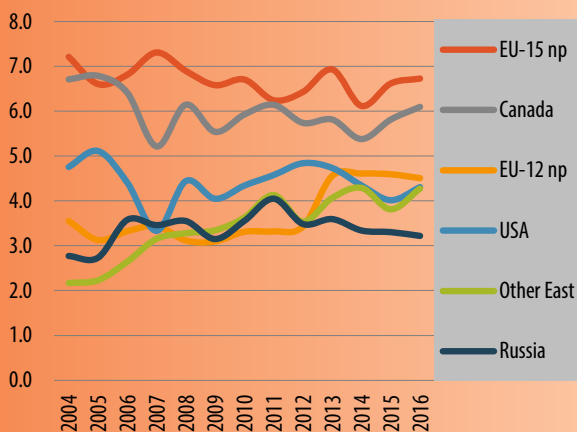
### Orange - Consumption in 2016

(np: non producing country / in kg/capita  
sources: Customs, Trade map, professionals)



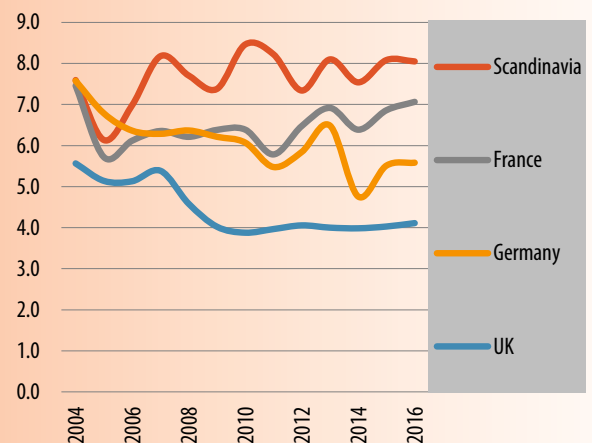
### Orange - Evolution of consumption on the leading markets

(in kg/capita / sources: Customs, Comtrade, professionals)



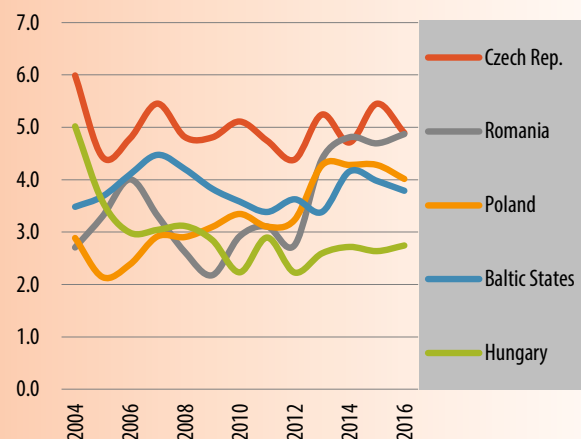
### Orange - Evolution of consumption on leading West European markets

(in kg/capita / sources: Customs, Comtrade, professionals)



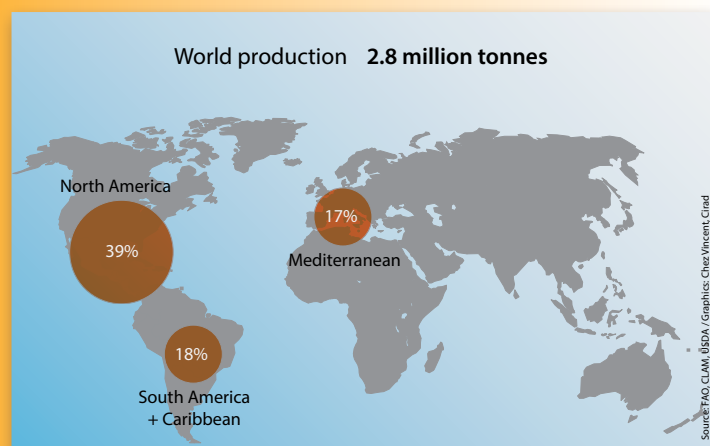
### Orange - Evolution of consumption on leading East European markets

(in kg/capita / sources: Customs, Comtrade, professionals)



# GRAPEFRUIT

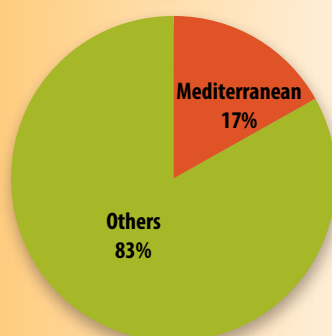
## Production (2016-2017)



Grapefruit - Top 8 producer countries	
tonnes	2016-2017
United States	682 000
Mexico	432 000
South Africa	363 000
Turkey	253 000
Sudan	198 000
Israel	148 000
Argentina	102 000
Spain	81 000

Sources: FAO 2014, USDA, professionals

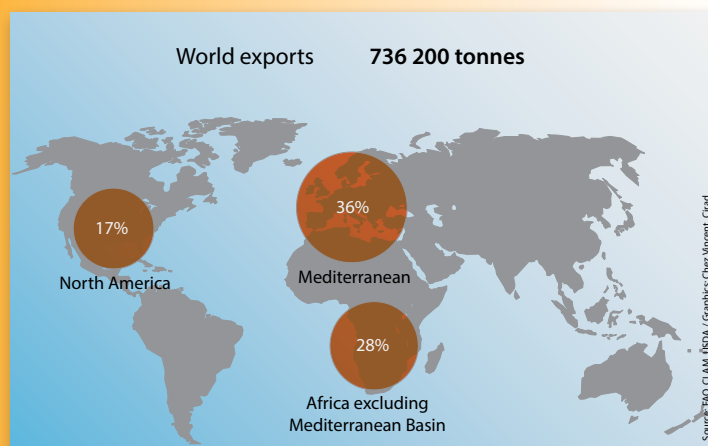
Grapefruit - World  
Mediterranean production share



Grapefruit - Mediterranean - Production	
tonnes	2016-2017
Turkey	253 000
Israel	148 000
Spain	81 000
Cyprus	46 000*
Egypt	42 000*
Italy	8 000
Greece	3 000
Morocco	1 000

\* Estimate / Source: professionals

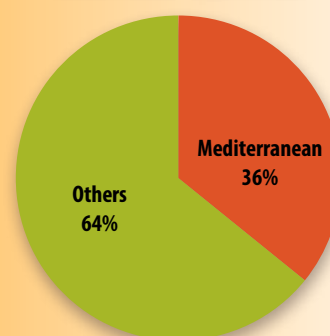
## Exports (2016-2017)



Grapefruit - Top 8 exporter countries	
tonnes	2016-2017
South Africa	202 502
Turkey	125 675
United States	108 508
Spain	59 313
Israel	48 634
Egypt	20 000*
Mexico	19 000
Cyprus	8 502

\* Estimate / Sources: national Customs, professionals

Grapefruit - World  
Mediterranean exports share



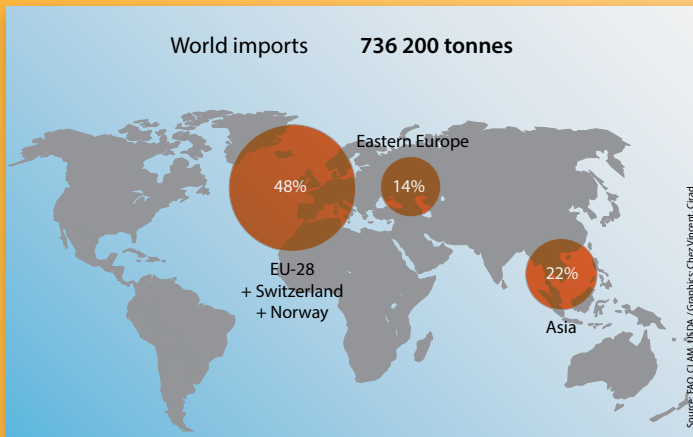
Grapefruit - Mediterranean - Exports	
tonnes	2016-2017
Turkey	125 675
Spain	59 313
Israel	48 634
Egypt	20 000*
Cyprus	8 502
Italy	2 878
Greece	1 074

