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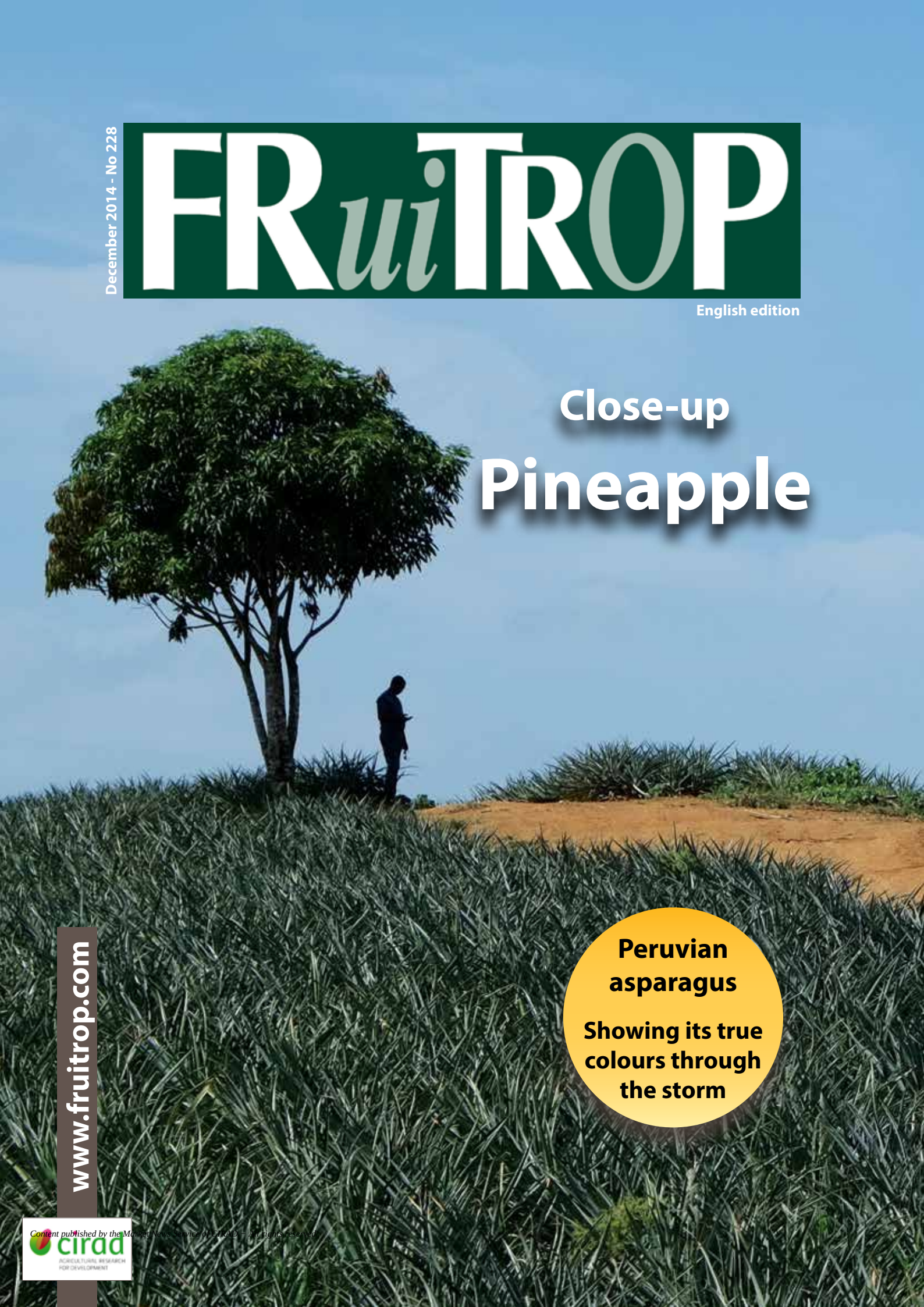

Close-up

Pineapple

Peruvian asparagus

Showing its true colours through the storm

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Pineapple

A report by
Denis Loeillet
Thierry Paqui
Bettina Balmer

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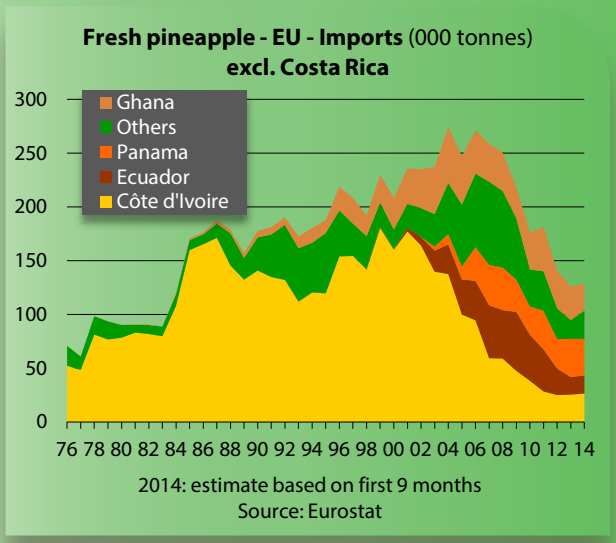
World pineapple market

