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# FR*ui*TROP

English version

CLOSE-UP:  
LITCHI

F&V industry: 'strategic  
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Stone fruits:  
2009 harvest in Europe

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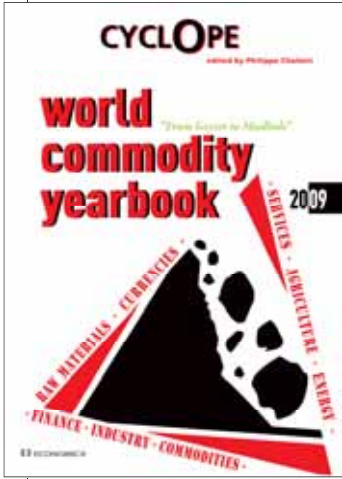
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The 23rd Rapport CyclOpe on raw materials was presented to the press in mid-May. Some fifty specialists devote 800 pages each year to decoding the functioning of these markets. After the title 'Stupeur et tremblements' in 2008, Philippe Chalmin, editor of this multi-author work, has chosen 'From Geyser to Mudhole' for the 2009 edition. **Geyser** applies to the first half of 2008 when it was believed that the worst of the subprime mortgage crisis was over. In April, the 600 billion dollar subprime losses seemed worrying but compensated by the refinancing capacity available. President Bush's recovery plan (150 billion dollars) would put the US economy back on the rails—and the world economy with it. General euphoria resulted, fed by two-figure growth in China, the Beijing Olympic Games, freight at USD 200 000 per day for Capesize type vessels for dry bulk cargo), oil at USD147 in July, rice at over USD 1 000 per tonne in Bangkok in April, etc. **Mudhole** qualifies the period from early August when the financial world and very quickly the industrial economy woke up with a hangover. The house of cards had collapsed—freight prices sank (USD 3 000 per day for a Capesize in September), crude oil at USD 33 in December, fourth-quarter growth, or rather non-growth, of -13% in Japan, - 8% in Germany, - 6% in the United States and the United Kingdom, etc. And on the subject of subprimes, the terrible and unfortunately very provisional counting had reached between USD 3 500 and 4 000 billion in mid-2009! The backlash is severe and extremely violent. The great question is that of knowing when the recession phase will end. Doubtless a bit ragged after dancing on a volcano for a long time, most forecasters are not only cautious but also desperately pessimistic. Others—more rare—think that the few swallows seen this spring (Chinese growth estimated at 8%, end of the recession predicted in the USA, movement on the stock and raw materials markets, etc.) are enough to indicate recovery in the short term. In this period of very strong uncertainty, the Rapport CyclOpe is very well timed to help decision makers to decide whether to belong to the 'contrition and pessimism' group or the 'autosuggestion and optimism' gang.

Denis Loeillet

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Cover photo: Régis Domergue

EURO - 25 May 2009	
Currency	1 euro =
US dollar	1.401
Japanese yen	133.22
Swiss franc	1.5178
Pound sterling	0.8803
Swedish krona	10.472
Danish krone	7.4463
Norwegian krone	8.862
Canadian dollar	1.5777
Australian dollar	1.7924
New Zealand dollar	2.2652
Brazilian Real	2.8322
Czech koruna	26.683
Polish zloty	4.414
Chinese yuan renminbi	9.5601
Estonian kroon	15.6466
Mexican Peso	18.4372
Turkish lira	2.1672
South African rand	11.664
South Korean won	1 743.9

Source: Central European Bank

# Fruit and vegetable industry

## Out with segmentation and in with 'strategic assortment reduction'

**'Les rencontres annuelles des expéditeurs de fruits et légumes' (Annual meetings of fruit and vegetable shippers) were held in Marseilles on 2 and 3 April at the initiative of Scoopeven. This year, stress was laid on main trade trends, the requirements of large retail chains and the question of pesticides. The considerable variety of participants and the fact that the MC often played too obtrusive a role could have resulted in an event of no interest. But this was not the case, thanks to a few contributions that made it possible to address in an open, relaxed atmosphere the main questions faced by the sector.**

It is rare to feel satisfied after this type of meeting. As nobody wants to divulge information to his competitors, the common areas of the quality of produce and services—whatever the position of the operator in the chain—too often make discussions anaemic. This was not entirely the case in Marseilles. A few contributions made it possible to go a little further into things than usual. The most noteworthy was the talk by Jean-Luc Rodrigues, director of the Casino group's fruit and vegetables sector. He painted a very instructive picture of the groups supply and sales policy.

### Profitability versus segmentation

The time when the strength of shops lay in an ever-broader range has long gone. Segmentation as a weapon for gaining market shares and increasing margins has gone out of fashion. Assortments are now 'rationalised'. Casino aims at reducing its assortment from 340 references to 200 to reduce losses both throughout the logistic chain and in the shops, to optimise sales and to make the range compatible with the different store sizes. Strategic assortment reduction is referred to here. For example, 20 references for apple have been deleted. This optimisation of the range is not the only change in the goods in the shops. Casino now goes in for intelligent customisation. It has used the

store card widely used by its customers to define six consumer profiles—gourmet, in a hurry, economical, etc.—and thence assortments for each point of sale, whatever the size of the store.

The group also wishes to develop its own brands and organic goods, which have rapidly increased from 5 to nearly 30 references. Progress is fast, whatever the size of the shop. Here, the organic range is 100% associated with own brands to demonstrate the group's total engagement. The recipe for success is a simple one but is not based only on more marketed products. Prices must also be lowered to attract customers more strongly. Bananas are a good example of this virtuous circle as selling organic bananas at less than EUR 2 per kg has resulted in a 20% increase in market share for the reference.

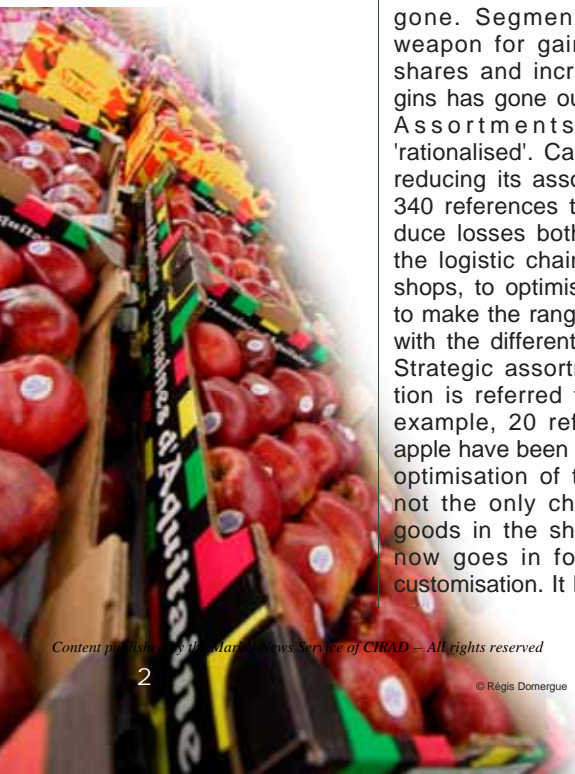
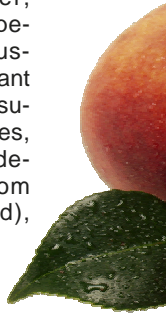
After reorganising the department and the assortment by point of sale, Casino is now focusing on the upstream part of the chain, with the same aim—making supply rational and secure. It has therefore defined three types of supplier: strategic, standard and tactical. A strategic supplier will be linked with this retailer by a 3 to 5-year partnership with an undertaking as regards volumes and very strong transparency in relations. As not all suppliers can be strategic, a number of them will be standard. Finally, the third type will be tactical. These will be called upon from time to time when an opportunity occurs. Discussion will concern low prices first and foremost. The producer link in the chain is not forgotten as the chain's 'Casino producteur' appellation is aimed at developing a very strong upstream partnership in the future. The company Pomona

TerreAzur seems to have gone a long way towards anticipating requirements. Vincent Holveck, its fruit and vegetable chain manager, showed the need for a specialised assortment by customer segment (the restaurant business, social catering, supermarkets and superstores, specialist retailers) and degree of segmentation (from standard to differentiated), etc.

### Strong focus on MRLs but not on sustainability

In a very classic manner, the programme returned on several occasions to the problem of pesticide residues, the harmonisation of pesticide use and finally the opposition between organic and integrated production. I will not return to the latter point—presented in a caricatural manner by the moderator. But I would like to mention the very instructive talk by Jean-François Proust, head of the 'Forum Phyto' ([www.forumphyto.fr](http://www.forumphyto.fr)), on pesticide residues. He shed light on EU phytosanitary regulations and the harmonisation of MRLs (maximum residue limits), on the difference between the acute reference dose (ARfD) and MRLs and the various practices in the EU when batches are declared to be not in conformity.

Still in the broad field of consumer protection, but also that of the environment, the Guadeloupe and Martinique banana production and export chain is an example of the improvement approach adopted. Sébastien Zanoletti, director of innovation and sustainable development at UGPBAN, also requested the appraisal of remote import



chains with regard to their environmental, economic and social sustainability.

In fact it is surprising that environmental questions were only addressed at the meeting via MRLs. This is a narrow view of the potential impacts of the horticultural sector. The work on environmental labelling at the French 'Grenelle de l'environnement' meetings should partially complete the analysis. Planned for 2011, this labelling will make it possible to take into account other potential effects of the cultivation, transport and distribution of fruits and vegetables. There is currently discussion of the potential impacts of greenhouse gas

emissions, loss of biodiversity, eutrophication, etc. French professionals should now participate in the work and thus contribute to the drafting of technical references before they are imposed by others. In the longer term, there could be indicators to appraise the economic and social impacts of a specific chain. In any case, these multicriterion approaches will make it possible to fight the unflattering idées reçues circulating in the horticultural sector and that are gradually becoming fixed in the heads of European consumers ■

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## Stone fruits

### The first news of the 2009 harvest in Europe

Peaches and nectarines: more than enough?

The harvest forecasts made public at the MED-FEL in Perpignan on 28, 29 and 30 April confirmed the very good potential expected this year. With the exception of hailstorms that hit the Gard department from 16 to 20 April, no major meteorological phenomenon has disturbed the beginning of the season. The harvest potential in Spain, France, Greece and Italy—the four European producer countries—is currently estimated to be nearly 3 million tonnes of peaches and nectarines, that is to say 7% more than in 2008, together with 1.3 million t of clingstone peaches (+ 24% in comparison with 2008) and nearly 515 000 t of apricots (+ 12%).

This season's crop will be particularly large in Spain, with very good potential in all the production zones. In spite of a decrease in orchard areas in the south and frost and hail in the north, Spain should have the largest harvest ever at an estimated 763 000 t of peaches and nectarines, that is to say 6% more than in 2008 and 14% more than the average for the last three years. Similarly, Italian production should return to normal after last year's deficit, especially in the south (1.5 million tonnes, i.e. 6% more than in 2008). French production should also swing up and over the 300 000-tonne mark even

though hail has had some effects in the Gard and Vaucluse departments. However, the crop will be 6% smaller than the average for the last three years as a result of grubbing up in preceding years. At 350 000 t, production should be much the same as in 2008 in Greece. Overall, European peach and nectarine production should be around 3 million tonnes, with substantial potential throughout the season, unlike the situation in 2008.

Very large apricot crop expected in France

Likewise, the potential should recover to close to normal for apricot after the deficits observed last year as a result of frost. European production could exceed 513 000 t, in line with the average of the last three years. At 89 600 t, Spanish crop potential might be slightly smaller than last year. Italian production is

also down by 5% in comparison with 2008 and by 8% in comparison with the average for the last three years. Greek production will probably be marked by alternate bearing after a substantial harvest last year and poor fruit setting, giving 52 300 tonnes, 30% less than in 2008. In contrast, French production should attain a very good level with the second largest harvest since the 178 500 t recorded in 2004. Strong alternate bearing is expected in Rhône-Alpes where the crop was very small last year (94 750 t forecast for 2009 after only 39 400 t in 2008) and a return to normal production levels is expected in Roussillon (53 000 t) and the Provence-Alpes-Côte d'Azur region (26 027 t). Apricot production may thus be medium at the beginning of the season and then increase in July when picking starts in the Rhône-Alpes region ■

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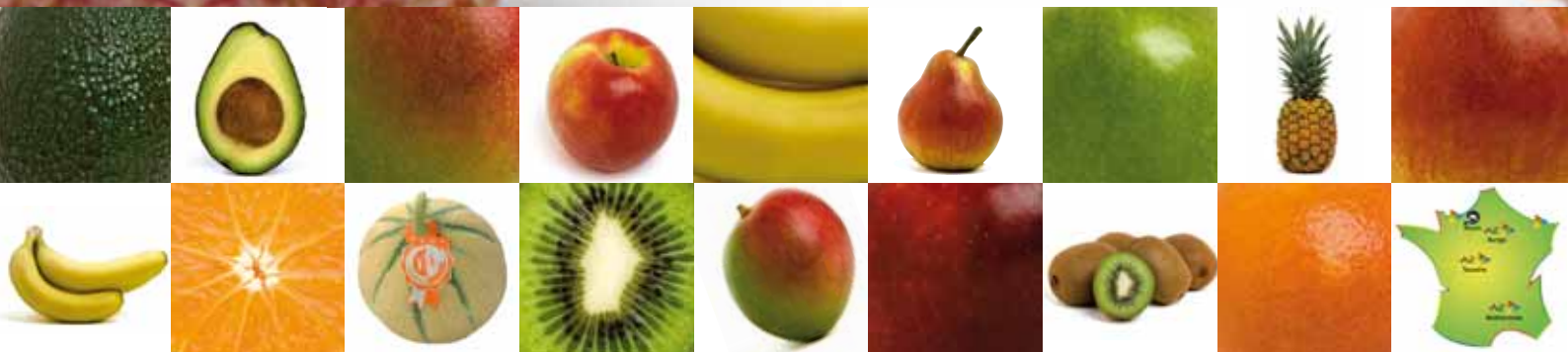
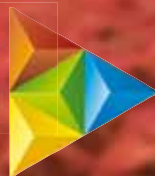
Peach & nectarine — Europe — Evolution of the production in the main producing countries			
tonnes	2009	Comparison with	
		2008	last 3 years average
Spain	762 959	+ 6%	+ 14%
France	326 014	+ 16%	- 6%
Greece	350 000	+ 2%	+ 10%
Italy	1 511 900	+ 6%	+ 2%
Total	2 950 873	+ 7%	+ 5%

Apricot — Europe — Evolution of the production in the main producing countries			
tonnes	2009	Comparison with	
		2008	last 3 years average
Spain	89 675	- 2%	- 4%
France	173 777	+ 115%	+ 36%
Greece	52 300	- 30%	- 25%
Italy	197 600	- 5%	- 8%
Total	513 352	+ 12%	+ 1%

Source: Europech

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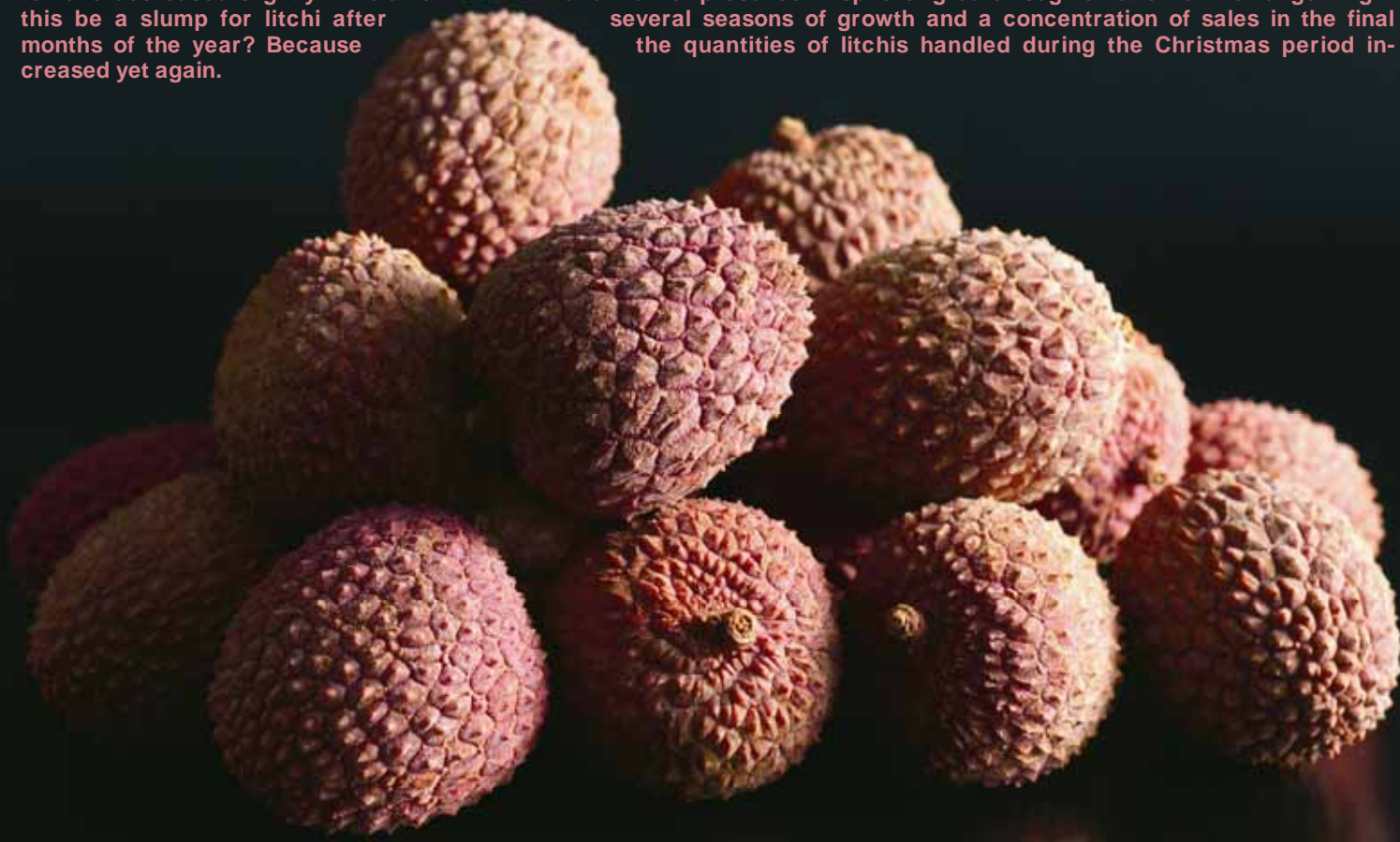
# Litchi

A report by Pierre Gerbaud

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**S**ales of litchis on the European markets seem to be marking time. The Indian Ocean export season is still the high point of the distribution of this fruit in Europe, with supplies being smaller and purchases less enthusiastic during the rest of the year. Is this a passing phenomenon or a deep-seated change? It is still difficult to judge this recent trend but a few signs highlight the cracks forming in evolution that was hitherto more dynamic. Without having disappeared completely, a few marginal and occasional sources of litchi did not show much sign of life in 2008. The small Australian season that follows exports from the Indian Ocean was nonexistent. Quality problems and shortage of fruits were mentioned to account for this. The sporadic shipments from Mexico in June also stopped whereas sulphur-treated fruits were shipped for the first time to address the recurrent keeping problems experienced in recent years. And the sale of litchis from China through traditional channels seems to have dwindled to almost nothing—to the benefit of more informal channels closely focused on the ethnic market. Although Israel covered summer supplies with a season equivalent to that of 2007, Thai shipments seemed to have decreased slightly in volume and market presence in spite of greater segmentation of the range. Might this be a slump for litchi after several seasons of growth and a concentration of sales in the final months of the year? Because the quantities of litchis handled during the Christmas period increased yet again.