\* Estimate / Source: professionals



# GRAPEFRUIT

## Imports (2016)

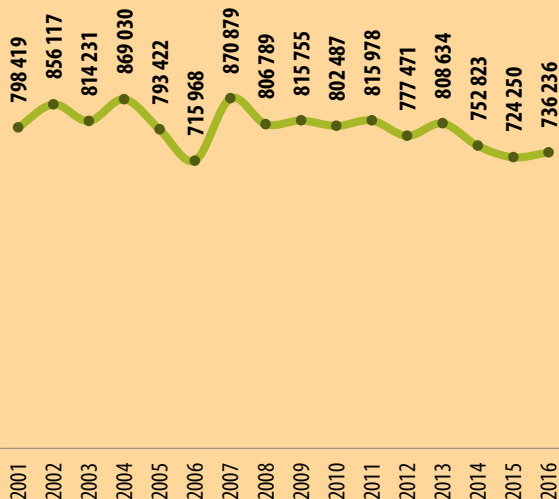


### Grapefruit - Top 8 importer countries

tonnes	2016
Netherlands	209 218
Japan	82 167
France	75 944
Russia	63 220
Germany	57 212
China	53 518
Poland	45 737
Canada	33 875

Source: FAO, USDA, professionals

### Grapefruit - World trade (excl. shaddock and sweetie) (in tonnes)



### Grapefruit - United States - Main supplier countries

tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>6 088</b>	<b>2 851</b>	<b>16 970</b>	<b>9 549</b>	<b>9 500</b>	<b>23 798</b>
South Africa	247	75	362	5 085	4 977	12 795
Peru	37	41	676	224	559	4 885
Mexico	4 410	2 263	14 838	3 678	2 721	4 016
Israel	158	473	1 094	566	442	2 099

Source: US Customs

### Grapefruit - Canada - Main supplier countries

tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>43 360</b>	<b>41 146</b>	<b>40 012</b>	<b>37 981</b>	<b>37 276</b>	<b>33 875</b>
<b>Total winter, incl.</b>	<b>36 226</b>	<b>34 772</b>	<b>31 786</b>	<b>29 295</b>	<b>29 287</b>	<b>27 899</b>
United States	35 277	33 054	29 533	27 731	27 494	23 126
Israel	311	800	1 612	869	1 089	3 291
Mexico	328	735	423	369	617	1 370
Thailand	173	183	218	326	87	112
<b>Total summer, incl.</b>	<b>6 472</b>	<b>5 396</b>	<b>8 226</b>	<b>8 556</b>	<b>7 453</b>	<b>5 103</b>
South Africa	6 374	5 267	8 136	8 551	7 451	5 036
Argentina	98	127	72	-	1	66
Chile	-	2	18	5	1	1

Source: COMTRADE

### Grapefruit - South America - Main markets

tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>4 511</b>	<b>9 612</b>	<b>3 792</b>	<b>3 163</b>	<b>3 612</b>	<b>4 339</b>
Argentina	2 041	1 340	1 564	1 438	1 045	2 442
Mexico	2 469	8 272	2 228	1 725	2 567	1 897

Source: COMTRADE

Grapefruit - European Union - Main supplier countries						
tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Total</b>	<b>337 218</b>	<b>331 758</b>	<b>329 606</b>	<b>324 480</b>	<b>342 365</b>	<b>-</b>
<b>Total N. Hemis., incl.</b>	<b>249 008</b>	<b>220 297</b>	<b>246 155</b>	<b>228 986</b>	<b>242 525</b>	<b>197 356</b>
Turkey	81 960	52 786	87 702	70 729	95 573	60 821
Spain	44 560	52 324	48 463	63 291	52 454	58 000
Israel	44 170	45 401	41 664	37 887	33 820	30 290
United States	45 988	40 676	41 760	38 243	31 421	23 334
Mexico	13 472	13 428	11 949	9 725	14 612	13 683
Cyprus	13 081	11 031	8 364	5 557	6 811	5 341
Honduras	76	73	20	54	37	53
Others	5 701	4 578	6 233	3 500	7 798	5 834
<b>Total S. Hemis., incl.</b>	<b>88 210</b>	<b>111 461</b>	<b>83 451</b>	<b>95 494</b>	<b>99 840</b>	
South Africa	75 412	104 725	76 707	90 017	89 752	
Swaziland	8 480	2 328	3 933	647	4 604	
Chile	176	105	64	1 660	2 883	
Zimbabwe	1 360	2 414	2 133	2 139	1 939	
Argentina	1 485	1 080	59	-	375	
Others	457	721	556	917	287	-

\* Extra-EU imports and shipments from main EU producer countries (Spain, Cyprus)

Source: EUROSTAT

Grapefruit - Other West European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>8 393</b>	<b>8 786</b>	<b>8 661</b>	<b>8 580</b>	<b>8 524</b>	<b>8 398</b>
Switzerland	7 174	7 445	7 321	7 236	7 158	7 095
Norway	1 219	1 341	1 340	1 344	1 366	1 303

Source: COMTRADE

Grapefruit - Russia - Main supplier countries						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>94 274</b>	<b>79 075</b>	<b>90 900</b>	<b>73 899</b>	<b>65 012</b>	<b>63 220</b>
<b>Total N. Hemis., incl.</b>	<b>65 205</b>	<b>56 215</b>	<b>58 537</b>	<b>50 880</b>	<b>44 391</b>	<b>45 086</b>
Turkey	48 811	41 595	43 689	40 032	39 354	42 184
Israel	15 581	13 655	13 839	10 324	4 668	2 855
Spain	678	303	365	219	-	-
Morocco	122	660	612	300	369	47
United States	13	2	32	5	-	-
<b>Total S. Hemis., incl.</b>	<b>27 583</b>	<b>20 580</b>	<b>30 129</b>	<b>21 277</b>	<b>19 563</b>	<b>16 965</b>
South Africa	22 492	15 589	25 700	18 092	18 027	15 372
Swaziland	910	622	888	1 076	418	668
Mexico	3 016	4 020	3 303	2 037	1 075	606
Argentina	903	268	55	-	-	262
Zimbabwe	262	81	183	72	43	57
Others	1 486	2 280	2 234	1 742	1 058	1 169

Source: COMTRADE

Grapefruit - Other East European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total, incl.</b>	<b>39 491</b>	<b>43 065</b>	<b>50 753</b>	<b>44 043</b>	<b>32 062</b>	<b>38 625</b>
Ukraine	25 691	26 786	31 734	22 432	13 441	20 025
Belarus	3 880	4 753	8 316	8 474	7 021	5 936
Serbia	4 154	4 322	3 745	5 050	4 380	4 875
Moldova	1 655	1 597	1 755	1 698	1 659	1 651
Bosnia Herz.	1 695	1 581	1 285	1 878	1 539	1 565
Macedonia	1 103	1 197	1 083	1 481	1 323	1 345
Armenia	1 128	1 171	1 153	1 306	1 028	1 343
Georgia	536	929	954	834	935	963
Montenegro	521	507	536	643	553	729
Albania	257	222	192	247	183	193

Source: COMTRADE

Grapefruit - Japan - Main supplier countries						
tonnes	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Total</b>	<b>168 438</b>	<b>149 567</b>	<b>134 091</b>	<b>109 116</b>	<b>99 597</b>	<b>82 167</b>
<b>Total N. Hemis., incl.</b>	<b>113 939</b>	<b>101 061</b>	<b>83 238</b>	<b>63 018</b>	<b>55 794</b>	<b>50 442</b>
United States	109 981	96 444	78 598	60 022	51 899	44 032
Israel	3 492	2 850	3 120	2 646	1 501	2 937
Mexico	-	-	-	-	-	1 783
Turkey	465	1 639	1 520	333	2 185	1 684
<b>Total S. Hemis., incl.</b>	<b>54 499</b>	<b>48 506</b>	<b>50 853</b>	<b>46 098</b>	<b>43 803</b>	<b>31 725</b>
South Africa	53 579	48 120	50 853	46 098	43 688	30 625
Australia	-	-	-	-	-	982
Swaziland	857	-	-	-	-	116

Source: Japanese Customs

Grapefruit - Other Asian countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>50 032</b>	<b>60 447</b>	<b>57 421</b>	<b>70 950</b>	<b>83 623</b>	<b>83 303</b>
China	34 978	43 473	40 065	44 719	51 372	53 518
South Korea	9 337	10 452	11 580	19 491	25 010	23 169
Singapore	4 571	5 252	5 120	5 469	5 568	5 008
Malaysia	1 147	1 270	656	1 271	1 673	1 608

Source: COMTRADE

Grapefruit - Persian Gulf - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>28 780</b>	<b>45 704</b>	<b>74 276</b>	<b>66 066</b>	<b>60 564</b>	<b>56 146</b>
Saudi Arabia	9 904	20 689	50 880	35 554	32 506	31 449
United Arab Em.	7 698	9 073	11 407	11 561	10 925	11 523
Iraq	5 963	9 566	5 757	9 939	7 826	9 856
Kuwait	3 838	2 454	2 382	2 892	2 648	2 637
Qatar	1 377	3 922	3 850	6 120	6 659	681