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## Litchi from Madagascar

### The Madagascan paradox

Production was substantial and above all very early in the 2008-09 season. The first shipments by air were at the end of October/beginning of November and the first ship from Madagascar docked in Europe in the first week of December. After starting hastily, the season also finished quickly at the beginning of February after fourteen weeks of sales.

#### Air litchis cold-shouldered

With an estimated volume approaching 24 000 tonnes during the season, Madagascan exports smashed the previous record of 22 4000 tonnes in 2005-06. Although shipments by air were equivalent to those of the previous season at about 450 tonnes, the volumes of fruits shipped by sea increased again, making up for the unexpected decrease in South African exports. The early start to the season meant that sales could start a week sooner than in the previous season. But this earlier start does not appear to have facilitated sales of fruits shipped by air, with volumes increasing rapidly, coinciding with arrivals from rival sources and coming up against a market that was not particularly receptive at the beginning of the season. The first batches sold quickly, benefiting from the



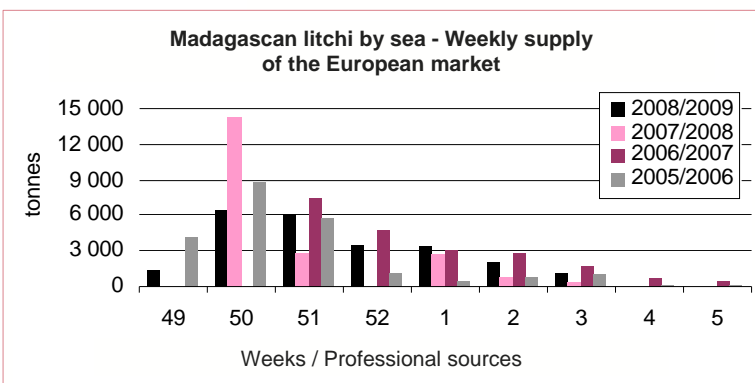
'novelty' factor, but the accumulation of tonnage and poor retail sales soon made the market less fluid. Prices weakened markedly in the second week of sales and continued to fall until the arrival of the first batches transported by sea. More worrying still was the observation of the lowest prices for four seasons.

This poor trend even caused several operators to suspend their supplies. Fruits shipped by air have long been considered as a way to get the marketing season for Indian Ocean litchi off to a good start. This year, the prices at the retail stage in a context considered as 'worried'

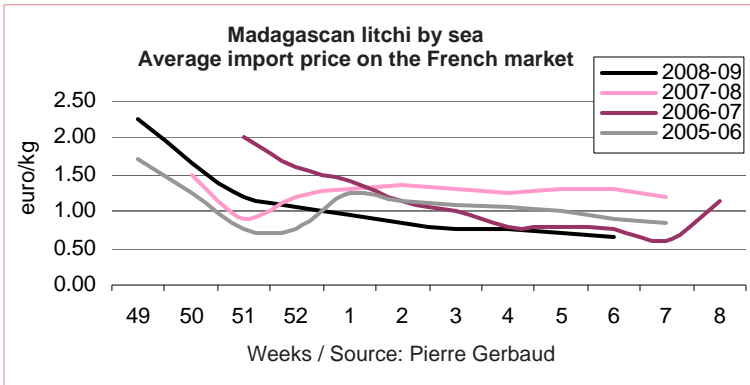
by the media may have had a negative effect on consumers. The concentration of litchi purchases during the Christmas and New Year season has been observed for a number of years, forging an image of the festive fruit par excellence. Releases on the market well ahead of Christmas may account for the consumer reserve seen this season; people have become used to paying less for this fruit during the weekends before Christmas.

#### Arrivals of sea litchis well staggered

Like the fruits arriving by air, the first sea shipments reached the European markets at an early date, with the first ship docking at the beginning of December. The season for litchi carried in conventional vessels started under good auspices. The experience of the two previous seasons seemed to have resulted in wisdom among sector operators. Reducing the tonnage imported before Christmas and carefully adjust-



Photos © Cht Delanoise



the result is still disappointing for all the stakeholders in the litchi sector.

**Too many containers in the second part of the season**

The last straw—which made the downward price movement last for the rest of the season—came at the end of the year. Totally unexpectedly, particularly large quantities were shipped in sea containers. For the first time in 10 years, the volumes shipped in containers were larger than those carried by conventional vessels at the beginning of the season. This is a strange strategy if one examines preceding seasons when it was clear that litchi sales slow distinctly from January onwards. Indeed, the sector seems to function with a knock-on effect in which a measured season of litchis carried in conventional ships is followed by a plethora 'container' season and vice versa. There is something irrational here, as if the potential for the production and treatment of fruits were more important than the capacity of the destination markets. If the volumes of rejects (for quality problems) totalling several hundred palletes and those sold at less than cost are deducted from the total exported by Madagascar, the final figure would probably be more like 18 000 tonnes than the 22 000 or 24 000 tonnes shipped in recent years. The increase in the number of consignees for the 'container' litchi season means that there is no longer any control of the market. But this broader opening seems to have been stimulated by shippers who saw an opportunity to satisfy the quantitative megalomania that is difficult to understand

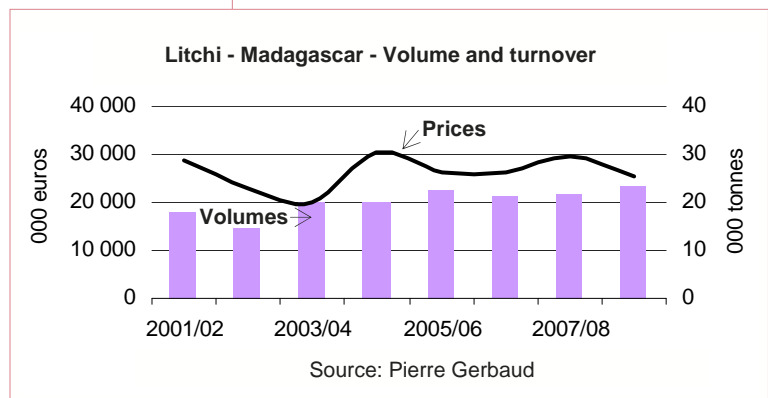
ing logistics led to thinking that sales would be calmer and more profitable. Two vessels chartered by a single group of operators, each putting in twice alternately in southern Europe and northern Europe, made the distribution of volumes more rational. But this apparently optimum plan did not come up to expectations. And it is certainly not the some thousand tonnes arriving in containers between two conventional ships and imported for a specific marketing programme that changed the character of the first part of the season!

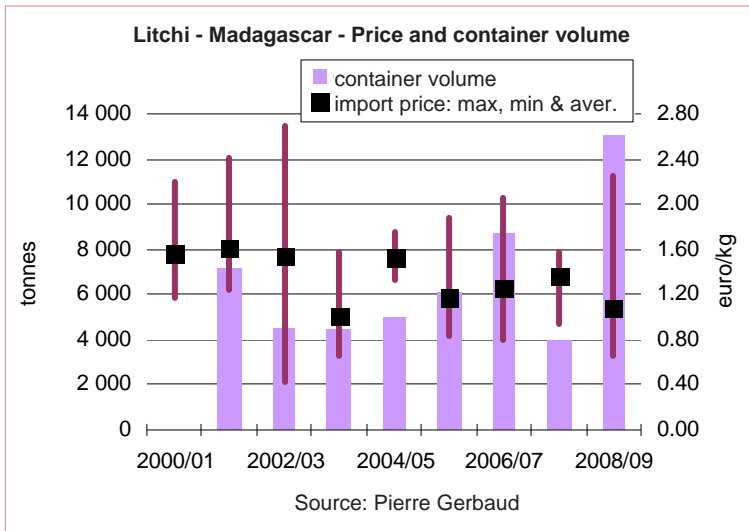
**But sales did not follow**

Everything seemed to be proceeding satisfactorily but the price of litchis lost more than 50 euro cents per kg between the sale of the first batches to arrive and the second delivery by the first ship. Prices then continued to fall by an almost equivalent amount. And this was only the first ship! The price trend had set in and, unfortunately, did not change until the end of the season. It would be wrong or too easy to blame the trend just on the economic downturn and consumers switching back to more traditional fruits. There is a degree of commercial incoherence here, especially as sales increased at the same time and the marketing of litchis intensified. Did operators suffer a kind of panic in the face of the volumes still to come, the fairly late response of retail distributors and the mediocre quality of the fruits? The explanation probably lies in a combination of these factors. But



But sales did not follow





in the present economic situation. Observation of the evolution of the sale of Madagascar litchis leaves one puzzled. Each time a coherent strategy appears (reduction and better spacing of deliveries this season), it seems inevitable that something goes out of control (huge arrivals of fruits in containers and a paroxysm of competition). The litchi business was born with difficulty, is growing up with conflicts of interests and cannot manage to get past its difficult adolescence. Nevertheless, structuring factors have gradually become anchored in the sector. This might deserve a smile if litchi production and export were not extremely important for the Madagascar economy.

The litchi sector of Madagascar, dominating international trade in this fruit at the change of the calendar year, is unusual. A glance at the last ten seasons confirms this. No two are the same and so it seems very difficult to establish a typology. One of the reasons may be the number

of factors involved. The scale of production, the shortness of the season, fruit quality, an early or late start of the season, joint or differentiated logistics, the systems used to fund the seasons, the exaggerated competition between operators on destination markets, etc., all contribute to this unusual character. Their combination never gives the same result. Indeed, analysis runs up against this profusion of factors that are difficult to appraise and are sometimes contradictory. It is not possible to compare simple and hence incomplete hypotheses to try to explain this specific character. Comparing volume/theoretical results for past seasons clearly shows the irregularity of seasonal performances. However, the evolution over about ten seasons shows a gradual decrease in returns even though fluctuations are chaotic. The correlation between 'container' volumes and selling prices (minimum, maximum and medium) also confirms that the more substantial the container season, the lower the price of fruits. The downward curve would be even steeper if we were able to add rejects.

The evolution of sales of litchis from Madagascar is far from satisfactory for sector stakeholders. The worsening of the situation year after year should generate fresh thinking. Continuing the race for tonnage might satisfy the pride of producers and exporters but it does not seem to result in a proportional increase in income. Limiting quantities is not what slogans are made of at the moment but it would seem to be the first action to envisage to halt not only the decrease in financial returns but also the worsening image of the sector ■

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## Indian Ocean litchi season

### Earliness which did not come up to expectations



In the 2008-09 season, according to the latest estimates, the Indian Ocean zone shipped 25 650 tonnes of litchis to the European market. This performance was in line with the preceding years in spite of a slight decrease in comparison with 2007-08 when 26 500 tonnes arrived from November to March. This slight dip would hardly seem to modify the weight of this region, which accounts for nearly 90% of Europe's annual litchi supply. The problem of this fruit lies more in the economic results than the capacity of exporting countries to ship large quantities. The decrease is mainly the result of the drop in shipments from South Africa as heavy rain in the production zones limited export potential. However, the marked decrease

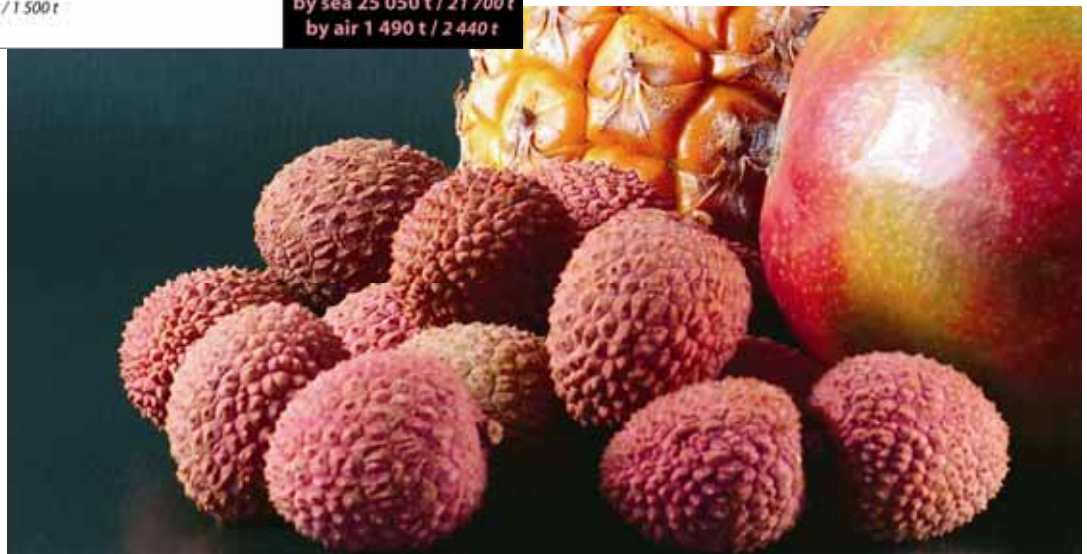
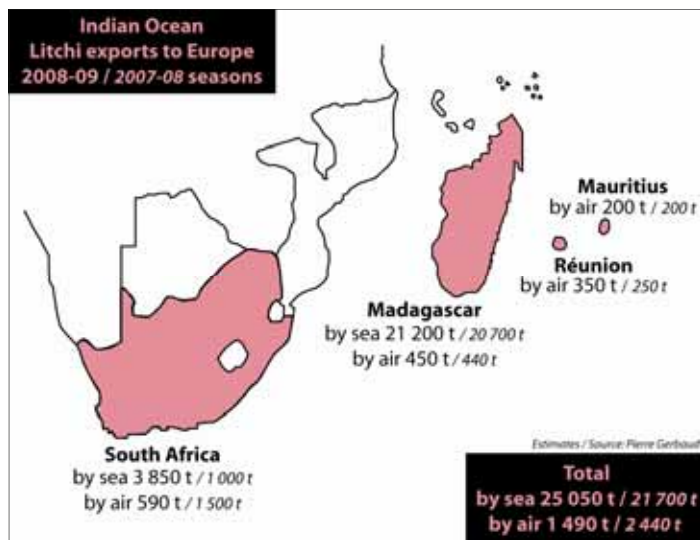
was partially compensated by the unstoppable growth of Madagascan exports.

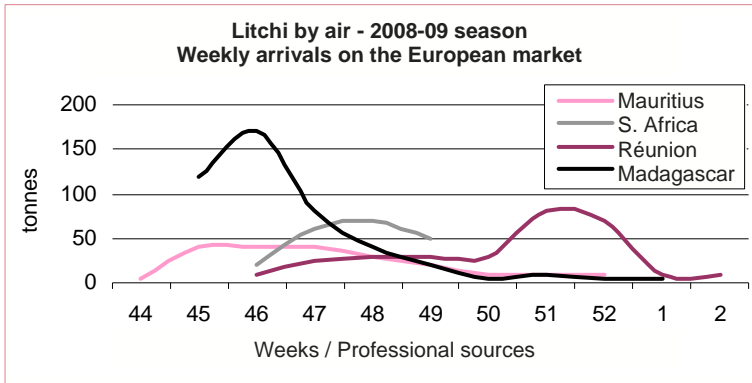
#### First arrivals at the end of October

The 2008-09 Indian Ocean litchi season started in Week 44 with the arrival of fruits on the branch and sulphur-treated fruits from Mauritius. As in previous years, they sold at high prices given their 'early' status. The other sources in the zones also started shipping early.

However, sales of air litchi were difficult from the beginning of the season onwards. Indeed, tropical fruits have moved to the background in household consumption in the context of the economic downturn. In addition, it seems that all the litchi production areas in the Indian Ocean had good weather conditions this season, leading to abundant crops. Thus the cumulated shipments from the various sources encountered lack of demand on the European market and stocks formed from the very beginning of the season. As a result, strong pressure was applied to the export markets—mainly European.

The season for litchi exported by sea opened officially on 14 December in Madagascar. The





*Hansa Visby* and the *Comoros Stream* started loading on 14 and 18 November respectively. A total of some 11 000 tonnes of fruits arrived in Europe before Christmas in comparison with 17 000 tonnes during the same period in 2007. The ships arrived over a period of two or three weeks as the season had started early.

of the ship's cargo was shifted quickly in accordance with the programmes set with retail distributors. The ship then sailed to Vlissingen-Flushing (Netherlands), arriving on 9 December and completing unloading in the afternoon of 10 December to supply northern European countries via a large fleet of lorries.

This distribution of volumes was aimed at better distribution of Madagascan litchi on the European markets and was allowed by the early start to the season.

The *Comoros Stream*, the second conventional vessel, put in at its first port of call, Saint Nazaire, on 12 December. It sailed again during the night for Vlissingen-Flushing.

The increase in the volumes available meant that it was now the peak season for sales of litchis from Madagascar. Prices decreased, with extent of the fall differing in the various European markets. Strong competition between operators, the sudden increase in volumes and the uneven quality of the fruits received combined to trigger a downward price war.

### Waiting game during the transition from air to sea

In Week 48, the fruits that had accumulated since the start of the season sold slowly. The multiple sources made the market difficult to decipher and the situation was unclear in spite of an apparent easing off of arrivals. Retail distribution channels seemed reluctant to start selling litchis early—especially those that had travelled by air and were still expensive at the retail stage, with a risk of putting customers off litchi. The waiting game played by the retail chains was explained by the forecast first arrival of litchis by sea from Madagascar, available at a more attractive retail price.

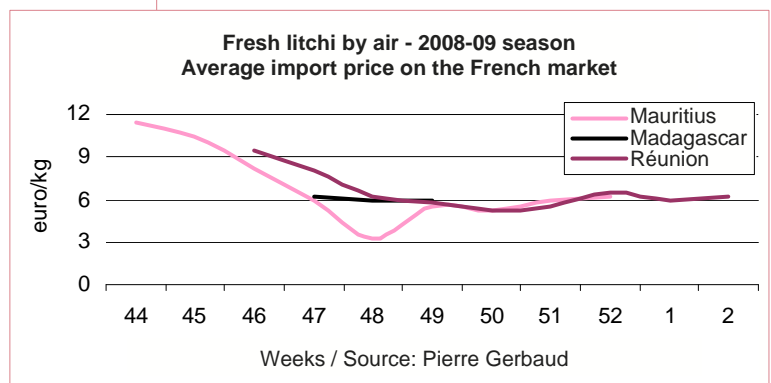
Full season in an economic downturn: gloomy Christmas

The *Comoros Stream* finished unloading in Vlissingen at the beginning of Week 51. This new delivery made re-supply smooth.

Meanwhile, a container ship docked carrying fruits that increased the amount of goods available. It is true that demand was increasing but not strongly enough to match the quantities available. Practically all the European markets suffered from inadequate demand before the Christmas period.

### The arrival of the ships or delivery staggering

Week 49 was marked by the arrival of the first conventional vessel from Madagascar. The *Hansa Visby* docked in Vado (Italy) in the morning of Tuesday 2 December. Unloading started in the afternoon, allowing the first deliveries at the end of the day. Fruits were thus available on several European markets on 3 December. This first delivery limited to a third





As Christmas Day was on a Thursday, litchi sales to supermarket chains were strongly concentrated at the end of Week 51. Indeed, people did their Christmas shopping during the weekend of 20 and 21 December. Demand also increased on most European markets at the beginning of the week, further accentuating

the effect of the concentration of consumption at Christmas that had been seen in preceding years. Retail prices behaved fairly well, avoiding slides that would have then been difficult to correct.

However, although sales were substantial, they seemed less so than in 2007, mainly as a result of the 6 000 tonnes less that arrived in conventional ships. The continuity of supply achieved by arrivals in containers did not result in any change in prices. The trend remained a downward one.

Demand slowed between Christmas and New Year's Day. Prices held as a whole for fruits of satisfactory quality. In contrast, the number of batches of fruits from Madagascar displaying quality defects increased distinctly. These fruits that had been stored for too long or were from poor container batches weighed on transactions and hence on the results of sales.

### Marked worsening at the end of the season

The fall in prices in Week 2 helped to maintain the volume of sales but prices lost ground more rapidly on certain European markets. During this period, time was working against litchis from Madagascar. The fragility of the fruits from this source resulted in more and more problems of quality—fruits far from fresh, fungal attacks, etc. The context was one of decreasing demand and worsening quality made sales even poorer.

The volumes shipped were disproportionately large in comparison with the capacities of the European markets which, to make matters worse, were suffering a downturn. This rekindles discussion about the better matching of supply and demand for a fruit increasingly considered as festive. Operators therefore had to juggle with the disparity of fruit quality and the various sales channels. Price ranges broadened.

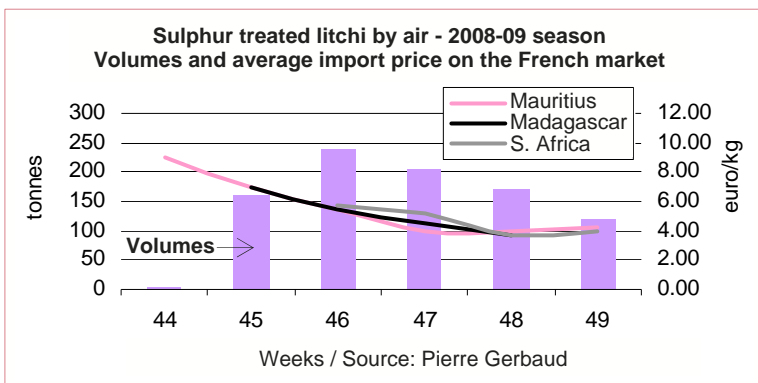
The renewed interest in litchis from Madagascar for the Chinese New Year was slight and short-lived.

The end of the season was particularly difficult. Batches of uneven quality were still available; these required systematic sorting to separate the goods that were still saleable from a significant proportion of rejects.

The season ended in Week 6. The decline in fruit quality meant that a market price could no longer be set, especially as demand was non-existent.

Overall, the 2008-09 sales season for litchi from Madagascar seems to have been morose. Quantities were too large for European market potential, the quality of the fruits was mediocre as a whole, the economic downturn affected consumption and operators competed with each other. All these factors strongly disturbed the sale of this produce ■

**Pierre Gerbaud**, Consultant  
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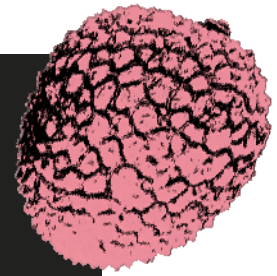


Photos © Clio Delanoue



## 2008-2009 litchi season

### The other sources



#### Mauritius

##### A stable season

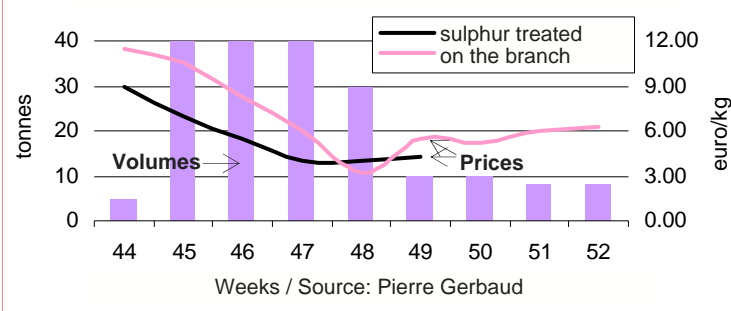
As in the preceding years, Mauritius opened the litchi season on the European markets. The first batches were delivered mainly to the French market in Week 44. Consisting of fresh fruits on the branch and sulphur-treated fruits, the small quantities shipped sold with no particular difficulty in spite of the high prices (from EUR 10.00 to 12.00 per kg). This situation did not last for very long. The increase in supply from Week 45 resulted in a marked, lasting fall in prices. Favouring the shipment of sulphur-treated fruits, Mauritian exporters then switched and shipped fruits on the branch for the Christmas period. Their shipments finished at the end of the year with prices recovering because of less competition from the other sources shipping fruits by sea. Shipping some 200 tonnes, Mauritius consolidated its position as the second supplier of the European market. Its exports are always in a delicate position as regards timing, squeezed by an early season and strong competition from neighbouring producer countries. The quantities shipped are also limited by the constraints of air freight as available capacity must be shared between the various export products: litchis, 'Victoria' pineapples, flowers, etc. As regards quality, both sulphur-treated fruits and fruits on the branch displayed acidity at the beginning of the season but this subsequently decreased. Mauritian fruits are on an even footing with those from the other sources in the run-up to Christmas and the New Year.

#### Réunion

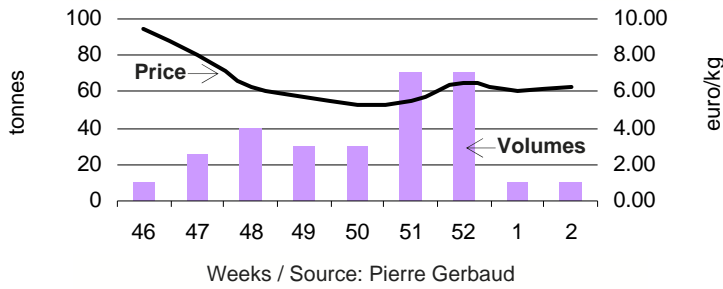
##### A more difficult season

As in preceding years, the Réunion export season started in mid-November (Week 46) and continued until mid-January, a week of sales shorter than in the previous season. Shipments of fresh litchis loose or on the branch—a speciality of the island—are estimated to have totalled some 300 tonnes, about 50 tonnes more than in 2007-08. After hovering at around EUR 8.00-9.00 per kg for two weeks, the price fell as a result of poor sales at the beginning of the season causing tonnage to be carried over from one week to the next. The worsening of fruit quality (oxidation) even obliged some operators to perform clearance sales at low prices to try to shift the volumes available. High retail prices were a significantly adverse factor until mid-December. Prices stabilised at about EUR 5.00-6.00 per kg as the Christmas holiday approached while deliveries increased and peaked. Prices firmed in the last two weeks of the season, swinging back above EUR 6.00 per kg as a result of the strong decrease in deliveries. The fragility of the quality of fruits from Réunion in the context of an early season with substantial volumes made sales particularly difficult this season. In spite of a sluggish atmosphere and demand more specifically centred on the Christmas period, operators still wished to propose a broader range. In addition to the traditional litchis on the branch or loose, packed in 5 to 6 kg boxes in bags for longer keeping, a few batches of fruits in bunches were also available. These products for high-quality retailing were developed this season. Their attractive presentation often made it possible to sell them at a higher price (as much as EUR 0.50-1.00 per kg more). A few shipments in 1 kg plastic bags (5 bags per box) also favoured broader market segmentation.

Litchi from Mauritius - Volumes and average import prices on the French market in 2008



Litchi from Réunion - Volumes and average import price on the French market in 2008-09



### South Africa Small season

In contrast with expectations, the South African export season was very limited in volume. The main reason seems to have been heavy rainfall in the production zones. These poor weather conditions also affected fruit quality, considered to be poorer overall than in previous years. The 1 200 tonnes shipped during the season (200 tonnes by air and 1 000 tonnes in sea containers) was far short of the 3 850 tonnes exported during the 2007-08 season. The shortage of fruits and strong competition from Madagascar meant that South African fruits were just scattered thinly over the European market. Concentrated in Weeks 46 to 49, deliveries by air reached the markets at the same time as the fruits from other sources; this was hence a the period when prices displayed a distinct downward trend. The fragile quality of the South African fruits made them even more difficult to sell. Up against competition from Madagascar, shipments by sea sold sporadically with varying degrees of success. The best sales were certainly those right at the beginning of the sea shipment season and then in the run-up to the Chinese New Year when the even grading of the fruits was preferred by buyers in traditional sales channels. The season finished at the same time for South Africa and Madagascar. However, a few batches of 'Red MacLean' litchis were seen occasionally on the market in the first half of March and sold at between EUR 1.50 and 2.00 per kg.

### Thailand

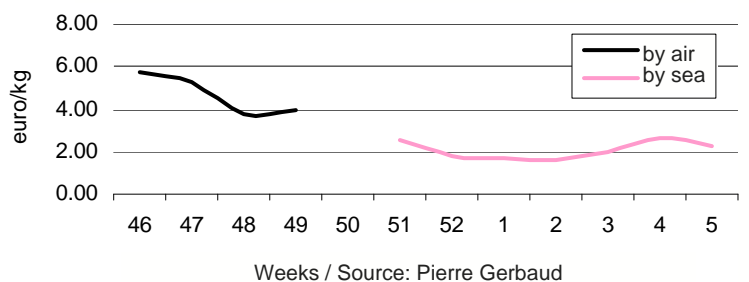
#### A steady season

Thailand traditionally exports about 2 000 tonnes of litchi to the European markets each season. It seems that the quantity was smaller in 2008. The first exports by air started fairly early at the beginning of April and finished in mid-May. Fruits transported by sea took over from the end of April to the end of July. The season also finished early as it usually continues into August. The flows of goods were mainly to the Netherlands, from where they were distributed to the various European markets. The French market was supplied later in 2008—starting in May. In preceding years Thai litchis had been delivered to the various markets simultaneously.

After being fairly high in April, the price of Thai litchis shipped by air fell until mid-May. The simultaneous presence of both air and sea fruits doubtless contributed to this trend. However, those transported by sea sold at prices close to those of air litchis. Prices started to weaken gradually at the end of May and the trend continued until the end of the season. The movement accelerated in July when Israeli fruits—picked more recently—came on to the market at the same time.

In addition to the variety 'Mauritius', 'Chakrapat' and 'Emperor' were shipped from Thailand during the last four or five weeks of the season. These fruits are about the same size as plums and sold steadily at prices that moved downwards but were slightly higher than those of classic fruits. This is an innovation for Thailand. 'Chakrapat' is not unknown on the European markets as a few batches are sold every year. These fruits are generally shipped by air and aimed at the quality retail trade, given their originality and the small quantities available. This year, Thai operators seem to have aimed at making these fruits more democratic by increasing the volumes shipped, gaining access to sea transport.

South African litchi - 2008-09 season  
Average import price on the French market



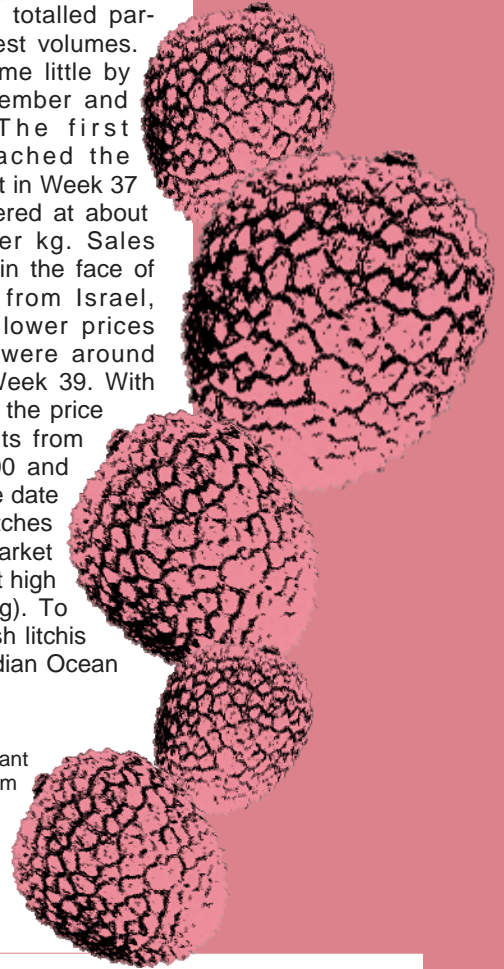


## Spain A patchy season

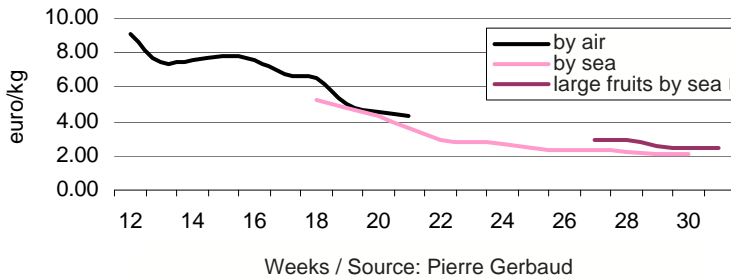
The 2008 Spanish litchi sales season totalled particularly modest volumes. The fruits came little by little in September and October. The first batches reached the French market in Week 37 and were offered at about EUR 9.00 per kg. Sales were difficult in the face of competition from Israel,

whose fruits sold at much lower prices (EUR 3.50 per kg). Prices were around EUR 8.50-9.00 per kg until Week 39. With supplies from Israel dwindling, the price of the few hundred kg of fruits from Spain increased to EUR 13.00 and 14.00 per kg until Week 42, the date of the last shipments. A few batches were also sold on the Dutch market in the second half of October at high prices (EUR 8.50-10.00 per kg). To within about a fortnight, Spanish litchis covered the period until the Indian Ocean sources started shipping ■

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Litchi from Thailand - Average import price on the Dutch market in 2008

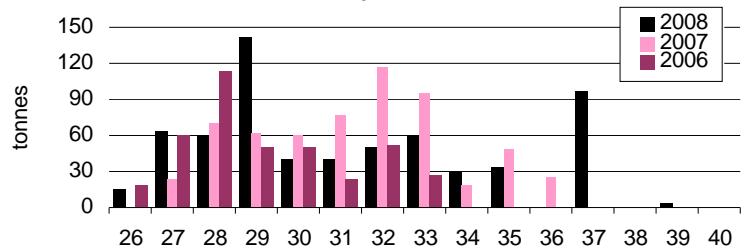


## Israel A smooth season

With 630 tonnes exported to the European market in 2008, Israel has stabilised its position as a 'summer' litchi supplier. Indeed, the sales season was similar to that of 2007 when 600 tonnes had been shipped. However, the small increase is a positive feature and probably reflects the desire of Israeli operators to return to more substantial scores, as in the seasons prior to 2006 when the total was 800 to 1 000 tonnes.