Source: COMTRADE

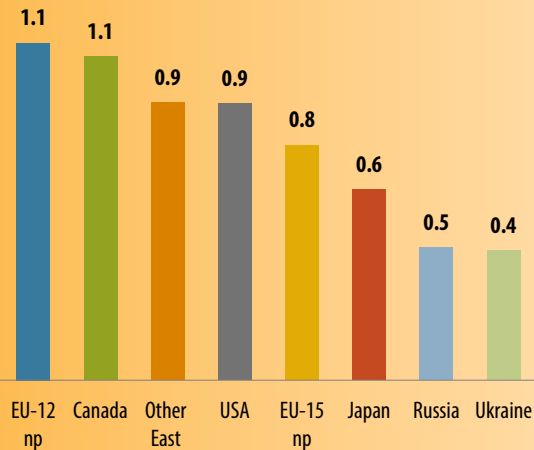




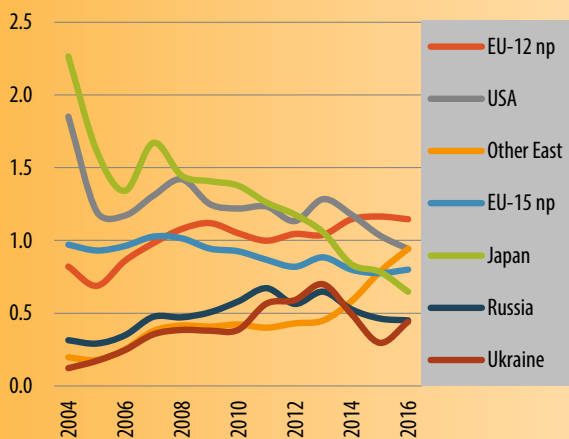
# GRAPEFRUIT

## Consumption (2016-17)

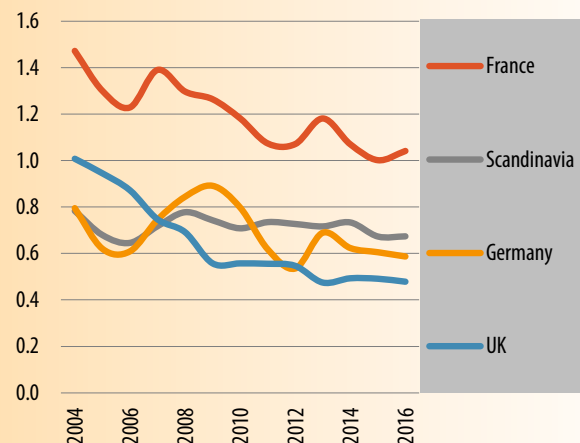
**Grapefruit - Consumption in 2016**  
(np: non producing country / in kg/capita  
sources: Customs, Trade map, professionals)



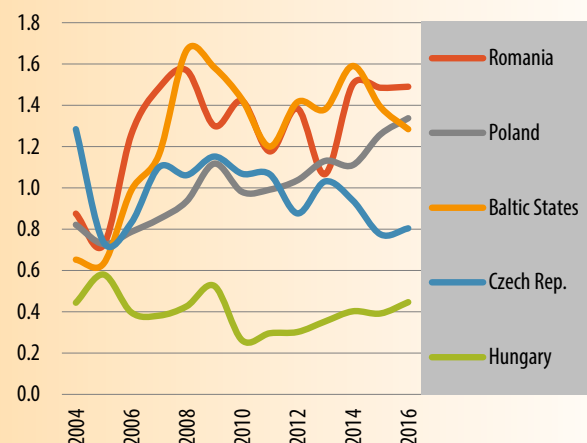
**Grapefruit - Evolution of consumption on the leading markets**  
(in kg/capita / sources: Customs, Trade map, professionals)



**Grapefruit - Evolution of consumption on leading West European markets**  
(in kg/capita / sources: Customs, Trade map, professionals)

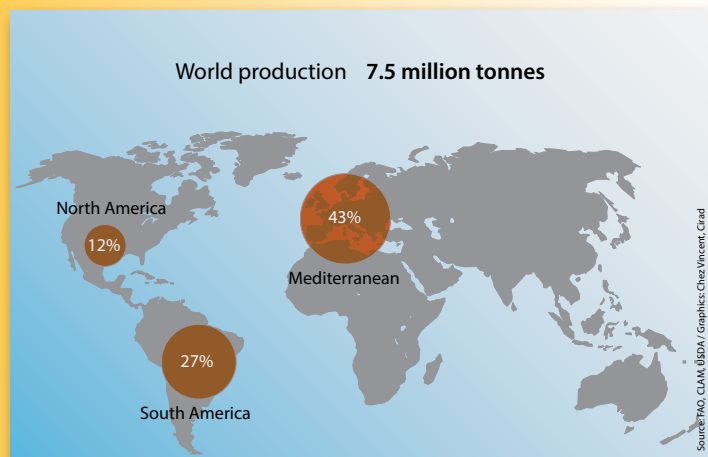


**Grapefruit - Evolution of consumption on leading East European markets**  
(in kg/capita / sources: Customs, Trade map, professionals)



# LEMON

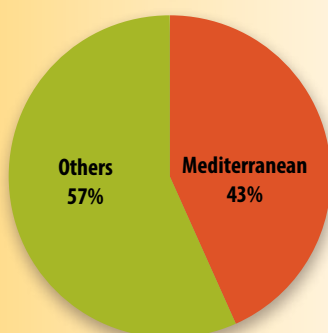
## Production (2016-2017)



Lemon - Top 8 producer countries	
000 tonnes	2016-2017
Argentina	1 270
Spain	1 090
United States	886
Turkey	638
Italy	490
China	420
South Africa	355
Chile	134

Sources: FAO 2014, USDA, professionals

**Lemon - World  
Mediterranean production share**

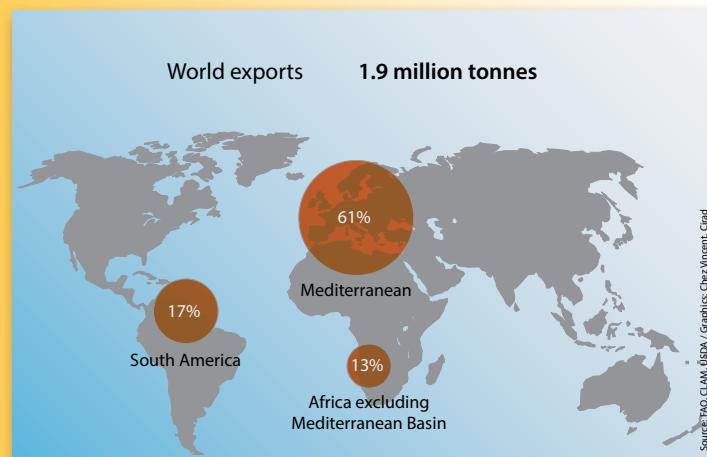


Lemon - Mediterranean - Production	
000 tonnes	2016-2017
Spain	1 090
Turkey	638
Italy	490
Tunisia	72
Greece	69
Israel	67
Morocco	40
Cyprus	25*

\* Estimate / Source: professionals

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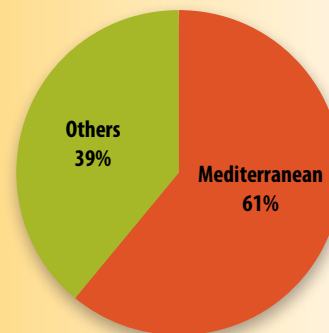
## Exports (2016-2017)



Lemon - Top 6 exporter countries	
tonnes	2016-2017
Spain	635 000
Turkey	418 000
Argentina	279 000
South Africa	237 000
United States	127 000
Chile	77 000

Sources: national Customs, professionals

**Lemon - World  
Mediterranean exports share**

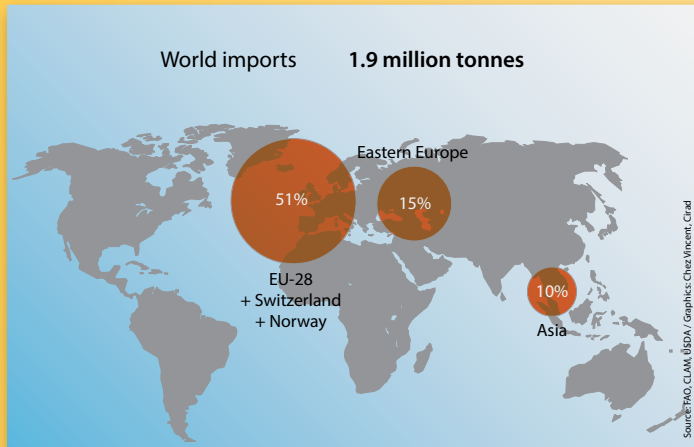


Lemon - Mediterranean - Exports	
tonnes	2016-2017
Spain	635 000
Turkey	418 000
Italy	46 000
Egypt	23 000*
Morocco	9 900
Greece	5 200
Cyprus	1 900

\* Estimate / Source: professionals

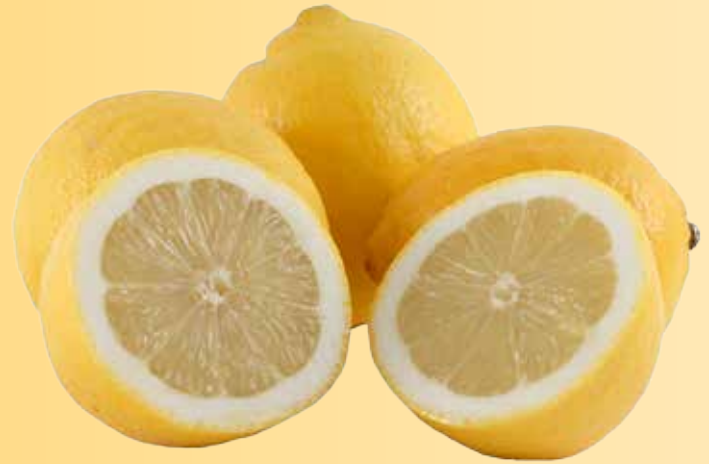
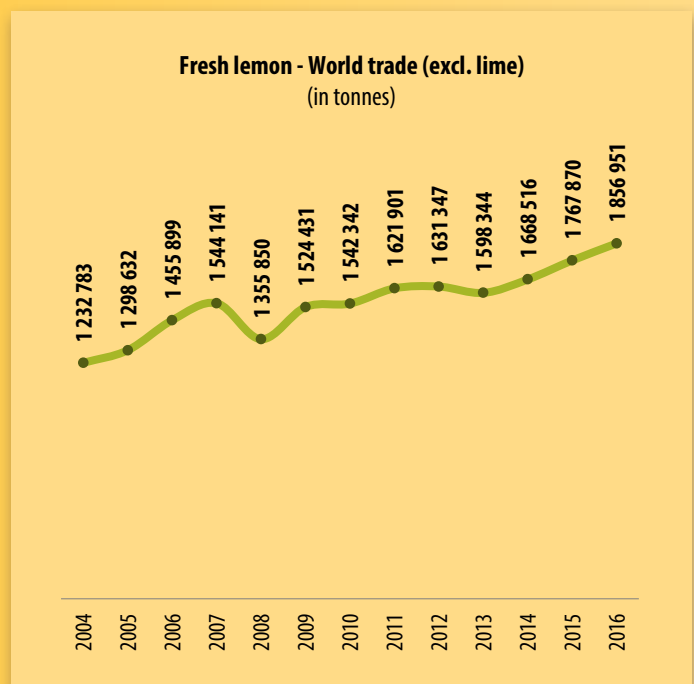
# LEMON

## Imports (2016)



Lemon - Top 8 importer countries	
000 tonnes	2016
Russia	189
Germany	178
France	156
United Kingdom	140
Saudi Arabia	121
Italy	112
Poland	103
China	50

Source: national Customs



Lemon - United States - Main supplier countries						
tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Total</b>	<b>57 277</b>	<b>45 758</b>	<b>52 203</b>	<b>79 522</b>	<b>78 845</b>	-
<b>Total N. Hemis., incl.</b>	<b>33 603</b>	<b>33 437</b>	<b>28 528</b>	<b>44 827</b>	<b>44 617</b>	<b>52 973</b>
Mexico	31 014	32 510	26 362	39 830	42 748	47 433
Spain	1 510	389	1 647	4 845	1 690	5 220
Dominican Rep.	191	270	217	65	118	48
Others	96	268	302	87	61	272
<b>Total S. Hemis., incl.</b>	<b>23 674</b>	<b>12 321</b>	<b>23 675</b>	<b>34 695</b>	<b>34 228</b>	-
Chile	17 020	11 829	16 780	33 574	31 162	-
Others	608	492	794	1 121	3 066	-

Source: US Customs

Lemon - Canada - Main supplier countries						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>43 980</b>	<b>48 642</b>	<b>50 748</b>	<b>53 928</b>	<b>59 887</b>	<b>62 628</b>
<b>Total N. Hemis., incl.</b>	<b>32 470</b>	<b>35 469</b>	<b>37 476</b>	<b>38 396</b>	<b>41 762</b>	<b>41 525</b>
United States	31 555	30 479	35 115	29 593	30 099	33 542
Spain	915	3 940	1 618	8 248	10 735	7 094
Turkey	306	1 050	743	555	928	889
<b>Total S. Hemis., incl.</b>	<b>11 013</b>	<b>12 217</b>	<b>12 691</b>	<b>14 511</b>	<b>16 820</b>	<b>20 069</b>
Argentina	7 381	9 299	7 263	5 010	6 297	10 075
South Africa	2 789	2 560	5 117	8 140	9 118	8 351
Uruguay	227	71	97	1 027	677	1 104
Chile	435	112	110	88	400	418
Australia	181	175	104	246	328	121

Source: COMTRADE

Lemon - South America - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>29 557</b>	<b>15 538</b>	<b>13 988</b>	<b>18 723</b>	<b>14 285</b>	<b>17 271</b>
Chile	17 574	4497	5768	7247	5470	5889
Argentina	1 177	331	966	118	137	3052
Mexico	2 398	1420	1214	2887	1610	2563
Bolivia	302	160	227	558	977	2004
Ecuador	2 356	1823	1169	4200	3043	1749
Brazil	1 954	2381	2712	2884	2356	1442
Costa Rica	802	732	550	469	515	497
Colombia	2 993	4194	1382	360	177	75

Source: COMTRADE



Lemon - European Union - Main supplier countries						
tonnes	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Total</b>	<b>815 676</b>	<b>768 147</b>	<b>748 828</b>	<b>801 957</b>	<b>912 520</b>	-
<b>Total winter, incl.</b>	<b>574 652</b>	<b>538 895</b>	<b>590 562</b>	<b>610 622</b>	<b>619 789</b>	<b>678 122</b>
Spain	432 293	426 860	452 051	500 692	447 968	517 719
Turkey	106 512	72 299	95 305	75 684	107 077	104 337
Italy	29 210	33 377	34 955	29 539	42 406	43 094
Greece	2 624	3 658	4 951	2 792	15 319	7 101
Egypt	572	236	810	166	1 023	2 931
Cyprus	2 169	1 883	1 121	635	1 205	1 335
Morocco	970	192	693	443	1 886	678
Tunisia	12	9	53	38	1 257	463
Israel	200	262	520	492	1 214	314
Iran	68	88	82	99	103	93
United States	22	31	22	42	331	57
<b>Total summer, incl.</b>	<b>241 025</b>	<b>229 253</b>	<b>158 266</b>	<b>191 335</b>	<b>292 732</b>	-
Argentina	182 580	187 449	105 118	130 267	196 745	-
South Africa	41 385	25 363	36 482	41 364	63 163	-
Chile	5 751	6 333	5 505	9 168	23 761	-
Uruguay	9 959	9 194	10 194	8 933	7 948	-
Dominican Rep.	1 256	632	658	1 075	1 115	-
Zimbabwe	2	32	120	119	-	-
Brazil	92	249	190	408	-	-

Source: EUROSTAT

Lemon - Other West European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>25 172</b>	<b>26 328</b>	<b>27 676</b>	<b>29 588</b>	<b>32 739</b>	<b>35 097</b>
Switzerland	18 358	18 998	19 516	20 558	22 804	24 038
Norway	6 300	6 781	7 495	8 241	9 004	10 175
Iceland	514	549	665	789	931	884

Source: COMTRADE

Lemon - Russia - Main supplier countries						
000 tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>223 264</b>	<b>198 585</b>	<b>204 951</b>	<b>192 278</b>	<b>193 910</b>	<b>188 898</b>
<b>Total N. Hemis., incl.</b>	<b>156 085</b>	<b>137 942</b>	<b>131 080</b>	<b>133 634</b>	<b>128 763</b>	<b>128 260</b>
Turkey	131 314	101 648	109 248	104 036	117 777	105 708
China	2 866	3 837	3 682	773	3 844	14 021
Egypt	1 400	601	189	293	1 400	3 877
Morocco	2 511	2 172	1 166	4 219	5 416	3 710
Israel	5	657	134	1 329	326	944
Spain	17 801	28 964	16 509	22 554	-	-
United States	188	63	152	430	-	-
<b>Total S. Hemis., incl.</b>	<b>66 643</b>	<b>60 427</b>	<b>72 448</b>	<b>54 933</b>	<b>61 493</b>	<b>56 999</b>
Argentina	40 250	41 853	42 795	23 378	29 473	38 738
South Africa	26 094	18 438	28 387	29 720	30 324	16 966
Uruguay	299	136	1 266	1 835	1 696	1 295
Others	536	216	1 423	3 711	3 654	3 639