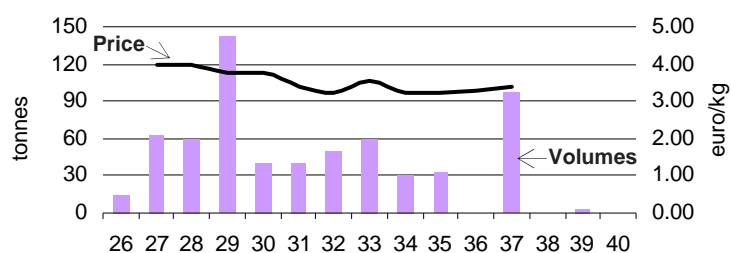
A little earlier than in 2007, the 2008 Israeli season started at the end of June/beginning of July and finished later at the beginning of October. Although the tonnages shipped in the last three weeks of the season were marginal, they enabled Israel to remain present on the market and lengthen the sales period by nearly a month. Facing competition from Thailand in July, Israel was the only supplier of litchis to the European market in August and September, as the quantities shipped by Spain at this time were very small. Sales of Israeli litchis stayed on the northern European markets before being more widely extended to the others. The season started with shipments by air. These fruits commonly sold at between EUR 4.00 and 4.50 per kg before shipments by sea soon replaced them, with the first batches selling at around EUR 4.00 per kg. The increase in supply, modest demand and varied quality (size and flavour) caused prices to weaken in the second half of July; they then stabilised until the end of the season. As in preceding years, Israel mainly shipped the variety 'Mauritius'. Diversification with seedless varieties ('Nomaïtchi') or varieties that are greener but have a high sugar content concerned only small quantities. These varieties illustrate market segmentation, but the small volumes and high prices mean that they are exceptional products.

Litchi from Israel - Weekly arrivals on the European market



Source: Israeli Ministry of Agriculture

Litchi from Israel - Volumes in Europe and average import price on the Dutch market



Source: Israeli Ministry of Agriculture



Producer country sheet

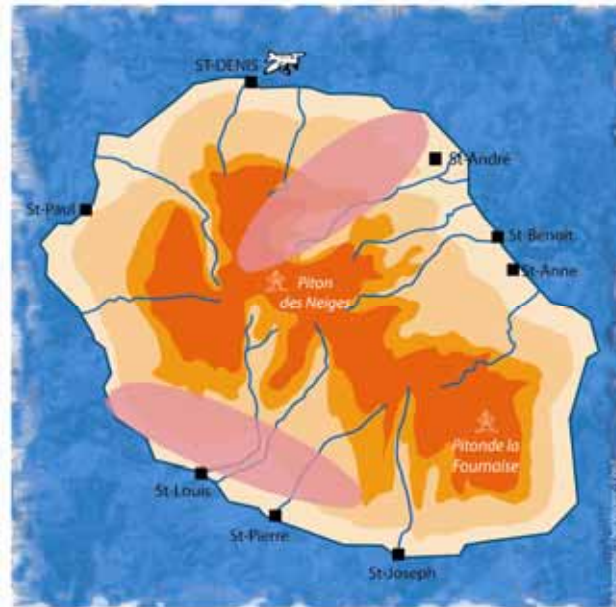
## Litchi in Réunion

The litchi originated in southern China. Introduced in the island of La Réunion in 1764, it is now one of the main tropical fruit crops, whereas it used to be sold on the domestic market only. Litchi growing developed strongly in Réunion from 1980 onwards. Thanks to public aid for planting, this traditional 'gathering' crop has become mastered and export-oriented.

Sources: Chambre d'Agriculture de la Réunion, FRCA Réunion, PRPV, Odeadom

### Production zones

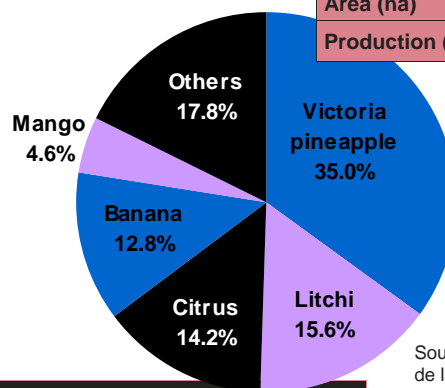
Litchi is grown in Réunion at an altitude of 100 to 600 m. This results in a harvest lasting for two to three months—from November to January. Litchi is well acclimatised to the geographical conditions of the island. The large production areas are mainly in the east from Sainte Suzanne to Sainte Rose and in the south from Saint Philippe to Etang Salé.



### Production

More than 1 000 ha of litchi has been planted since the 1980s with aid from the Réunion Council within the framework of an Export Plan programme. The orchards, totalling 677 ha in 2008, are now in full production. Litchi is a complementary source of income for most farmers. It is seasonal and the crop is very uneven, depending on the weather and alternate bearing. Floral induction requires a short period of stress in April and May when the weather is dry and/or cool. Réunion's island status means that litchi does not suffer from viral diseases. The Plant Protection Service has set up preventive measures for all imported plant material to prevent the accidental introduction of pests that are not present in the island today.

Réunion - Fruit production			
	2005	2006	2007
Area (ha)	2 620	2 332	2 157
Production (t)	46 660	41 041	47 531



Source: Chambre d'Agriculture de la Réunion

Réunion - Litchi production								
	2001	2002	2003	2004	2005	2006	2007	2008
Area (ha)	950	900	950	850	776	744	744	677
Production (t)	8 550	8 100	8 550	7 650	6 984	7 440	7 441	6 093

### Varieties

'Kwai mi' is the main litchi cultivar in Réunion. Various clones of this variety have developed over the years: 'litchi toupie', 'litchi blanc', etc. Fruit production is late, starting five years after planting. Full production potential is attained after ten years. The vegetative cycle takes 12 months.

## Outlets

The crop does not use traditional sales channels in Réunion. Hardly any litchis are to be found in supermarkets and very little in catering. Sales are mainly handled on a roadside basis or in the streets in front of shops or supermarkets. The traditional 'bazaar' system is still used, that is to say that the fruits are not sold by the farmers but by middlemen. Of the annual 7 500 tonnes produced recently, only 200 to 300 tonnes is exported—all to metropolitan France. A few hundred tonnes is processed locally.

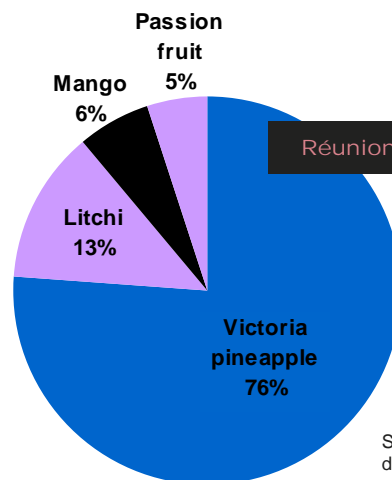
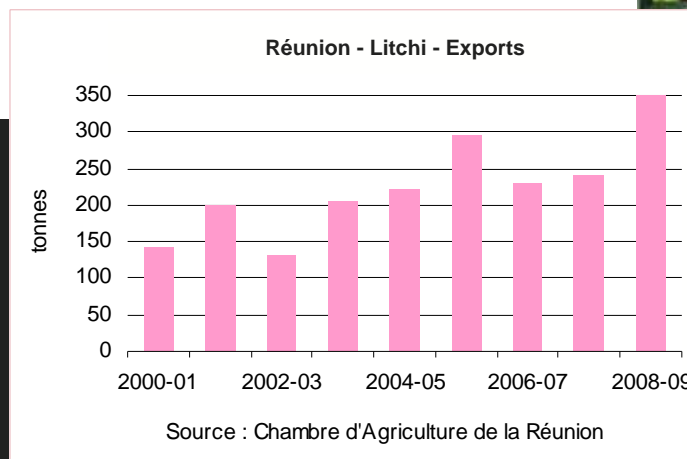


© Clio Delanoue

## Total exports

The annual exports of some 200 to 300 tonnes have hardly changed in the last 15 years. The litchi sector benefits from EU aid via the Programme of Options Specifically Relating to Remoteness and Insularity (POSEI). It is aimed at providing financial support for Réunion exports, for example by compensating the high cost of air freight. The Réunion department and the Réunion region also contribute to maintaining and developing the sector.

The fruits are of high quality and packed mainly in bunches or loose (destemmed or on the branch in 5-kg boxes). The volume of fruits packed in 250 to 450 g punnets is fairly small and varies according to the state of the market.



## 'Label Rouge' Réunion litchi

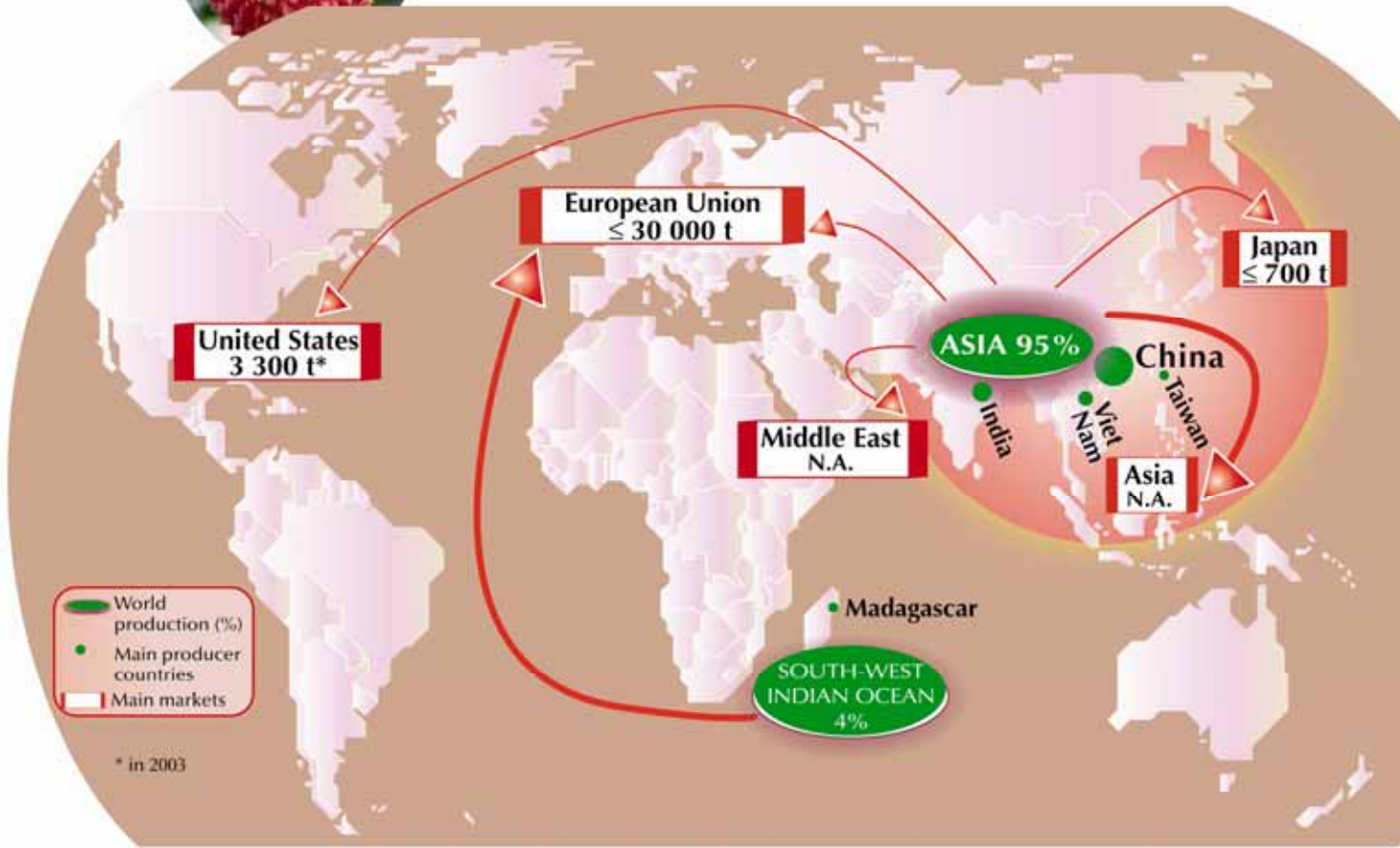
The Syndicat Qualité Fruits Réunion was awarded a Label Rouge for litchi on 20 November 2006 after devoting many years to structuring the sector. The quality criteria include ripeness, sugar content, size (at least 33 mm in diameter) and freshness. 'Label Rouge' litchis are fine red fruits picked when ripe. The pulp has perfect sweetness and taste. Shipped by air, they are fresh and guaranteed free of chemical treatment (sulphur). 'Label Rouge' litchi are simply 'fruits picked from the tree'. They are harvested very early in the morning, packed in the afternoon and flown to metropolitan France in the evening.

Contact : Yannick Soupapouille, qualite.suad@reunion.chambagri.fr



**Litchi...**

estimated world production: 2.3 million tonnes

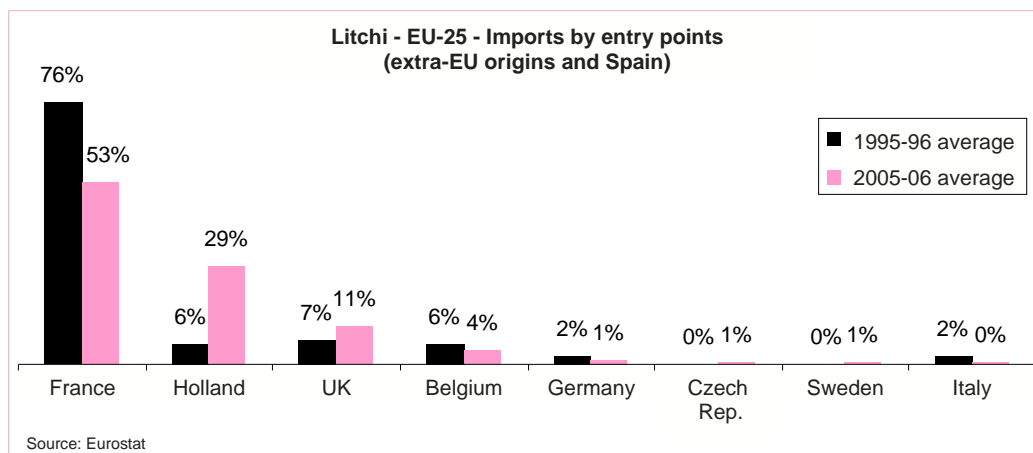


Litchi — World production — Tonnes

Country	Production	Production region	Source
China	1 446 000	South-east (mainly Guangdong, Guangxi and Fujian)	MOA 2006
India	425 000	East and north (mainly Bihar 60 to 70% and western Bengal, 15 to 20%)	Apeda, average 2004-05
Vietnam	156 000	North (mainly Bac Giang, Hai Duong, Quang Ninh)	Professional sources, 2006
Taiwan	80 000	Centre and south	Taiwan Agricultural Research Institute (average 2001-02)
Thailand	43 000	Mainly north (Chiang Mai, Chiang Rai) and centre (Samut Songkhram)	Agricultural Economics Office, 2007
Nepal	14 000	Mainly in the central plain and the west	Ministry of Agriculture Nepal, 1998-99
Bangladesh	13 000	Whole country, mainly along western border	Bangladesh Bureau of Statistics, 1997-98
Pakistan	3 000	Punjab	Ministry of Agriculture, Pakistan, 2005-06
<b>Total Asia</b>	<b>2 180 000</b>		
Réunion	10 000	South-east (from Bras Panon to Sainte Rose), south-west (Saint Pierre)	Professional sources
Madagascar	80 000	Mainly Toamasina (between Feonarivo and Brickaville) (Manakara and Fort Dauphin)	Professional sources
Mauritius	3 500	Centre (Plaines Wilhems district), north (Pamplemousse, Flack and Rivières du Rempart districts)	Professional sources
South Africa	4 000	70% Mpumalanga, 24% Limpopo, 5% Kwazulu-Natal	Subtropical Growers' Association, 2006
<b>Total SW Indian Ocean</b>	<b>97 500</b>		
Australia	6 000	90% Queensland, 10% New South Wales	Austr. Lychee Growers' Association, 2001
Mexico	4 000	Above all in the centre (San Luis Potossi) and south of the Gulf of Mexico (Vera Cruz, Puebla, Oaxaca)	Professional sources
Israel	1 200	North (between the Sea of Galilee and the coast)	Professional sources
United States	600	Above all in southern Florida (Miami Dade county), Hawaii, California	IFAS, USDA, 2001
Spain	nd	Malaga	
<b>Total others</b>	<b>11 800</b>		