Source: COMTRADE

Lemon - Ukraine - Main supplier countries						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>62 188</b>	<b>62 319</b>	<b>62 819</b>	<b>52 872</b>	<b>39 818</b>	<b>40 000</b>
<b>Total N. Hemis., incl.</b>	<b>46 619</b>	<b>48 739</b>	<b>45 457</b>	<b>43 036</b>	<b>31 224</b>	-
Turkey	43 102	37 464	39 574	36 243	25 854	-
Spain	3 516	10 478	5 634	6 653	5 352	-
Egypt	1	722	236	124	9	-
<b>Total S. Hemis., incl.</b>	<b>15 021</b>	<b>12 624</b>	<b>16 092</b>	<b>8 125</b>	<b>7 627</b>	-
Argentina	11 241	9 619	12 274	4 758	4 807	-
South Africa	3 780	3 005	3 818	3 367	2 820	-
Others	548	956	1 270	1 711	967	-

Source: COMTRADE

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Lemon - Japan - Main supplier countries						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>53 781</b>	<b>53 834</b>	<b>49 229</b>	<b>47 299</b>	<b>47 160</b>	<b>49 178</b>
<b>Total N. Hemis., incl.</b>	<b>35 758</b>	<b>38 204</b>	<b>35 268</b>	<b>29 938</b>	<b>30 503</b>	<b>30 374</b>
United States	32 099	36 917	34 614	29 234	30 370	30 215
Mexico	3 659	1 287	654	704	133	159
<b>Total S. Hemis., incl.</b>	<b>18 022</b>	<b>15 562</b>	<b>13 920</b>	<b>17 360</b>	<b>16 654</b>	<b>18 805</b>
Chile	16 767	14 331	13 170	16 027	15 486	17 282
New Zealand	862	725	529	913	816	1 001
South Africa	393	506	221	420	352	522
Others	1	68	41	1	3	-

Source: Japanese Customs

Lemon - Other Asian countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>73 820</b>	<b>81 119</b>	<b>89 787</b>	<b>159 553</b>	<b>134 264</b>	<b>138 970</b>
China	32 980	33 970	39 894	100 303	56 460	49 665
Malaysia	7 559	9 387	12 260	15 058	18 278	21 952
Singapore	9 932	10 191	12 859	16 970	20 432	16 956
South Korea	7 398	10 664	13 950	13 610	17 793	15 823
Indonesia	1 931	3 413	2 864	5 539	9 729	14 066
Azerbaijan	6 963	6 303	779	554	436	6 897
Kazakhstan	4 568	4 713	4 628	4 116	7 350	6 462
Kyrgyzstan	1 059	1 088	943	734	753	3 904
Philippines	1 430	1 390	1 610	2 669	3 033	3 245

Source: COMTRADE

Lemon - Persian Gulf - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>186 422</b>	<b>192 765</b>	<b>207 296</b>	<b>241 285</b>	<b>273 965</b>	<b>260 723</b>
Saudi Arabia	92 753	70 494	67 276	87 786	104 131	120 962
United Arab Em.	56 048	80 651	92 491	100 220	118 098	89 537
Kuwait	21 585	24 163	27 379	25 817	27 351	28 290
Oman	3 289	6 516	7 253	6 462	5 866	9 643
Qatar	7 328	5 351	6 406	7 888	9 117	6 569
Bahrain	5 419	5 590	6 491	13 112	9 402	5 722

Source: COMTRADE

Lemon - Mediterranean - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>33 770</b>	<b>34 185</b>	<b>31 121</b>	<b>21 222</b>	<b>25 382</b>	<b>17 640</b>
Jordan	11 469	10 022	14 304	10 447	15 076	14 204
Turkey	670	3 094	1 983	2 419	2 982	3 082
Syria	19 909	17 504	8 225	7 529	5 405	233
Lebanon	616	821	4 516	721	534	121
Tunisia	-	-	-	-	-	-
Algeria	1 105	2 744	2 093	106	1 385	-

Source: COMTRADE

Lemon - Oceania - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total</b>	<b>5 823</b>	<b>7 052</b>	<b>8 455</b>	<b>8 823</b>	<b>8 570</b>	<b>9 425</b>
Australia	4 988	5 550	7 134	7 665	6 754	7 378
New Zealand	835	1 502	1 321	1 158	1 816	2 047

Source: COMTRADE

Lemon - Other East European countries - Main markets						
tonnes	2011	2012	2013	2014	2015	2016
<b>Total, incl.</b>	<b>46 233</b>	<b>45 079</b>	<b>46 824</b>	<b>50 737</b>	<b>64 981</b>	<b>55 181</b>
Serbia	15 971	15 692	16 372	15 286	16 865	17 600
Belarus	6 912	7 503	8 433	13 517	22 014	10 652
Bosnia	8 921	8 220	7 988	7 794	9 263	9 176
Macedonia	5 194	4 697	4 939	5 320	6 190	6 232
Moldova	3 523	3 295	3 351	3 570	3 752	3 772
Montenegro	1 831	2 068	2 351	2 407	2 720	2 959
Albania	2 706	2 828	2 463	1 351	2 553	2 759
Armenia	1 176	776	927	1 492	1 624	2 031

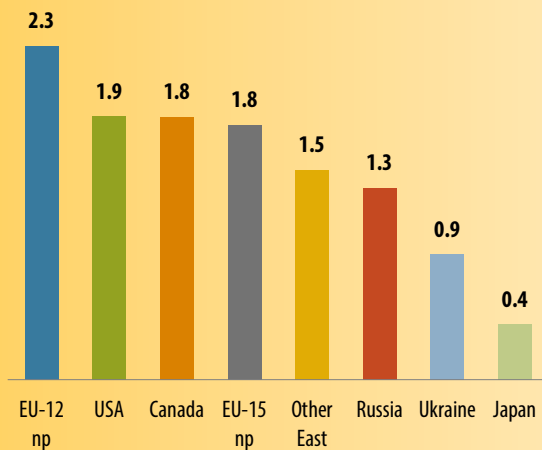
Source: COMTRADE

# LEMON

## Consumption (2016-17)

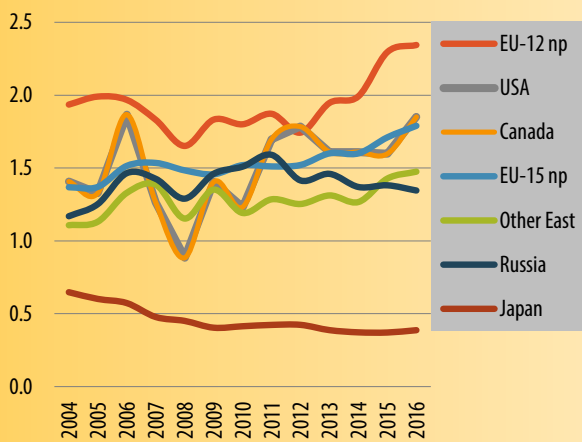
### Lemon - Consumption in 2016

(np: non producing country / in kg/capita  
sources: Customs, Trade map, professionals)



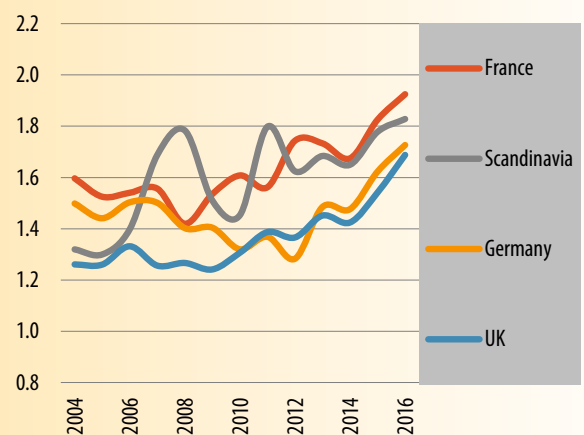
### Lemon - Evolution of consumption on the leading markets

(in kg/capita / sources: Customs, Trade map, professionals)