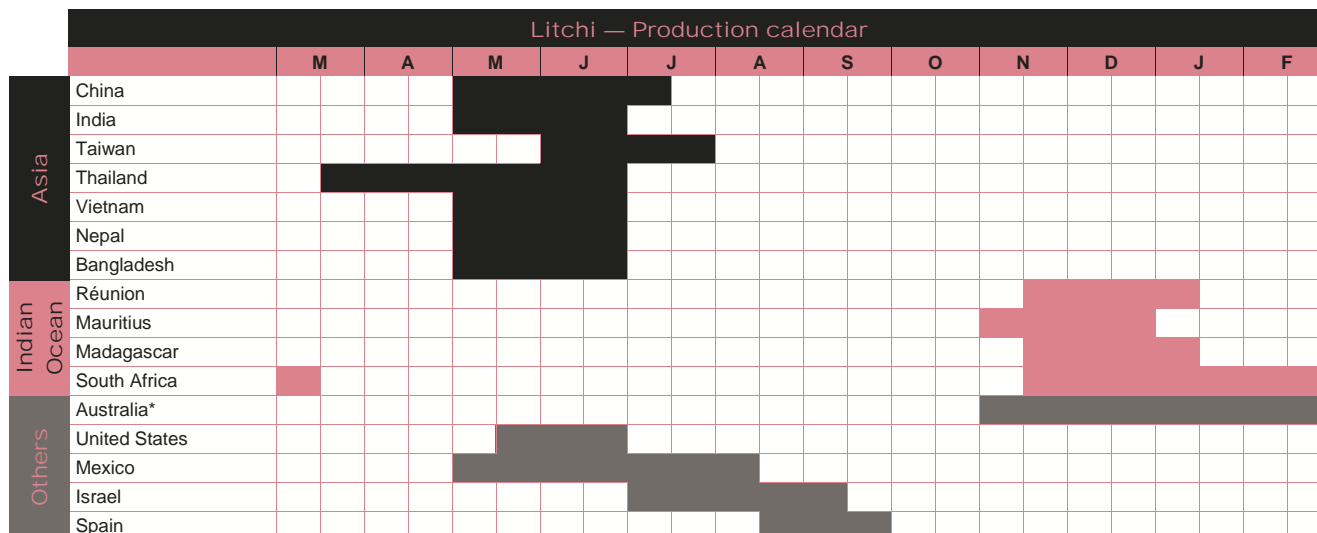
Litchi, tamarind, cashew apple, jackfruit, sapotilla — European Union imports													
Tonnes	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Total</b>	<b>13 299</b>	<b>10 996</b>	<b>13 573</b>	<b>19 481</b>	<b>23 261</b>	<b>21 973</b>	<b>25 694</b>	<b>29 260</b>	<b>30 673</b>	<b>30 374</b>	<b>27 845</b>	<b>37 250</b>	<b>36 159</b>
<b>Total extra-EU, of which</b>	<b>13 108</b>	<b>10 495</b>	<b>13 023</b>	<b>18 886</b>	<b>22 700</b>	<b>21 756</b>	<b>25 347</b>	<b>28 397</b>	<b>30 114</b>	<b>29 454</b>	<b>26 989</b>	<b>36 077</b>	<b>34 743</b>
Madagascar	11 178	7 678	10 378	12 448	18 695	16 647	18 178	17 480	20 635	21 121	18 235	28 722	26 295
South Africa	784	1 705	1 645	4 240	2 012	3 044	2 977	7 148	5 042	2 787	3 419	1 542	4 614
Thailand	535	456	280	1 070	1 061	890	1 192	1 534	1 578	2 466	2 618	2 088	2 050
Bangladesh	-	-	-	4	10	3	9	3	43	40	61	578	290
India	7	29	27	21	41	78	380	819	763	607	647	564	83
Pakistan	5	2	-	2	10	4	1 432	86	288	366	532	520	14
Israel	298	187	303	698	551	621	636	489	873	932	428	630	1 066
Mauritius	45	46	114	94	49	143	122	256	117	232	198	185	183
China	1	25	10	105	39	55	77	38	295	333	131	295	148
<b>EU Production</b>	<b>Spain</b>	<b>191</b>	<b>501</b>	<b>550</b>	<b>595</b>	<b>561</b>	<b>218</b>	<b>346</b>	<b>863</b>	<b>560</b>	<b>920</b>	<b>856</b>	<b>1 416</b>

Source: Eurostat - Selection of origins from codes 08109030 (litchi, tamarind, cashew apple, jackfruit, sapotilla), then 08109020 (litchi, tamarind, cashew apple, jackfruit, sapotilla, passion fruit, carambola, pitahaya) from 2008



Litchi, rambutan, carambola, passion fruit — Japanese imports												
tonnes	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Total</b>	<b>1 196</b>	<b>976</b>	<b>1 977</b>	<b>1 832</b>	<b>1 601</b>	<b>1 452</b>	<b>332</b>	<b>891</b>	<b>654</b>	<b>697</b>	<b>581</b>	<b>311</b>
China	6	129	877	1 010	800	1 150	178	689	426	569	445	150
Taiwan	1 011	718	940	576	286	187	33	162	199	108	97	124
Mexico	35	26	11	29	33	19	32	8	8	17	37	35
Thailand	131	97	138	155	349	20	3	0	0	0	0	0
Australia	0	0	0	52	123	75	84	28	21	1	0	0
Others	13	5	11	10	11	2	1	4	1	2	1	0

Source: Japanese customs, code 81090210



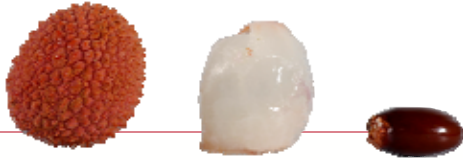
\* Australia: Queensland from the beginning of November to the end of January and New South Wales from the beginning of January to the end February

Sources: professional sources, FAO, EU customs, Japan, IFAS



## Cultivation of litchi

by Christian Didier



### Requirements of litchi

Specific climatic conditions are required for litchi growing but the tree is not very fussy about soils. It is also little susceptible to viral diseases.

#### Cultivation zones

Litchi requires a warm, humid climate. In order to flower, it needs a vegetative resting period induced by a cool, dry season. A slight fall in temperature and relative humidity may induce flowering in some humid zones. A good supply of moisture is essential from the appearance of the flower spikes until harvesting.

#### Wind-breaks

The position of the land must allow good lighting. Poorly drained low-lying land should be avoided, as should steep slopes that hinder the mechanisation of maintenance work. The land must be sheltered from the prevailing winds and from sea spray near the coast. If there is no natural protection (relief, vegetation), wind breaks are installed around the field and even inside it if it is large or very exposed. Wind breaks consist of fast-growing

trees with good anchorage in the ground (filao, shisham, acacia and others) planted in dense rows and require maintenance (fertilisation, irrigation and pruning). They must be allowed sufficient space.

As far as possible, wind breaks should be installed a year before the litchis are planted to give protection from planting onwards. A wind break provides protection for a distance equal to ten times its height. They should be planted closer together in sloping land. They sometimes do not have any effect in extreme cases.

#### Soils

Litchi adapts to numerous types of soil but prefers slightly acid soils (pH 5.5 to 6.5 and 8 or higher in some parts of India) that are rich in organic matter, deep and well drained. Although it can stand having 'wet feet' temporarily near rivers, prolonged submersion can be harmful. Drainage is all the more important as litchi is grown in zones with high rainfall and often in low-lying areas protected from wind.

### Varieties

*Litchi sinensis* Sonn.  
Sapindaceae  
Origin: Southern China (Canton region)

A great number of varieties exist around the world. Only those seen on export markets are mentioned here.



Kwai mi (Mauritius, Tai So)

The fruits are medium-sized (22 to 25 g) and bright red in clusters of 12 to 30. Fruit quality is good. This is the most widespread variety in the Indian Ocean. Production is steady with little alternate bearing. The trees are of medium vigour slender.



Rose scented

The fruits are medium-sized (16 g), globular and heart-shaped. The pulp is very sweet with an aroma of roses, whence its name. The variety is grown mainly in Uttaranchal in India.



Haak Yip (Black leaf)

The fruits are medium-sized (20 g), dark red and in clusters of 15 to 25. The peel is smooth and hard. The pits are medium to large. The flesh is good to excellent, sweet and aromatic and forms 70 percent of the fruit. The trees are of medium vigour, compact, straight and bear well.



Shahi (Muzaffarpur)

The fruits are medium-sized (20 to 25 g), bright pink and in clusters. The pulp is sweet. This is the most common variety in Bihar State in India. It is of very good export quality but susceptible to cracking and sun-scorch. The trees are vigorous with steady production (80 to 100 kg per tree).



Chakrapad (Emperor)

A large heart-shaped fruit (32 g). The skin is thin and flexible, dark red with yellow patches. Moderately juicy, the pulp may remain slightly acid. Fairly large stone. The trees are of average vigour with an erect habit, long branches and dense foliage.

## The creation of orchards

### Soil preparation

Planting in recently cleared land in which stump and root debris enhance the development of root rots should be avoided. If necessary, surface drainage is ensured by levelling and subsoil drainage by a network of ditches. If cultivation can be mechanised, deep subsoiling is followed by ploughing, possibly after the application of manure and phosphate and potassium fertiliser (in the light of the results of soil analysis). When the trees are planted in holes, inputs are applied at this stage.

### Plants

Propagation is usually by air layering using trees noted for the quality of their production. The layers obtained during the hot, humid season from branches 10 to 15 mm in diameter and 0.50 to 0.70 m long have a small necrotic root point at the cut that heals quickly. The root system is also better balanced with the aerial part. After separation, the marcots are cultivated in pots in a nursery for 3 or 4 months before being transplanted to the orchard.

### Planting density

The litchi tree displays considerable growth. Today, planting distances are 10 x 10 m or 8 x 10 m, that is to say a density of 100 or 125 trees per hectare. Nevertheless, plantation at 8 x 6 m (208 trees per ha) or 8 x 5 m (250 trees per ha) can be envisaged in more intensive cultivation. Annual pruning is necessary in this case. The orchard can be thinned by gradually cutting back the trees when they begin to hinder each other and then, in the absence of an effective prun-

Traditional harvesting is performed by hand with 'bunches' of fruits of the branch stored in bales or crates containing 10 to 15 kg only so that the fruits at the bottom are not crushed. These hand-made bales conserve good humidity around the fruits, preventing them from drying out. It is better to use slightly ventilated plastic crates to avoid crushing the fruits. The treatment and marketing of fruits are rapid to avoid the peel discoloration resulting from drying. Litchi is not a climacteric fruit and its biochemical characteristics change little after harvesting, except for gradual deterioration. Fruit maturity is generally appraised on the basis of colour, peel texture and tasting. It is considered that a soluble dry matter/acidity ratio of 2.1 to 2.7 corresponds to optimum quality.

ing method, by felling one tree in two along the row.

### Planting

Planting must be performed with a strict layout and perfectly aligned in each direction. If cultivation is not mechanised, a 0.8 x 0.8 x 0.8 m (500 litres) hole must be dug at the position of each seedling. The soil removed is then mixed with about 2 kg potassium sulphate + 2 kg natural phosphate + 25 to 30 kg well-rotted manure. The hole is then refilled with this mixture. A slight mound is formed as a result of the manure application and the expansion of the soil. The plants are installed in the mound and staked.

Marcots are planted inclined in the opposite direction to the wind and staked. They are thus less exposed to the wind and root better. The plants must always be watered abundantly after planting. In cool zones, they must be sheltered during the winter following planting.

## Orchard maintenance

### Training pruning

As for other fruit species, it is sought to train the tree on a single trunk with horizontally spaced, regularly distributed main branches. Care must be taken in the early years to prevent the forming of shoots on the trunk or the main branches that have a very closed angle, following the natural tendency of litchi. These shoots are extremely weak points during strong wind.

### Soil maintenance

The soil must be bare along the rows or under the foliage in the early years. Spontaneous inter-row vegetation must be kept down. Short-cycle, small growth intercrops can possibly be grown during the first three years and managed in such a way as not hinder the trees.

### Irrigation

Litchi is very susceptible to water stress throughout the fruit growth period and the vegetative growth period that follows the harvest. Irrigation is necessary in case of shortage of water. Stress during fruit setting causes substantial fruit drop. Different irrigation systems can be envisaged. Microjet irrigation is satisfactory. At least 200 mm water per month must be applied (according to soil type, the age of the trees, the climate, etc.).

### Maintenance pruning

The fruits are in clusters at the extremities of the branches. The latter are broken at harvesting. However, this practice does not enable control of the volumes of the trees. The removal of dead wood, of small inner branches and branches that prevent sunshine from entering the tree is recommended.

Litchi growth is fast and soon becomes exuberant. The trees must therefore be controlled. For this, annual pruning is performed just after the harvest. The trees are usually too dense. The aim is to aerate them by allowing as much light as possible on the foliage and to keep them at a suitable height to make harvesting easier. The final result of pruning should be dome-shaped trees.

### Fertilisation

Fertilisation is an important factor. It promotes good vegetative growth after the harvest and makes up for the exporting of minerals in the fruits. After the active vegetative growth period of about four months, litchi needs a short period of stress (nutritional, water, heat or other) to allow flower induction.

Litchi - Applications recommended  
Grams per tree

Year	N	P	K	MgO
1	50	10	40	15
2	80	10	60	20
3	140	30	105	40
4	210	45	160	55
5	230	65	265	80
6	380	85	345	105
7	470	105	430	125
8	570	125	520	155
9	670	150	610	180
10 and +	920	210	840	240

Doses are modulated according to the date of application:

- after the harvest: 1/2 of the dose;
- at panicle emergence: 1/4 of the dose;
- after 'June drop': 1/4 of the dose.

Fertiliser is applied to the ground beneath and at the limit of the foliage. Trace elements are applied by leaf spraying at fruit setting (boron, calcium).



© Cilo Delanoue

# Litchi quality defects

Photos © Pierre Gerbaud



Ageing fruits – dull appearance – shell browning and drying



Puffy fruits



Fruits picked too early



Ageing fruits – too long a gap between harvesting and sale



Puffy fruits



Unattractive colour resulting from lack of sorting



Oxidation of the shells of non-treated fresh litchis



Aborted and double fruits



Satisfactory colour (for reference)



Uneven colouring resulting from sulphur treatment



Different sizes in the same packaging





Stalk torn off



Moulds (*Penicillium*)



Black rot (*Aspergillus* spp. and *Pestalotiopsis*) and mould



Mould spots (*Penicillium*)



Strong mould attack (*Penicillium*)



Sulphur dioxide burn damage and double fruit



Spread of mould spots (*Penicillium*)



Black rot (*Aspergillus* spp.) and mould



Sulphur burn as the fruits were wet before treatment



Rots and isolated moulds (*Penicillium*)



Black rot (*Aspergillus* spp.)



Burn caused by sulphur treatment and moisture

Warning: treatment must be applied in conformity with the regulations in force in the producer country and in the destination country.



© J.F. Vaysalères

## Main fruit pests

- **Cryptophlebia peltastica and fruitfly**  
*Cryptophlebia* lays eggs on immature fruits. The small caterpillars bore into the fruit to the seed for the nymph stage. The wound opens the way for other pests, especially fungi and fruitflies.

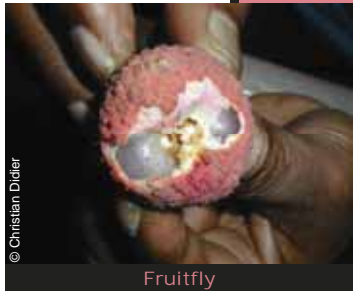
## Main foliage pests

### • Scales

Scales can infest fruits, leaves, stems, branches and the trunk. When numerous, they cause the withering of leaves and shoots. Leaves often display yellow spots where they have been pricked. Scale infestation is often accompanied by sooty mould.

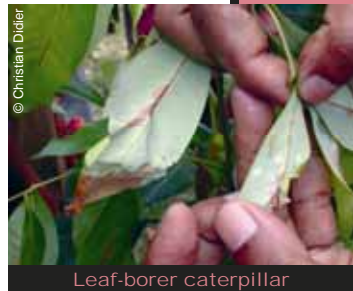
### • Mites: *Aceria litchi* (Erinose mite)

This is a serious pest in India and China, attacking flowers and leaves. The leaves crinkle and the undersides acquire a brown coating.



© Christian Didier

Fruitfly



© Christian Didier

Leaf-borer caterpillar

## Trunk and branch pests

### • Bark-borer caterpillars

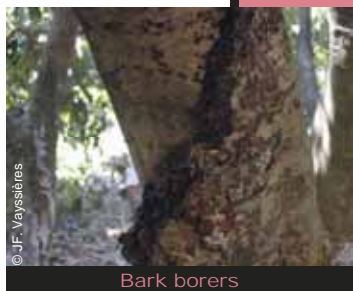
(*Indarbela quadrinotata* and *I. tetroanis*)  
Very common in India. Damage is caused by the larvae that bore into bark and trunk, reducing sap movement and affecting growth.