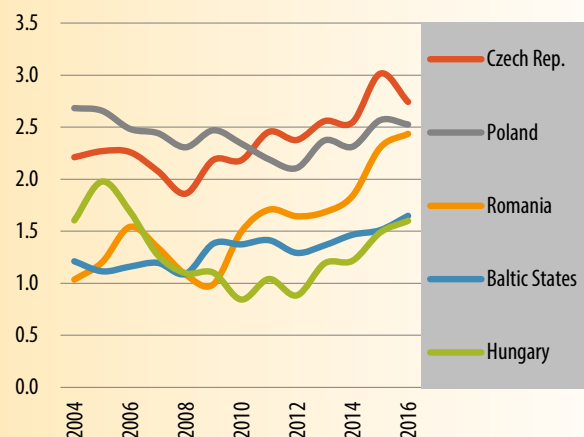
### Lemon - Evolution of consumption on leading West European markets

(in kg/capita / sources: Customs, Trade map, professionals)



### Lemon - Evolution of consumption on leading East European markets

(in kg/capita / sources: Customs, Trade map, professionals)



# Citruses

## Diseases and pests

There are numerous pests and diseases, which can have serious economic impacts, possibly requiring quarantine (material subject to regulations concerning movement) and the prohibition of exports to other production zones to prevent the spread of harmful organisms. The use of tolerant rootstocks is an effective measure in the control of several organisms, but the choice of variety is often dictated by the market. In addition to the production of healthy plant material, the control of these pests and diseases generally combines genetic, biological and chemical components in an integrated control framework.



DISEASES	<b>TRISTEZA</b> Virus: <i>Citrus Tristeza</i> <i>Closterovirus</i>	<b>HUANGLONGBING (greening)</b> Phloeme: <i>Liberibacter africanum</i> , <i>L. asiaticum</i>	<b>CITRUS CANKER</b> Bacterium: <i>Xanthomonas axonopodis</i> pv. <i>citri</i>
<b>Distribution</b>	All regions except some Mediterranean countries.	Asia, subtropical and tropical Africa, Middle East.	Asia, South America, Florida, certain regions of Africa.
<b>Symptoms</b>	Dieback of varieties grafted on bitter orange (except lemon trees), vein clearing and stem pitting.	Shoot yellowing, leaf mottling, small poorly coloured fruits.	Corky pustules on leaves and fruits.
<b>Susceptible species</b>	Lime, orange and grapefruit trees.	Broad host spectrum. Affects orange and mandarin above all.	Broad host spectrum. Above all grapefruit, orange, lime and some mandarins.
<b>Transmission</b>	Aphids ( <i>Aphis gossypii</i> , <i>Toxoptera citricida</i> ).	Psyllas ( <i>Diaphorina citri</i> , <i>Trypza erytrae</i> ).	By air and water.
<b>Economic impacts</b>	Loss of trees and decreased production.	Tree dieback, shorter orchard life.	Harvest loss.
<b>Quarantine organism</b>	Present in the EU.	Not present in the EU.	Not present in the EU.



PESTS	<b>FRUIT FLY</b> Diptera Tephritidae: various species of the genera <i>Ceratitis</i> , <i>Anastrepha</i> , <i>Dacus</i> , <i>Bactrocera</i> , etc.	<b>THRIPS</b> Thysanoptera: thripidae. <i>Scirtothrips</i> spp. ( <i>S. aurantii</i> , <i>S. citri</i> , <i>S. dorsalis</i> )	<b>DIASPINE</b> Hemiptera: Diaspididae. Genera <i>Aonidiella</i> , <i>Unaspis</i> , <i>Chrysomphalus</i> , <i>Cornuaspis</i> , etc.
<b>Distribution</b>	Americas: <i>Anastrepha</i> . Africa: <i>Ceratitis</i> , <i>Dacus</i> . Asia-Pacific: <i>Bactrocera</i> .	Variable according to the species. Present in the Mediterranean area: <i>Tetranychus urticae</i> , <i>Panonychus citri</i> .	Variable according to the species. Present in the Mediterranean area: <i>Aonidiella aurantii</i> , <i>Cornuaspis beckii</i> , etc.
<b>Symptoms</b>	Holing caused by females laying eggs in the fruits.	Greyish patches in a ring around the fruit stalk (thrips feeding on young fruits).	Scale on leaves, shoots and/or fruits, trees weakened in case of large populations.
<b>Susceptible species</b>	Mandarin, orange, grapefruit. Mandarins and thin-skinned oranges susceptible.	Orange, mandarin, tangor, tangelo, lemon, etc.	Broad host spectrum.
<b>Economic impacts</b>	Harvest loss.	Deterioration of the external appearance of fruits.	Deterioration of the external appearance of fruits.
<b>Quarantine organism</b>	Not present in the EU.	Not present in the EU.	Not present in the EU.



# Citruses

## Cultivation

*The world's leading fruit crop grown between the latitudes 40° N and 40° S, citrus fruits were domesticated in Asia. Ancient texts refer to sour citrus fruits in India from 800 BC onwards, and mandarins, oranges and grapefruit in China at the time of Confucius. Trade and military conquests contributed strongly to the spread of citrus. This was first over-land via Asia Minor and the Middle East as Roman and Greek influence spread (citron fruit, bitter orange) and then through Islam and the Crusades (sour citrus). The citron fruit was the first species grown in the Mediterranean several centuries before the Common Era. New citrus fruits such as sweet oranges were introduced around the Mediterranean basin in the Sixteenth Century thanks to Portuguese navigators and the possibility of direct maritime trade with the Far East and China. These species were then disseminated in Africa and America. The first mandarins were introduced in the Mediterranean region much later. The fruit is mentioned at the beginning of the Nineteenth Century in Italy and not until 1850 in North Africa. However, the Mediterranean has been an important diversification zone for the three most important economic species—orange, mandarin and lemon. The grapefruit, *C. paradisi*, a natural hybrid of shaddock, is one of the few commercial citrus fruits to have originated in the Caribbean.*

## AGRONOMY

The most suitable soils for growing citrus are slightly acidic and well-filtering. The choice of rootstock is one of the essential factors for success, giving tolerance or resistance to biotic (soil pests and diseases, degeneration diseases) and abiotic constraints (acidic or alkaline soils, salinity, reaction to cold or drought, etc.). It strongly influences factors such as vigour, the start of production, and fruit yield and quality. The risk of contamination by tristeza has led to *Poncirus* hybrids (Citrange, Citrumelo) being favoured over the sour orange. Disease-free plant material must be used. Today, new rootstocks are bred by hybridisation or using biotechnologies.

Certification plans have been set up in many countries. They combine the use of healthy plant material and prevention of possible recontamination by inoculum or a disease spread by an insect vector by siting outdoor nurseries in clean zones or by sheltered production in risk zones. The rootstocks are sown, replanted and then shield budded or chip budded, using a bud from a shoot of the desired variety.

It is recommended that the base of the trunk should be set in a slightly raised position at planting to limit attacks by *Phytophthora*. Tillage is reduced after planting so as not to damage the surface roots. The base of the trunk must be weeded. The maintenance technique used (permanent plant cover, chemical or mechanical weed control) depends on soil/climate and economic constraints.

Preliminary pruning is performed in the early years. Annual maintenance pruning then balances and aerates the foliage and ensures the renewal of fruit-bearing shoots. Irrigation is essential in dry areas and can be in the form of subfoliar sprinkling or trickle irrigation (soakers, drip, etc.). Fertilisation can be combined with irrigation in this case (fertigation) to save inputs and ensure steady mineral nutrition.

Mineral fertilisation must make up for losses via fruits and pruning and ensure the growth of the vegetative organs. Fertilisation includes nitrogen, phosphorus and potassium. Trace elements are sprayed on the foliage. Fertilisation is based on the results of mineral analyses of leaves and soil.

Among growth regulators, gibberellic acid improves the setting of clementines and synthetic auxins increase fruit grade.



## THE INFLUENCE OF CLIMATIC CONDITIONS

Citruses originated in South-East Asia. The climate there is equatorial, tropical or subtropical according to the latitude and always strongly marked by a monsoon regime. The year features a hot, humid season (the monsoon season) and a fairly rain-free, often cooler season. The developmental cycle of citrus is keyed into these seasons. The hot, humid period is one of intense physiological activity, with shoot and fruit growth. Vegetative growth halts in the cool, dry period, a feature all the more marked when drought is severe or temperatures low. A marked halting of vegetative growth is essential before any flowering of certain citruses such as mandarin, orange, grapefruit and shaddock. Others with repeat-flowering such as citron, lemon and lime have less strict requirements but react to the same phenomena.