### • Bark borer: *Salagena* spp.

The larvae feed on the bark and wood of the tree. The tree does not die but the branches wither. Treatment: these larvae can be controlled by stopping the holes with cotton wool soaked in systemic insecticide.

### • Thrips

*Dolicothrips indicus* and *Magalurothrips usitatus* cause damage to flowers. *Selenothrips rubrocinctus*, *Heliethrips haemoidalis* and *Franklinella cephalica* cause the withering of flowers and leaves.



© J.F. Vaysalères

Bark borers

## Diseases

### • Root rot

This is caused by the fungus *Clitocybe tulescens*. Much damage is reported in Florida. *Botryodiplodia theobromae* can cause sudden death of the tree (Australia).

### • Aerial system

Leaf necrosis caused by *Gloeosporium* spp. This is observed in certain poorly managed orchards.



© Christian Didier

Anthracois

## Post-harvest and sulphur treatment

A feature of litchi is that it does not ripen after picking and so it is essential to harvest the fruit when it is fully ripe. However, it deteriorates very rapidly at ambient temperature. The shell browns, dries and becomes brittle in two or three days. Loss of colour results from the oxidation of anthocyanin pigments, an irreversible reaction. The fruit is then more subject to bursting and secondary contamination by fungi.

To prevent senescence before the fruit is sold, litchi can be fumigated with sulphur dioxide; this inhibits respiration and thus conserves texture and organoleptic qualities for several weeks. Sulphur has a fungicidal, anti-oxidant effect that keeps the shell flexible. This treatment can be applied to destemmed fruits or bunches that are sound, ripe, free of spotting, insects pricking and free of traces of damp on the shell. Sulphur is burned in a closed chamber containing the fruits. It causes the shells to turn yellow, whereas they are naturally pinkish red when the fruits are ripe. The fruits are then sorted again and packed. They remain yellow for as long as they are kept chilled. The colour gradually changes to pink ochre or purplish red when they are under warmer, moist, ventilated conditions allowing the elimination of the sulphur.

Sulphur treatment is the cornerstone of litchi marketing insofar as it lengthens conservation time, giving access to sea transport and hence large-scale exports. The procedure is used for several other fruits such as table grapes and dried fruits and it is also used for wines. The main difference is that litchi shells are not edible. Sulphur treatment is permitted in Europe under certain conditions. Consumer health protection regulations stipulate that the residual sulphur content must not exceed 250 mg/kg in the shell and 10 mg/kg in the fruit pulp. Numerous experiments have been conducted to define treatment procedures so that these limits are respected. Both professionals and the European authorities pay close attention to the question. Numerous control operations are performed throughout the life of the fruit in order to ensure that the regulations are respected. The gradual setting up of certification by operators should enhance product traceability and the mastery of treatment operations.

The continuation of use of sulphur is called into question from time to time. Indeed, with the general evolution of regulations towards the protection of consumer health, there is a great risk of heading towards a reduction in residue levels at best and at the worst the forbidding of treatment. One of the role of the sector is therefore to pay great attention to changes in the regulations concerning this point. A search for new conservation methods can also be an important approach. Unfortunately, litchi does not have sufficient economic weight to mobilise the resources required for such research, as is the case for other fruits.

Temperature during storage and transport is another key component in maintaining fruit quality in time. Indeed, chilling after harvesting, treatment and packing is performed by the transport facilities used. Here, it will be noted that litchi is one of the few tropical fruits that can withstand low temperatures (1°C ± 0.5°C). The combination of sulphur treatment and chilling allows good conservation of litchi. Fast chilling to the heart of the fruit is important for maintaining quality. Chilling must then be maintained to ensure as long a life as possible for the fruits. Any change in temperature may cause fruit deterioration and senescence.



# Indicators

The main fruits	In shares by total volume and expenditure on fruits for the month in France		
	%	Volumes	Expenditure
Apple		27	24
Orange		19	15
Banana		13	12

Pages

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

Banana.....	27
Avocado.....	29
Orange.....	30
Grapefruit.....	31
Mango.....	32
Pineapple.....	33
Sea freight.....	34

## MARCH 2009

**Apple** Market performance remained mixed. Sales of bicolour fruits became more fluid, thanks in particular to a continued export flow and a decrease in the pressure of supply of 'Royal Gala' as the season had ended for some French exporters and supplies from the southern hemisphere were cautious. But prices remained at their lowest. In contrast, no improvement was seen on the very sluggish 'Golden Delicious' and 'Granny Smith' markets.

March 09 / March 08			
Price	↘	Vol.	= ↘

**Orange** The market was still very difficult. On the one hand, the gradual arrival of spring had a negative effect on consumption. On the other, large quantities of 'Navelate' remained to be sold. As a result, prices of the latter remained low, especially as some very ripe batches had to be sold quickly. As a result, 'Valencia Late' from both Spain and Morocco did not succeed in gaining a position on the market.

March 09 / March 08			
Price	↘	Vol.	=

**Banana** The banana market trend remained excellent. First, demand kept at a fairly good level even though a slowing was observed at the end of the month. Second, supply was markedly contained. The strong decrease in arrivals from the French West Indies as a result of strikes aggravated the overall supply deficit resulting from the recurrent weakness of deliveries of dollar bananas since the beginning of the year.

March 09 / March 08			
Price	↘	Vol.	= ↘

**Sea freight** A review of March or indeed the first quarter of 2009 is contingent on the context of perspective from which it is viewed. Certainly relative to last year, indeed the past five years, the TCE average is desperately disappointing especially given that bunker prices were almost 100% higher 12 months ago. More worrying though is that chartering activity levels fell back to almost nothing, which is unusual for mid September let alone mid March.

March 09 / March 08			
large reefers	↘	small reefers	↘

### Notes concerning market appraisal methodology

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



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# Banana

## MARCH 2009

March lived up to its reputation for being excellent for the banana trade. Prices continued to climb and, at the import stage, in the middle of month reached the symbolic, rarely attained threshold of 1 euro. The marked supply deficit continued. First, dollar banana supply was still slightly below average as the deficit from Costa Rica was still just as marked and, to a lesser degree, volumes from Colombia were fairly small. Arrivals from Ecuador continued to be very large as exporters kept a large flow running—concentrated on Europe and the United States at the expense of Russia. However, this did not make up for the shortage of fruits from the other dollar sources. Second, the small deliveries from the FWI worsened the overall deficit. Hardly any fruits arrived from Martinique until the end of the month as a result of continued, intensifying industrial action. Volumes from Africa were still average.

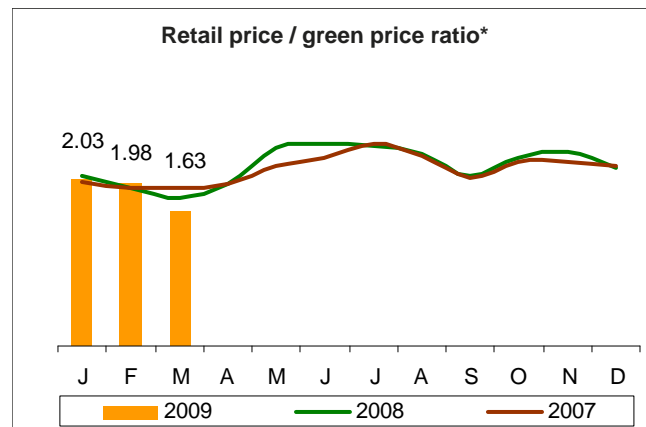
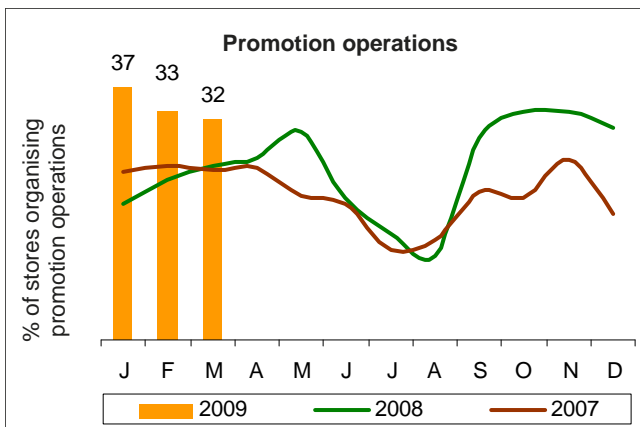
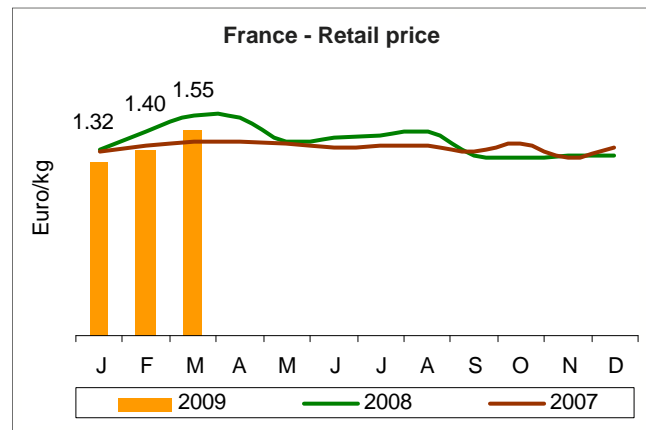
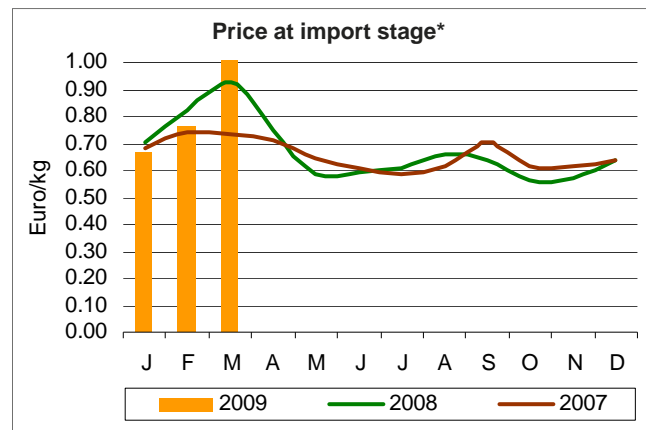
Meanwhile, demand remained at a good level in spite of a certain slowing at the end of the month. The only average temperatures favoured banana consumption and slowed spring fruit production, except in Spain. In addition, retail prices remained fairly reasonable in spite of the rise in quay prices, especially in France where, in addition, promotions were fairly numerous.

The average monthly price was markedly higher than average.

Monthly and annual comparisons	
Volumes*	EU reference price**
<b>March 2009 / February 2009</b>	
= ↗ + 1%	↗↗ + 32%
<b>March 2009 / March 2008</b>	
↗ + 4%	↗ + 8%

\* Arrivals from Africa/West Indies \*\* Green price in Germany (GlobalGap)

## French banana market — Indicators



\* African origin

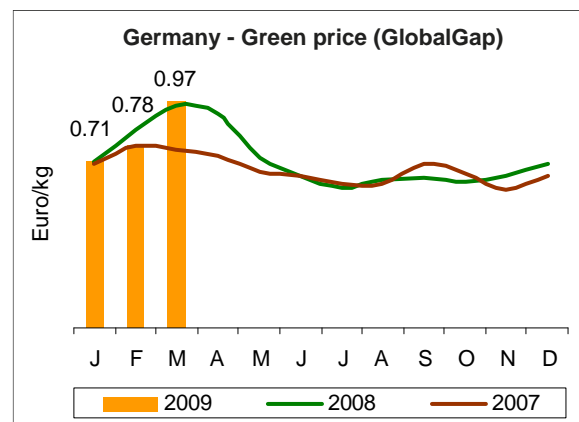
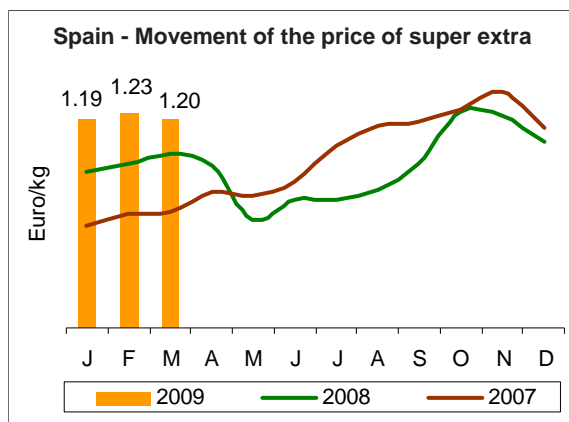
European banana market — Indicators

Principales origines en Europe

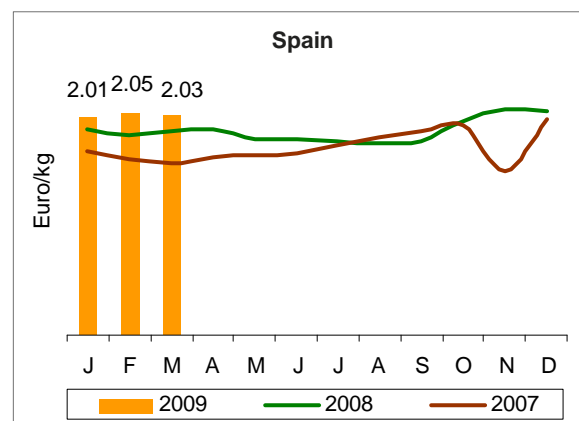
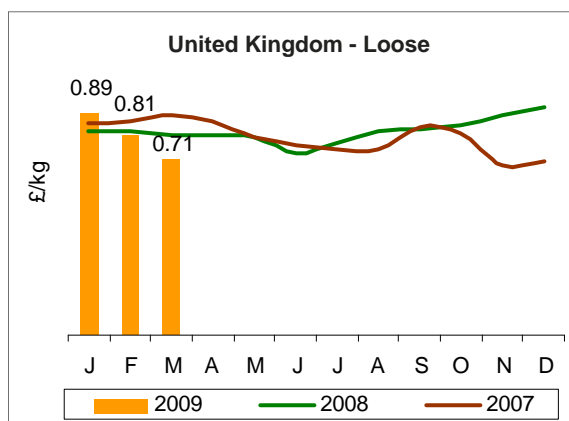
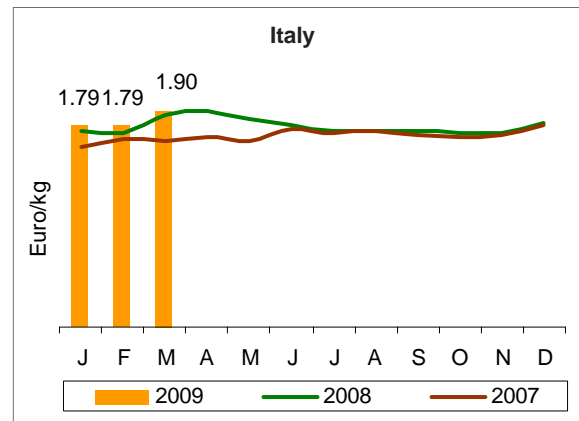
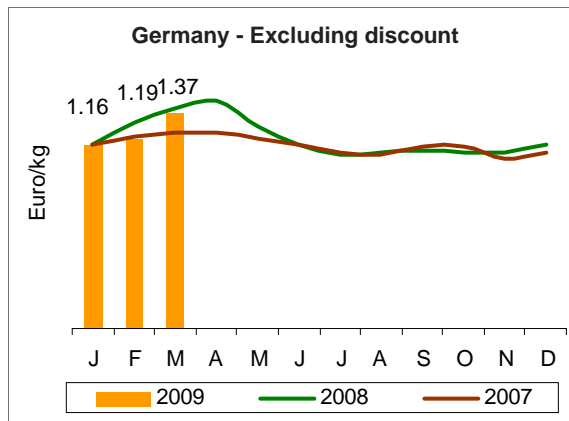
Tonnes	March 2009	Monthly comparisons (%)		Total season 2009	Season comparisons (%)	
		2009/2008	2009/2007		2009/2008	2009/2007
Martinique	7 441	+ 85	- 55	33 694	+ 11 274	- 30
Guadeloupe	3 776	+ 57	- 2	11 426	+ 36	- 3
Canaries	32 128	0	- 10	81 275	+ 2	- 17
Côte d'Ivoire *	12 091	+ 25	- 24	31 970	+ 9	- 27
Cameroon	21 229	- 15	+ 4	58 250	- 16	- 8
Ghana	2 361	- 40	+ 36	7 439	- 38	- 4

\* Containers excepted

Green price in Europe



Retail price in Europe



Sources: CIRAD, SNM, TW Marketing Consulting



# Avocado

## MARCH 2009

The market was still sluggish in the first half of the month and then improved rapidly.

Supply had recovered to close to average in February and then decreased—in both green varieties and 'Hass'. The 'Fuerte' seasons in Kenya and Peru had started early in February and continued at full steam, with large deliveries. However, supplies of green varieties from winter sources started to decrease rapidly from the beginning of the month onwards because of the approaching end of the season and weather problems in Israel and Spain. 'Hass' shipments from Mexico increased and were larger than average. However, supplies from Spain were smaller than usual in spite of a peak at the beginning of the month after strong winds, and the Israeli season dwindled rapidly. Supply was completed by a few limited batches from Peru during the second half of the month.