Temperatures between 21 and 30°C are optimum for physiological activity. This is strongly reduced when the temperature is significantly higher than 35°C or lower than 13°C for a sustained period.. Citrus growing is in fact limited by threshold and ceiling temperatures. Citrus trees are partially or totally destroyed at temperatures below 0°C. The extent of the damage depends firstly on frost duration and intensity, and secondly on the susceptibility of plant parts and the type of citrus. Thus flowers, young leaves and fruits are more sensitive than branches and trunks. Citron, lime and lemon are more sensitive than mandarin, orange and grapefruit. Temperatures lower than -7°C are generally lethal for citrus trees. Temperatures higher than 50°C also cause damage.



Strong insolation is also better tolerated when the water supply is satisfactory. Irrigation must be used in citrus growing in arid or very dry regions. Plant water requirements are directly correlated with the climatic parameter total radiation (the main feature) related to insolation, temperature, wind, relative humidity, etc. These parameters are used in water requirement models and irrigation management tools.

Temperature plays an important role in the changes of fruit pigmentation as maturity approaches. Temperatures lower than 15°C cause the disappearance of chlorophyll pigments from the epidermis. This reveals carotenoid pigments. The synthesis of carotenoids (yellow and orange) and lycopene (red, specific to shaddock and grapefruit) is enhanced by a temperature of between 15 and 35°C. Red anthocyanin pigments (blood oranges) require lower temperatures but still higher than 12°C.

The synthesis and senescence of the various pigments are thus strongly affected by ambient temperature. In the tropics, the absence of low temperatures means that chlorophyll pigments do not disappear and the fruits remain green. Anthocyanin synthesis does not take place for the same reason and blood oranges remain blonde. In contrast, the red pigmentation of grapefruit is more intense. The alternate high daytime temperatures and cool nights in Mediterranean zones create an optimum environment for the breakdown of green chlorophyll pigments and the synthesis of the yellow, orange and red pigments of the various types of orange, mandarin and lemon. The external colour of the fruits is thus very well expressed.

# Citruses

## Main varieties

photos © Régis Domergue

### EASY PEELERS

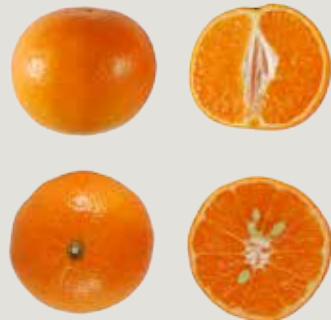
#### CLEMENTINE

This group of varieties is probably the result of hybridisation of *Citrus deliciosa* and an orange. Its success — considerable around the Mediterranean — is related to the useful fruit characteristics (seedless in pure plantations, good colour and flavour) combined with a long sales period. Indeed, clementines are present on markets in the Northern Hemisphere from the end of September to the end of February thanks to the different cultivars (Marisol, Oroval, Oranules, Nules, Common or Fine, Hernandine, Nour, etc.).



#### Nova

Present on markets from mid-November to January, this medium-sized fruit is the result of a cross between common clementine and Tangelo. It has useful qualities: marked skin colour, a deep orange tender juicy seedless pulp, and sweet flavour with low acidity. The fruits must nevertheless be picked rapidly to prevent swelling of the peel. It is widely grown in Spain (Clemenvilla), Israel (Suntina) and Morocco.



#### MINNEOLA

A hybrid between tangerine and grapefruit, this large round fruit is characterised by a pronounced stem-end neck. The peel is a particularly strong reddish orange colour. The pulp, with few seeds, has a very special flavour. The variety is grown mainly in Israel and Turkey.



### ORANGE

#### VALENCIA LATE

Originating in the Azores, Valencia is the most commonly planted variety in the world. This medium-sized variety is round and slightly oblong. The peel is thin, well-coloured and slightly grainy. The flesh is very juicy, with 2 to 4 seeds. It is also known as Maroc Late (from Morocco) and Jaffa Late (from Israel).

#### NAVEL

A round to oval dessert orange with a strongly developed navel. The peel is grainy, thin and fairly well coloured. The flesh is crisp, fine and not very juicy. Early cultivars (Naveline) and late cultivars (Navelate, Lane Late) in the Navel group are available on Northern Hemisphere markets from October to May.

#### MALTAISE

This high-quality well-coloured orange is grown almost only in the Cape Bon region of Tunisia, where conditions bring out its full potential. It is medium-sized and slightly oval. The soft peel is slightly grainy and easy to remove. The tender, juicy flesh is little coloured for a blood orange. The flavour is particularly pleasant with sweetness balanced by a good level of acidity.

#### SALUSTIANA

Very popular in Spain, this blonde juice orange is medium-sized to large. The peel is of medium thickness with fine granulation. The flesh is delicate and sweet with a very pleasant taste. It is also seedless.





## LEMON

### EUREKA

This variety, little planted in the Mediterranean, forms the majority of world production. It is widespread in the Southern Hemisphere. The fruit is of average size, elliptic to oblong in shape with a medium-sized apical nipple that is slender at the base. The peel is fine to medium thick. The pulp is generally seedless and rich in juice with high acidity.



### FINO

This cultivar dominates Spanish production and is abundantly grown in the Murcia region. The fruit is a regular spherical or oval shape. The nipple is shorter than that of Verna. The peel is thin and smooth. The pulp contains 5 to 8 pips and is juicier than that of Verna.



### VERNA

The fruit is medium to large with a pronounced, broad-based nipple. The rough epidermis is fairly thick. The juice has high acidity but only a medium extraction yield. One of the main Spanish varieties.



### LIMES

The Tahiti lime (*Citrus latifolia*) is a triploid variety and is the most widespread of the sour limes. The peel is green/yellow to pale yellow and contains an essential oil with a very characteristic odour. The pulp is generally seedless, yellowish green and rich in very sour juice. Another variety, Mexican lime (*Citrus aurantifolia*), is little exported as it contains a large number of seeds.



# Citruses

## Harvesting and storage

Citrus fruits are not climacteric, so their quality does not improve after harvesting. Suitable storage can slow their development: an appropriate positive temperature, 85 to 90% relative humidity and ventilation. Fruits must be harvested at a stage of maturation close to optimum ripeness—and hence optimum quality. Quality is characterised mainly by the juice content, the dry extract/acidity ratio and flavour. Fruits must be handled with care during the harvest, avoiding wetting, so as to limit subsequent risks of physiological deterioration or the entry of pathogens. Transport to the packing stations must be carried out as soon as possible.

### DEGREENING AND STORAGE

As fruits approach the ripe stage, green chlorophyll pigments disappear gradually, revealing the other yellow, orange and red epidermis pigments. This change requires cool temperatures lower than 13°C. These temperature conditions are not found in the tropics or in a Mediterranean climate in early autumn when the early varieties are picked. The fruits therefore remain green or are poorly coloured. Degreening is possible if significant breakdown of chlorophyll pigments has started naturally. Degreening is performed by placing the fruits in a chamber with a controlled atmosphere containing 1.0 to 5.0 ppm ethylene. The temperature is set at 22 to 25°C for oranges, and at a lower temperature for lemons, with a relative humidity of 85 to 90%. The technique reduces storage time since ethylene stimulates senescence in citrus fruits. The duration of chilled storage can be lengthened by the application of wax or a stretch film reducing respiratory exchange and water loss. In contrast, controlled atmospheres have little or no effect.

### PHYSIOLOGICAL DETERIORATION

This is caused mainly by impacts in the orchard that are revealed later or during storage.

**Frost:** in the orchard or after the harvest. The skin looks wet and translucent and the segments dry out.

**Chilling injury:** exposure to temperatures that are above freezing point but lower than the optimum storage temperature. They cause the bursting of the essential oil glands, resulting in the burning of tissue and the appearance of small sunken brown spots on the peel; these may become coalescent. Fungal damage may subsequently occur.

**Oleocellosis:** caused by temperature variations in the field or bruising during harvesting or storage. Symptoms are very similar to those of chilling injury.

**Abrasion by brushing:** caused by skin fragility, the use of brushes that are too hard or by too high a brushing speed. The upper layers of the skin are eroded, resulting in dry patches of varying width and flow of essential oil that burns the tissue.

### FUNGAL DAMAGE

More than 75% of postharvest citrus rots are caused by two *Penicillium* moulds (*P. italicum* and *P. digitatum*). Some rots should not appear during storage if harvesting is performed carefully:

- bitter rot caused by *Geotrichum candidum* affects fallen fruits or fruits soiled with earth;
- *Cladosporium herbarum* causes symptoms similar to those of *Alternaria citri*. Contamination by rotting, infested plant wastes occurs during harvesting;
- black mould rot of peel caused by *Aspergillus niger* affects wounded or damaged fruits stored at a temperature of over 15°C;
- infection in the orchard by *Botryosphaeria ribis*, *Physalospora rhodina* or *Diaporthe citri* causes a brown and then blackish rot of the skin and the underlying tissues in the stalk zone during storage. It is controlled by orchard or postharvest treatments.