Demand was still very slow at the beginning of the month and then became brisker, reaching a fairly satisfactory level at the end of the month with the setting up of the first Easter promotion operations.

Prices were flexible and weakening at the beginning of the month, especially for extreme sizes, and then started to rise at the end of the first fortnight. The average monthly price was slightly lower than average.

### Monthly and annual comparisons

#### Volumes

#### Price

#### March 2009 / February 2009

↗ + 15%

↘ - 10%

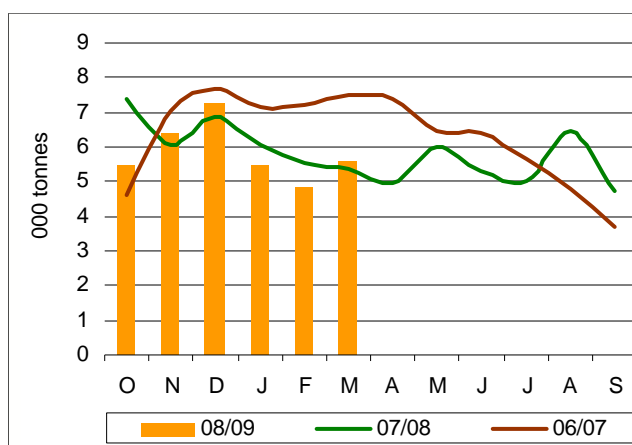
#### March 2009 / March 2008

↗ + 5%

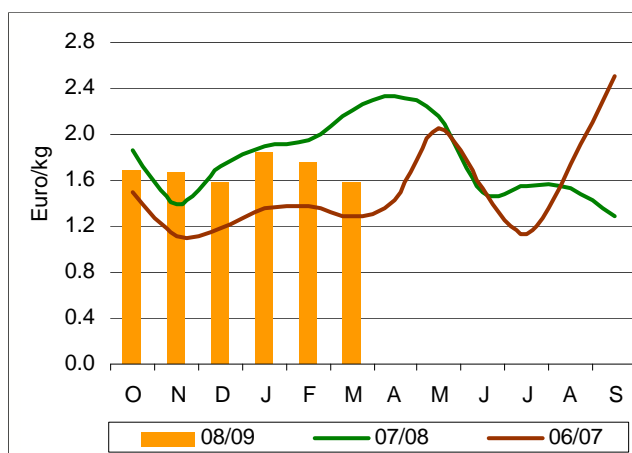
↘ - 28%

### Estimated market releases in France

#### Volumes



#### Price at import stage



### Estimated market releases in France by origin

Tonnes	March 2009	Comparisons (%)		Total season 2008/2009	Season comparisons (%)	
		2009/2008	2009/2007		08-09/07-08	08-09/06-07
Peru	814	+ 50	-	814	+ 50	-
Mexico	1 089	+ 22	- 28	7 767	0	- 2
Spain	1 358	- 45	- 44	8 928	- 33	- 9
Israel	1 357	+ 68	- 53	11 781	+ 26	- 35
Kenya	1 000	+ 47	+ 51	1 165	- 42	- 2
<b>Total</b>	<b>5 618</b>	<b>+ 5</b>	<b>- 25</b>	<b>30 455</b>	<b>+ 8</b>	<b>- 8</b>



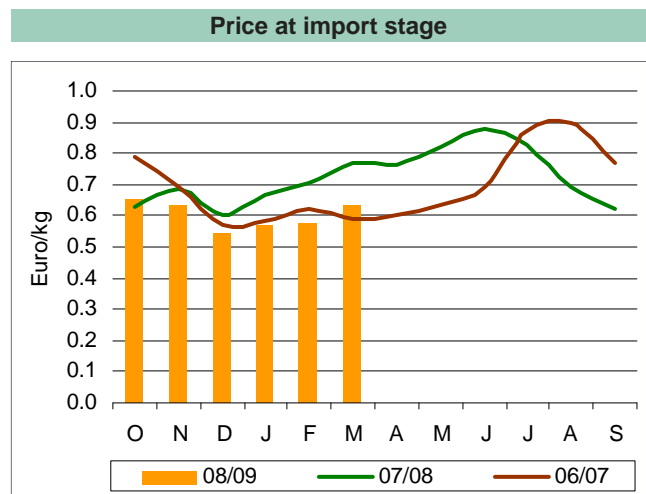
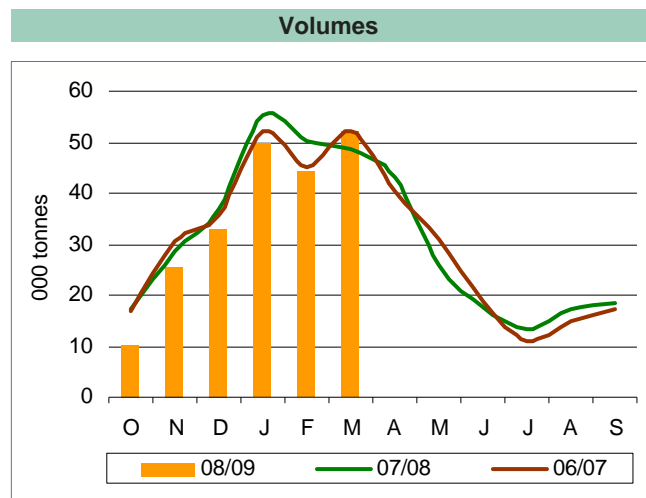
# Orange

Monthly and annual comparisons	
Volumes	Price
<b>March 2009 / February 2009</b>	
↗ + 17%	↗ + 9%
<b>March 2009 / March 2008</b>	
↗ + 7%	↘ - 17%

## MARCH 2009

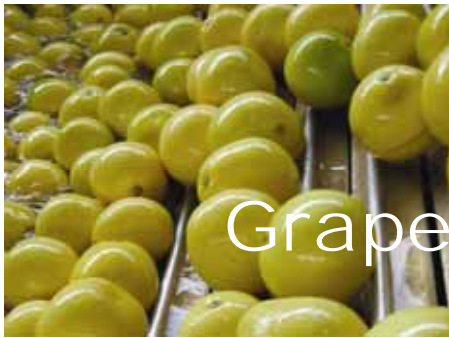
The market remained very difficult. Demand had been fairly good in February but slowed distinctly in mid-March because of warmer weather that was less favourable for consumption. In addition, very large volumes (especially small fruits) of 'Navelate' from Spain remained to be sold. Prices remained low and fairly flexible, especially as a proportion of exporters had to speed up sales of batches that had become very ripe. In this very competitive context, the 'Valencia Late' season started very gradually for all sources. Although the harvest was large, only very limited volumes were shipped from Spain. Nevertheless, prices fell rapidly to a very low level for the small fruits (6 and 7, and even 8 and 9) that were over-abundant in Spanish supply this season. Likewise, given the difficulties on the European market and too high a risk of defaulting by a fair number of clients in Russia, Moroccan operators had to concentrate on their domestic market. This worsening also had a negative impact on the market for small 'Maltese' from Tunisia.

## Estimated market releases in France



Estimated market releases in France by origin						
Tonnes	March 2009	Comparisons (%)		Total season 2008/2009	Season comparisons (%)	
		2009/2008	2009/2007		08-09/07-08	08-09/06-07
Spain	43 162	+ 11	- 8	186 793	- 6	- 9
Morocco	2 542	+ 19	+ 177	3 908	- 8	+ 51
Tunisia	6 396	- 13	+ 54	18 215	- 12	+ 27
<b>Total</b>	<b>52 100</b>	<b>+ 7</b>	<b>0</b>	<b>208 916</b>	<b>- 6</b>	<b>- 6</b>





# Grapefruit

© Eric Imbert

Monthly and annual comparisons	
Volumes	Price
<b>March 2009 / February 2009</b>	
↗ + 5%	= ↗ + 2%
<b>March 2009 / March 2008</b>	
↘ - 16%	↗ + 20%

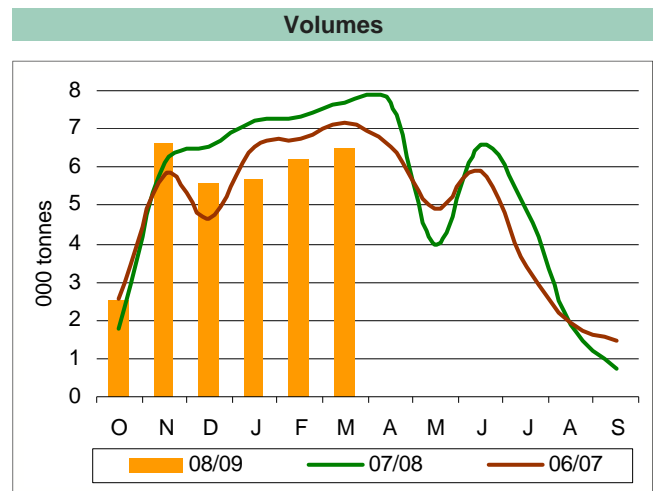
## MARCH 2009

The market remained patchy and even the very early tailing off of arrivals from Florida did not result in any improvement. The average monthly price was still fairly high in spite of fairly disappointing results for all sources.

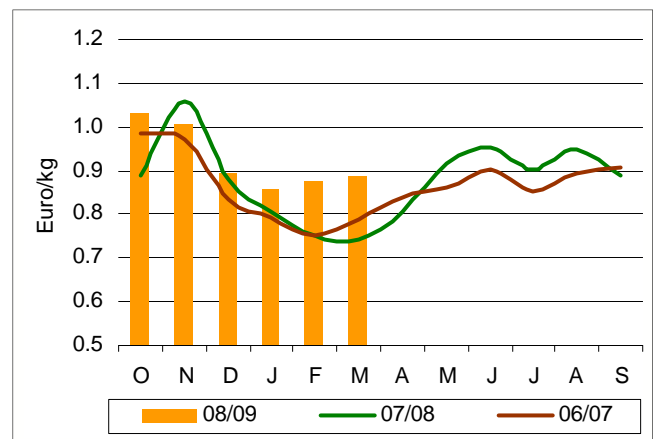
Sales of fruits from Florida remained steady and at an average to fairly good level depending on the operators. Shipments decreased in Week 12—more than a month earlier than the two preceding seasons—as production was fairly limited. However, prices increased only very slightly as they were already fairly high but hardly covered strongly increasing cost prices.

The situation remained fairly disappointing for Mediterranean sources in spite of moderate overall supply as the presence of Turkey was still discreet. Israeli sales continued to be only average although arrivals were large. Prices were increased but still held at a level lower than average. Supplies were completed by Spain and, to a lesser degree, by Cyprus and the very first shipments from Corsica at the end of the month.

## Estimated market releases in France



## Price at import stage



Estimated market releases in France by origin						
Tonnes	March 2009	Comparisons (%)		Total season 2008/2009	Season comparisons (%)	
		2009/2008	2009/2007		08-09/07-08	08-09/06-07
Florida	5 050	- 23	- 4	25 686	- 10	+ 6
Israel	1 071	+ 43	- 33	5 371	+ 10	+ 2
Turkey	375	- 12	+ 20	1 913	- 37	- 49
<b>Total</b>	<b>6 496</b>	<b>- 15</b>	<b>- 10</b>	<b>32 970</b>	<b>- 9</b>	<b>- 1</b>



© Christian Didier

## Mango

Mango — Weekly arrivals — Estimates in tonnes				
weeks 2009	10	11	12	13
<b>By air</b>				
Peru	100	100	110	120
Mali	-	-	10	30
Burkina Faso	20	20	30	20
<b>By sea</b>				
Brazil	1 120	590	1 580	1 760
Peru	2 200	1 540	1 540	1 320
Côte d'Ivoire	-	-	220	330

## MARCH 2009

**M**arket conditions changed gradually in March. Europe had been supplied mainly by Peru but the falling quantities were gradually compensated by more substantial deliveries from Brazil. The month was also marked by the serious worsening of the quality of Peruvian fruits. However, prices remained high for good quality fruits with the increase in demand at the end of the month at the approach to Easter (12 April).

Market physiognomy changed in March. The high prices asked for fruits from Peru for several weeks—resulting from a marked decrease in production—affected demand. Many retail distributors reduced their orders or even stopped buying because of the decrease in profitability of retail sales. This resulted in an overall dip in demand resulting in a new balance with regard to the deficit from Peru. The sudden worsening of the quality of fruits from Peru (poor keeping quality and fungal spotting) intensified the trend. Only fruits of satisfactory quality sold at good prices, while those of poor quality were sold rapidly on a clearance basis. Brazilian mangoes ('Tommy Atkins' and, to a lesser degree, 'Keitt') benefited from the situation, achieving higher prices or rates similar to those of Peruvian fruits. The deficit in exports from Peru also encouraged sources with fruits available

to ship them to the European markets. The unforeseen mobilisation of sources that are not usually well represented at this time of year resulted in a increase in the number of sources and varieties on the European market, and also in greater qualitative disparity. Production sources were less strict in the selection of export fruits in order to try to respond to European demand.

The announcement of the late starting of the season in West Africa accentuated under-supply and contributed to the multiplication of arrivals of very varied origins, varieties and quality. The features tended to disappear in the second half of the month in the run-up to Easter. Variations in quality and differences in variety became less important than the prime need to supply the market. This resulted in an increase in the price of quality mangoes. Given the shortage of goods on the

market, West African exporters, and especially those in Côte d'Ivoire, started shipping 'Amélie'. This variety is usually difficult to shift as it is green and does not keep well, but it was an alternative to the other—unavailable—varieties.

The market for mango shipped by air remained stable throughout the month. Supplied mainly by Peru, this trade sector was disturbed in mid-March by the worsening of fruit quality. Although high, the price ranges broadened in the second half of the month. The first batches of 'Amélie' from Burkina Faso and Mali benefited from good market conditions and sold steadily. They were soon joined by the arrival of batches of coloured fruits ('Valencia', 'Kent', 'Smith', 'Haden', etc.). A few complementary batches of well-coloured 'Haden' and 'Irwin' from Costa Rica were more difficult to sell.

## Mango — Import prices on the French market — Euros

Weeks 2009		10	11	12	13	March 2009 average	March 2008 average
<b>By air (kg)</b>							
Peru	Kent	4.50-4.80	4.50-4.80	4.20-5.00	4.00-5.00	4.30-4.90	4.00-4.65
Mali	Amélie	-	-	2.80-3.00	2.80-3.00	2.80-3.00	2.80-3.05
Mali	Valencia	-	-	-	3.50	3.50	-
Burkina Faso	Amélie	-	3.00	2.80-3.00	2.80-3.00	2.85-3.00	2.80-3.05
Burkina Faso	Kent	-	-	-	3.00	3.00	-
<b>By sea (box)</b>							
Brazil	Tommy Atkins	5.00-5.50	4.50-5.50	5.00-5.50	5.00-5.50	4.85-5.50	4.30-4.60
Peru	Kent	4.50-6.00	4.00-5.50	5.00-6.00	5.00-6.00	4.60-5.85	3.35-4.60
Côte d'Ivoire	Amélie	-	-	-	5.00-6.00	5.00-6.00	-



# Pineapple

© Denis Lœillet

Pineapple — Import price		
Euros	Min	Max
<b>By air (kg)</b>		
Smooth Cayenne	1.65	1.90
Victoria	2.50	4.00
<b>By sea (box)</b>		
Smooth Cayenne	5.00	8.00
Sweet	5.50	8.50

## MARCH 2009

**P**ineapple supply was fairly small overall in March, even at the approach to Easter. Sales of air pineapple were brisker. However, the quality problems that affected fruits in certain supplier countries had an effect on demand and on the sales of the more 'fragile' sources. In contrast, the 'Victoria' pineapple market was more hard hit, with very small supply and difficult sales.

Supply from Latin America was small throughout the month with the exception of the first week when the volumes of 'Sweet' were satisfactory but no more. Some operators attributed the dip to the poor weather conditions that seemed to affect production zones, especially in Costa Rica. However, demand on the European markets was so small that it failed to match the few fruits available on the market. In addition, the supply of 'Sweet' was still unbalanced by the high proportion of small fruits for which there was little demand. Operators therefore set prices fairly low in the hopes of preventing the accumulation of stocks and avoiding the clogging of markets, especially as Easter approached. Thanks to the promotion operations organised, sales were generally better on domestic markets than in re-exports as very cheap pineapples could be found everywhere. The situation was hardly any better for 'Smooth Cayenne'. Supply in-

creased throughout the month with a view to the Easter market but demand remained very small or even non-existent. The markets in the eastern European countries where there is usually demand were all closed. The worst was avoided thanks to a number of promotion operations set up on the French market. However, the availability of low-priced batches of 'Sweet'—mainly small fruits—did nothing to enhance sales of 'Smooth Cayenne', even on the French market.

The air pineapple market was very busy in the first half of the month. Supply was not very large and demand quite brisk. Prices did not increase but sales were smooth and substantial. The quality of fruits from Benin and Ghana was not as regular as that of those from Cameroon and Guinea. The second half of the month was marked by an inflow of batches from all sources and a significant

decrease in demand. Sales of fruits from Benin and Ghana were even poorer, with clients afraid of receiving fruits of erratic and even very poor quality. The market became more sluggish and operators were fairly worried about the evolution of the situation with Easter two weeks away. In contrast, demand was good throughout the month for 'Sugarloaf' pineapple, with prices remaining stable at EUR 1.90 to 2.00 per kg.