POST-HARVEST DISEASES	BLUE MOULD <i>Penicillium italicum</i>	GREEN MOULD <i>Penicillium digitatum</i>	BLACK ROT <i>Alternaria citri</i>	BROWN PATCH <i>Glomerella cingulata</i> (= <i>C. gloeosporioides</i> )	BROWN ROT <i>Phytophthora sp.</i>
<b>Symptoms and part of fruit affected</b>	Paling and softening of the skin; white down (mycelium) then appears; covered with blue spores; pulp affected simultaneously.	Slight paling and softening of the epidermis; then bright white down grows in circular layers, covers with green spores from the centre. The entire fruit (peel, pulp) is finally affected, fruit cannot be eaten from the beginning.	Black rot on columella and segments, and/or peel.	Spotting of unripe fruits developing into brown patches that become soft with ripening and then affect the pulp. Marked odour. Degreened fruits very susceptible.	Start: spotted discoloration of peel and then spread of the patches; variable colour with brown patches and finally fruit disintegration. In storage: fine white mycelium with brown areas; characteristic odour.
<b>Infection pathway</b>	Spores on intact epidermis, fruit to fruit contamination.	Spores on wounded epidermis.	Wounds, penetration by the navel and the style scar.	Fruits wounded in the field.	Spores on intact epidermis.
<b>Site of infection</b>	From packing to consumption.	In the orchard, but above all from picking to consumption.	Orchard and warehouse.	Orchard.	Orchard: splashing with water. Packing: contaminated washing water. Storage: fruit to fruit contamination.
<b>Species and varieties susceptible</b>	All varieties.	All varieties.	Navel orange, madarin, lemon.	All varieties, but above all mandarins.	All varieties (orange more susceptible).

# Wholesale market prices in Europe

## October 2017

					EUROPEAN UNION - IN EUROS				
					France	Holland	UK	Germany	Belgium
AVOCADO	Air	TROPICAL FUERTE	DOMINICAN REP.	Box	13.60				
			CHILE	Box	12.50				
			PERU	Box	12.50				
			SOUTH AFRICA	Box	13.50				
	Sea	HASS	CHILE	Box	13.00	14.00		14.50	14.00
			KENYA	Box	14.00	13.00			
			MEXICO	Box	13.00				
			PERU	Box	14.00				
		PINKERTON ETTINGER	SOUTH AFRICA	Box	13.00	13.50			
			SOUTH AFRICA	Box	13.50				
			ISRAEL	Box	7.25	10.13			
			PERU	Box	12.00				
	Truck	RYAN BACON	SOUTH AFRICA	Box	14.00				
			SPAIN	Box	8.00	10.50	8.29		
BANANA	Air	SMALL	COLOMBIA	kg	6.80				
			ECUADOR	kg		5.83			
	Sea	SMALL	ECUADOR	kg	2.20				
CARAMBOLA	Air		MALAYSIA	kg		4.28			
CHAYOTE	Sea		COSTA RICA	kg		1.50			
COCONUT	Sea	NOT DETERMINED YOUNG GREEN	COTE D'IVOIRE	Bag	12.00	12.58	12.32		
			THAILAND	Bag		9.75			
			COSTA RICA	Bag		17.50			
DATE	Sea	DEGLET MEDJOL	ALGERIA	kg	5.00	2.19			
			ISRAEL	kg	10.50	6.00	8.06		
			SOUTH AFRICA	kg		8.50			
		NOT DETERMINED	ALGERIA	kg		3.15			
			TUNISIA	kg		2.00			
EDDOE	Sea		COSTA RICA	kg		2.10			
GINGER	Sea		CHINA	kg	2.70	2.21	2.24	1.38	
			PERU	kg		2.18		2.08	
GUAVA	Air		BRAZIL	kg		7.61			
KUMQUAT	Air		ISRAEL	kg		7.00			
LIME	Air		MEXICO	kg	2.80				
			BRAZIL	kg	2.20	2.29			
			MEXICO	kg		2.44	2.31		2.44
			SOUTH AFRICA	kg			0.90		
MANGO	Air	ATKINS NAM DOK MAI KEITT	ISRAEL	kg	4.25				
			THAILAND	kg		11.50			
			BRAZIL	kg	4.88				
			ISRAEL	kg	4.25				
	Sea	PALMER HADEN KENT ATKINS	BRAZIL	kg		4.67			
			PERU	kg		4.33			
			BRAZIL	kg	6.38	6.33			
			BRAZIL	kg		1.10		1.07	
	Truck	KEITT PALMER KENT OSTEEN KENT	ISRAEL	kg	2.00				
			BRAZIL	kg		1.75		1.50	1.63
			BRAZIL	kg		1.75			
			BRAZIL	kg	2.18	2.25			
			SPAIN	kg	2.25				
			SPAIN	kg	3.45				
MANGOSTEEN	Air		INDONESIA	kg		12.50			
MANIOC	Sea		COSTA RICA	kg	1.40	1.22			



					EUROPEAN UNION - IN EUROS				
					France	Holland	UK	Germany	Belgium
MELON	Sea	CANTALOUPE GALIA	BRAZIL	kg	1.35	1.30	1.04		
			BRAZIL	kg		1.40	1.20		
			ISRAEL	kg		1.30			
		HONEY DEW WATERMELON PIEL DE SAPO SEEDLESS WATER CHARENTAIS	BRAZIL	kg		0.92	1.09		
			BRAZIL	kg	0.80	0.75	0.74		
			BRAZIL	kg		1.08	0.82		
			BRAZIL	kg	0.90	0.81	0.77		
			BRAZIL	kg		1.50			
PAPAYA	Sea	FORMOSA NOT DETERMINED SOLO	BRAZIL	kg		3.22			
			BRAZIL	kg	3.24	3.36			3.86
			ECUADOR	kg		3.14			
PASSION FRUIT	Air	NOT DETERMINED PURPLE YELLOW	COLOMBIA	kg	5.00	5.38		4.50	5.25
			VIETNAM	kg	7.75				
			COLOMBIA	kg		9.50			
			ECUADOR	kg		7.20			
PHYSALIS	Air	PREPACKED	COLOMBIA	kg	9.50	8.33			
	Sea		COLOMBIA	kg		5.32	4.17		
PINEAPPLE	Air	MD-2 VICTORIA	BENIN	kg	2.35				
			MAURITIUS	Box		13.50			
			MAURITIUS	kg	3.60				
			REUNION	kg	4.00				
	Sea	MD-2	COLOMBIA	Box		7.50			
			COLOMBIA	Piece			1.06		
			COSTA RICA	Box		6.96		6.25	6.50
			COSTA RICA	kg	0.88				
			COTE D'IVOIRE	kg	0.90				
			PANAMA	kg	0.80				
PITAHAYA	Air	RED  YELLOW	THAILAND	kg		6.08			
			INDONESIA	kg		8.67			
			ECUADOR	kg		10.00			
PLANTAIN	Sea		COLOMBIA	kg	1.10	1.13			
			ECUADOR	kg	1.00				
POMEGRANATE	Sea	NOT DETERMINED	PERU	kg		1.93			
			TURKEY	kg			1.55		
			CHILE	kg	2.10				
		WONDERFUL	EGYPT	kg		1.71			
			PERU	kg	1.90				
			ISRAEL	kg	1.45	2.00			
		EARLY RED	TURKEY	kg		2.14			
			ISRAEL	kg	1.30				
		ACCO	ISRAEL	kg					
RAMBUTAN	Air		THAILAND	kg		7.75			
			VIETNAM	kg		12.50			
			GUATEMALA	kg		8.00			
SWEET POTATO	Sea	NOT DETERMINED	EGYPT	kg	1.00	0.88	0.93		
			ISRAEL	kg		1.00			
			SOUTH AFRICA	kg	1.50				
		WHITE RED/WHITE	HONDURAS	kg	1.45				
			HONDURAS	kg		1.55			
			HONDURAS	kg					
TAMARILLO	Air		COLOMBIA	kg		7.00			
TAMARIND	Air		THAILAND	kg		3.60			
TARO	Sea		COSTA RICA	kg	2.50				
YAM	Sea		COTE D'IVOIRE	kg	1.30				
			GHANA	kg		1.48			

Note: according to grade

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