The supply of 'Victoria' pineapple was disturbed at the beginning of the month by strikes in Réunion. This source was practically absent from the market for the first three weeks. Recovery to normal volumes was difficult and air supply was limited throughout the month. Most of supply therefore consisted of fruits shipped by sea, mainly from South Africa and Côte d'Ivoire.

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

Weeks 2009		10	11	12	13
<b>By air (kg)</b>					
<b>Smooth Cayenne</b>	Benin	1.80-1.85	1.80-1.85	1.80-1.85	1.80-1.85
	Cameroon	1.65-1.85	1.70-1.90	1.70-1.90	1.70-1.85
	Ghana	1.65-1.75	1.65-1.75	1.65-1.75	1.65-1.80
	Côte d'Ivoire	1.70-1.75	1.75-1.85	1.75-1.85	1.70-1.75
	Guinea	1.85-1.90	1.85-1.90	1.85-1.90	1.85-1.90
<b>Victoria</b>	Côte d'Ivoire	2.50	2.50	2.50	2.50
	Réunion	-	-	-	3.80-4.00
	Mauritius	-	3.00-3.30	3.20-3.30	3.00-3.30
<b>By sea (box)</b>					
<b>Smooth Cayenne</b>	Côte d'Ivoire	5.00-8.00	5.50-7.50	5.50-7.50	5.00-8.00
<b>Sweet</b>	Côte d'Ivoire	7.00-8.50	6.00-8.00	6.00-8.00	6.00-8.00
	Cameroon	7.00-8.50	6.00-8.00	6.00-8.00	6.00-8.00
	Ghana	7.00-8.50	6.00-8.00	6.00-8.00	6.00-8.00
	Costa Rica	5.50-8.50	5.50-7.50	5.50-7.50	6.00-8.00



# Sea freight

MARCH 2009

**A** review of March or indeed the first quarter of 2009 is contingent on the context of perspective from which it is viewed. Certainly relative to last year, indeed the past five years, the TCE average is desperately disappointing especially given that bunker prices were almost 100% higher 12 months ago. More worrying though is that chartering activity levels fell back to almost nothing, which is unusual for mid September let alone mid March.

On previous occasions in previous recessions the specialised reefer sector has escaped largely unscathed. With more vessels demolished last year than in the previous three years combined expectations for the peak season this year were tempered only slightly by the potential impact of the economic downturn. However the sheer scale and breadth of the recession has taken everyone by surprise. What has made the impact significantly worse than ever before for the specialised reefer industry is that the downturn has coincided with a) severe overcapacity in container shipping, b) the depreciation of the Russian Ruble and c) a general reduction in demand from the poultry, fish and Moroccan citrus trades as well as a shortfall in Latin American banana volumes. The combination has increased total supply of a significantly more flexible capacity to meet lower demand. The container lines have been able to add vessels to strings and increase the number of port calls and even services on the one hand and simultaneously

compete aggressively on price on the other. Even when the global economic recovery starts to gather momentum overcapacity issues will remain, presenting owners and operators especially of ageing specialised reefer tonnage with a choice of whether to demolish or lay up to wait for better times - and hope that the above analysis is either incorrect or at best, too pessimistic. Better times will come but almost certainly not now in 2009. How the charter market performs in 2010 depends largely on how many vessels are scrapped this year and how quickly Russia, a hugely important market for the specialised reefer, regains confidence. The lines face an even tougher time. Until the backlog of laid-up vessels is comprehensively cleared further investment in new reefer equipment will be hard to justify, particularly if the return on investment is compromised by low yields on existing units. Production of reefer boxes needs to be maintained at 100K units per year or reefer box capacity will start to shrink as older units are phased out.

Web: [www.reefer trends.com](http://www.reefer trends.com)  
Tel: +44 (0) 1494 875550  
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# reefer trends

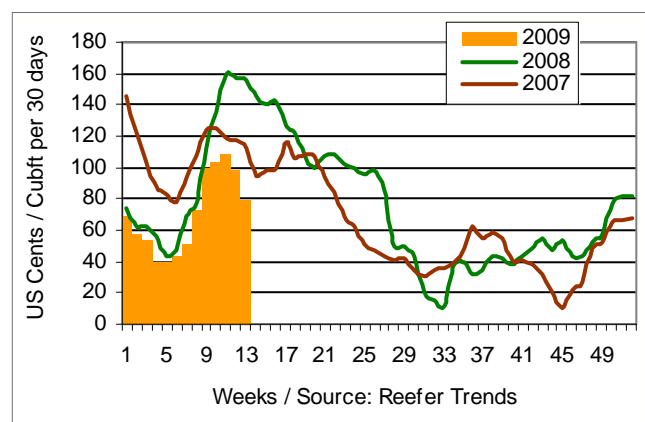
The independent news and information service for the reefer and reefer logistics businesses

## Monthly spot average

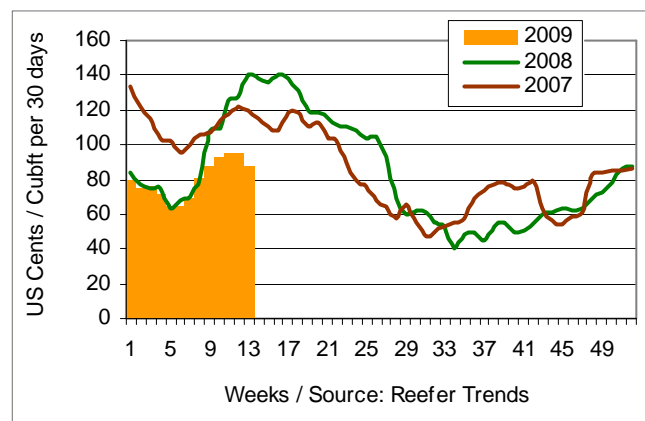
US\$/cents/cubic foot x 30 days	Large reefers	Small reefers
March 2009	95	94
March 2008	146	126
March 2007	118	119

## Weekly market movement

### Large reefers (450 000 cuft)



### Small reefers (330 000 cuft)



# Wholesale market prices in Europe

## March 2009





					EUROPEAN UNION — IN EUROS					
					Germany	Belgium	France	Holland	UK	
AVOCADO	Air	TROPICAL	BRAZIL	Box			12.45			
	Sea	FUERTE	KENYA	Box	5.50	5.75	4.81	4.50		
			PERU	Box	8.00	7.00	5.56	7.50		
	HASS	NOT DETERMINED	SOUTH AFRICA	Box	8.00			5.75		
			ISRAEL	Box			7.88	8.50		
			KENYA	Box					6.70	
		PINKERTON	PERU	Box	11.00		7.92			
			ISRAEL	Box			8.08	8.50		
			SOUTH AFRICA	Box						6.16
	Truck	HASS	ISRAEL	Box			5.75			
			ARDIT	Box			5.75	7.00		
				SPAIN	Box			8.42	8.50	
BANANA	Air	SMALL	COLOMBIA	kg		6.08	6.56			
			ECUADOR	kg				5.00		
	Sea	SMALL	ECUADOR	kg			1.75			
CARAMBOLA	Air		MALAYSIA	kg			4.43	4.14	3.95	
	Sea		MALAYSIA	kg		2.72		2.86		
COCONUT	Sea		COTE D'IVOIRE	Bag		7.50	7.88	8.38	9.11	
			DOMINICAN REP.	Bag			10.75		7.77	
			SRI LANKA	Bag				11.00		
DATE	Sea	MEDJOL	ISRAEL	kg	7.00	7.69	7.50	7.37	5.02	
			UNITED STATES	kg	8.80					
GINGER	Sea		THAILAND	kg	1.02		2.03	1.00	1.32	
			CHINA	kg	0.70	1.07	1.08	0.92	0.86	
GUAVA	Air		BRAZIL	kg		5.00	3.80	4.50		
KUMQUAT	Air		ISRAEL	kg			4.00		3.43	
LIME	Air		MEXICO	kg			3.75			
	Sea		BRAZIL	kg	0.82	0.94	1.17	0.78	0.91	
			MEXICO	kg			1.48	0.94	0.95	
LITCHI	Air		THAILAND	kg	10.00			9.00		
LONGAN	Air		THAILAND	kg		8.33		7.75		
MANGO	Air	KENT	PERU	kg		4.75	5.25	4.17		
			NOT DETERMINED	THAILAND	kg			10.00		
			AMELIE	MALI	kg			3.18		
		PALMER	BURKINA FASO	kg		3.00	2.80			
			BRAZIL	kg	3.38			3.17		
			THAILAND	kg				7.10		
	Sea	NAM DOK MAI	MALI	kg			4.00			
			ATKINS	BRAZIL	kg	1.38		1.25	1.38	1.49
			PERU	kg					1.15	
		KEITT	BRAZIL	kg				1.38		
			KENT	BRAZIL	kg			1.38		
			PERU	kg			1.89	1.38	2.14	

					EUROPEAN UNION — IN EUROS					
					Germany	Belgium	France	Holland	UK	
MANGOSTEEN	Air		INDONESIA	kg		6.82				
			THAILAND	kg			8.40	7.13		
MANIOC	Sea		COSTA RICA	kg		1.57	1.07	1.08		
PAPAYA	Air	NOT DETERMINED	BRAZIL	kg			3.00	2.78		
			COTE D'IVOIRE	kg					3.06	
		Sea	FORMOSA	BRAZIL	kg				3.11	
				NOT DETERMINED	BRAZIL	kg		1.67		1.57
	Sea	FORMOSA	COTE D'IVOIRE	kg			1.57	1.57		
			ECUADOR	kg					1.75	
			MALAYSIA	kg					1.39	
			BRAZIL	kg	2.25					
PASSION FRUIT	Air	PURPLE	ISRAEL	kg			5.80			
			KENYA	kg			5.00	4.50	3.84	
			SOUTH AFRICA	kg	5.50					
			ZIMBABWE	kg		5.05		4.25		
		YELLOW	COLOMBIA	kg	5.25	5.78	6.35	6.11		
PERSIMMON	Air		BRAZIL	kg			3.50			
			ISRAEL	kg	1.85		2.32	2.40	2.06	
PHYSALIS	Air	PREPACKED	COLOMBIA	kg			8.38	6.42	6.52	
			THAILAND	kg					6.25	
	Sea		COLOMBIA	kg	5.42			5.31		
PINEAPPLE	Air	MD-2 SMOOTH CAYENNE VICTORIA	COSTA RICA	Box				8.00		
			CAMEROON	kg			1.97			
			MAURITIUS	Box					11.00	
			REUNION	kg			4.50			
	Sea	MD-2 VICTORIA	SOUTH AFRICA	Box	10.00	11.80		10.00		
			BRAZIL	Box				8.00		
			COSTA RICA	Box	8.75	8.50			9.65	
			COTE D'IVOIRE	kg			0.80	2.00		
PITAHAYA	Air	RED	ECUADOR	kg				6.50		
			VIET NAM	kg		5.46	6.00	6.09		
		YELLOW	COLOMBIA	kg	6.17			8.00		
PLANTAIN	Sea		COLOMBIA	kg			1.10	0.82		
			ECUADOR	kg			0.85			
RAMBUTAN	Air		THAILAND	kg			8.40	6.50		
			VIET NAM	kg		6.75		6.75		
SWEET POTATO	Sea		EGYPT	kg			0.80			
			ISRAEL	kg	1.29		1.20			
			SOUTH AFRICA	kg				1.13		
			UNITED STATES	kg				1.10		
TAMARILLO	Air		COLOMBIA	kg	5.60	6.68		5.60		
YAM	Air		BRAZIL	kg			1.79			
	Sea		GHANA	kg			1.05	1.04		

Note: according to grade

These prices are based on monthly information from the Market News Service, International Trade Centre UNCTAD/WTO (ITC), Geneva.  
MNS - International Trade Centre, UNCTAD/WTO (ITC), Palais des Nations, 1211 Geneva 10, Switzerland  
T. 41 (22) 730 01 11 / F. 41 (22) 730 09 06

# PRÉVISION INDIVIDUELLE DE MARCHÉ DE FOURNITURES

Irrigation – CDC – ATF 2002 Mondoni, Moquo et Ekona / Sud-Ouest / Cameroun		Irrigation – CDC – ATF 2004 Mondoni 1 et Mafanja 2 / Sud-Ouest / Cameroun	
<ol style="list-style-type: none"> <li>1. <b>Référence de publication</b> NA</li> <li>2. <b>Procédure</b> Appel d'offres ouvert international</li> <li>3. <b>Programme</b> Assistance Technique et Financière au secteur bananier Convention N° B7-8710/856/31</li> <li>4. <b>Financement</b> Ligne Budgétaire B7-8710</li> <li>5. <b>Pouvoir adjudicateur</b> Cameroon Development Corporation (CDC Banana Project)</li> <li>6. <b>Description du marché</b> L'objet du marché consiste à la fourniture du matériel d'irrigation pour l'approvisionnement en eau des bananiers. L'action sera mise en oeuvre dans les plantations de Mondoni, Moquo et Ekona.</li> <li>7. <b>Nombre et intitulés indicatifs des lots</b> Le marché n'est pas divisé en lots.</li> <li>8. <b>Date prévue de publication de l'avis de marché</b> Juillet 2009</li> <li>9. <b>Autres renseignements</b> Néant</li> <li>10. <b>Base juridique</b> Règlement du Conseil N° 856/1999 du 22 avril 1999.</li> </ol>		<ol style="list-style-type: none"> <li>1. <b>Référence de publication</b> NA</li> <li>2. <b>Procédure</b> Appel d'offres ouvert international</li> <li>3. <b>Programme</b> Assistance Technique et Financière au secteur bananier Convention N° B-21.03.18/856/81</li> <li>4. <b>Financement</b> Ligne Budgétaire B - 21.03.18 (ex B7-8710)</li> <li>5. <b>Pouvoir adjudicateur</b> Cameroon Development Corporation (CDC Banana Project)</li> <li>6. <b>Description du marché</b> L'objet du marché consiste à la fourniture et à l'installation d'un système complet d'irrigation pour l'approvisionnement en eau des bananiers. L'action sera mise en oeuvre à Mondoni 1 (190 ha) et Mafanja 1 (14 ha)</li> <li>7. <b>Nombre et intitulés indicatifs des lots</b> Le marché n'est pas divisé en lots.</li> <li>8. <b>Date prévue de publication de l'avis de marché</b> Juillet 2009</li> <li>9. <b>Autres renseignements</b> Néant</li> <li>10. <b>Base juridique</b> Règlement du Conseil N° 856/1999 du 22 avril 1999.</li> </ol>	
<p>Vitro plants – CDC – ATF 2004 Mondoni 1 et Mafanja 2 / Sud-Ouest / Cameroun</p> <ol style="list-style-type: none"> <li>1. <b>Référence de publication</b> NA</li> <li>2. <b>Procédure</b> Appel d'offres ouvert international</li> <li>3. <b>Programme</b> Assistance Technique et Financière au secteur bananier Convention N° B-21.03.18/856/81</li> <li>4. <b>Financement</b> Ligne Budgétaire B - 21.03.18 (ex B7-8710)</li> <li>5. <b>Pouvoir adjudicateur</b> Cameroon Development Corporation (CDC Banana Project)</li> <li>6. <b>Description du marché</b> L'objet du marché consiste en l'acquisition de vitro plants pour le développement d'une bananeraie. L'action sera mise en oeuvre à Mondoni 1 (190 ha) et Mafanja 1 (14 ha).</li> <li>7. <b>Nombre et intitulés indicatifs des lots</b> Le marché n'est pas divisé en lots.</li> <li>8. <b>Date prévue de publication de l'avis de marché</b> Juillet 2009</li> <li>9. <b>Autres renseignements</b> Néant</li> <li>10. <b>Base juridique</b> Règlement du Conseil N° 856/1999 du 22 avril 1999.</li> </ol>		<p>Cable way – CDC – ATF 2004 Mondoni 1 et Mafanja 2 / Sud-Ouest / Cameroun</p> <ol style="list-style-type: none"> <li>1. <b>Référence de publication</b> NA</li> <li>2. <b>Procédure</b> Appel d'offres ouvert international</li> <li>3. <b>Programme</b> Assistance Technique et Financière au secteur bananier Convention N° B-21.03.18/856/81</li> <li>4. <b>Financement</b> Ligne Budgétaire B - 21.03.18 (ex B7-8710)</li> <li>5. <b>Pouvoir adjudicateur</b> Cameroon Development Corporation (CDC Banana Project)</li> <li>6. <b>Description du marché</b> L'objet du marché consiste à la fourniture et à l'installation d'un système complet de cable way pour le transport des bananes de la plantation à la station d'emballage. L'action sera mise en oeuvre à Mondoni 1 (190 ha) et Mafanja 1 (14 ha)</li> <li>7. <b>Nombre et intitulés indicatifs des lots</b> Le marché n'est pas divisé en lots.</li> <li>8. <b>Date prévue de publication de l'avis de marché</b> Juillet 2009</li> <li>9. <b>Autres renseignements</b> Néant</li> <li>10. <b>Base juridique</b> Règlement du Conseil N° 856/1999 du 22 avril 1999.</li> </ol>	

## Growing and delivering fresh produce



Katopé's diversified production base allows to produce and to ship a huge variety of fresh produce throughout the year, including tropical fruits like lychees, mangoes, pineapples and bananas.

All Katopé growers and supply partners are committed to advanced safety, ethical and environmental standards.

**katopé**



*The personal touch*