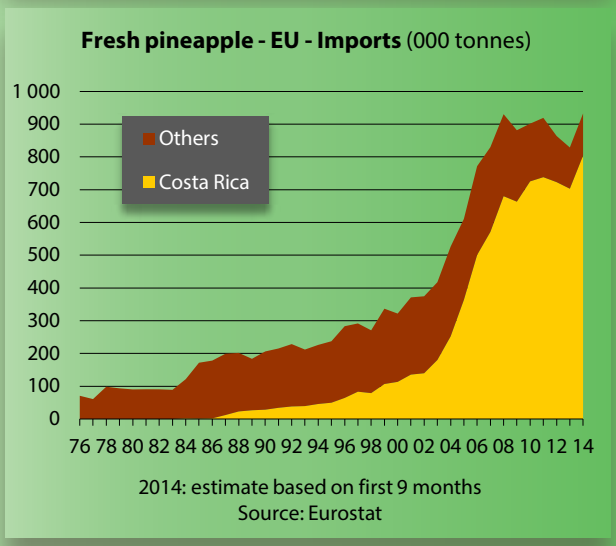
On a volcano

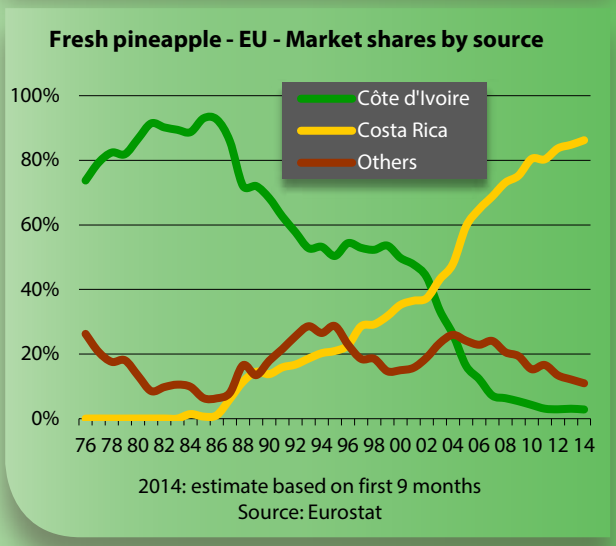
While pineapple volumes sold took an upturn in 2014, on the price side nothing seemed to change on this market, which is on the brink of crisis, without ever completely slipping in. Costa Rica verged on 2 million tonnes of exports, out of the estimated worldwide trade of 2.8 million tonnes. It has a total hold over the European market (estimated at 1 million tonnes) and the US market (1.1 million tonnes), where its market share is between 85 and 90 %. Lacking innovation or a generalised quality policy, and sagging under the volumes, the sector remains mired in mediocrity.

After several years of lean calves, the world fresh pineapple market seems to be taking an upturn, at least on the volumes side. Indeed both the United States and the European Union have beaten or equalled their historic levels. The United States exceeded for the first the one million-tonne mark, with 1 073 000 tonnes. The EU verged on 930 000 tonnes of imports, a level already reached in 2008. These figures will need to be revised over the coming months. In fact, the Customs services will publish their initial estimates for the whole year in February or March 2015. However, it is a reasonable bet that they are in the right ball park. Since while on the production side the pineapple lends itself perfectly to industrial management, i.e. scheduling (triggered flowering, management of sprout populations, and therefore of replanting years in advance, homogenisation of harvesting stages, etc.), it is also running like clockwork on the trade side… at least in terms of volumes on the market.

As absolute proof: if we take the imports onto the two main markets mentioned (United States and EU) over the first nine months of the year rounded to an annual figure, and if we repeat the exercise over the last six years, the result is indisputable. Imports over the first nine months of the year represent between 73 and 76 % of the annual total. The average is 75 %, with a standard deviation of just 1.4 %. So the future is easy to predict, at least in terms of volumes on the market.







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BRATIGNY

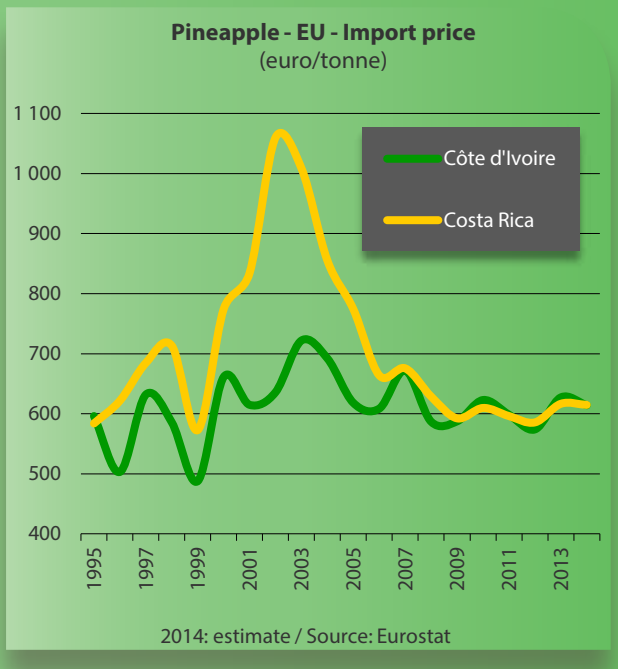
From "big national deal" to "big national deadlock"

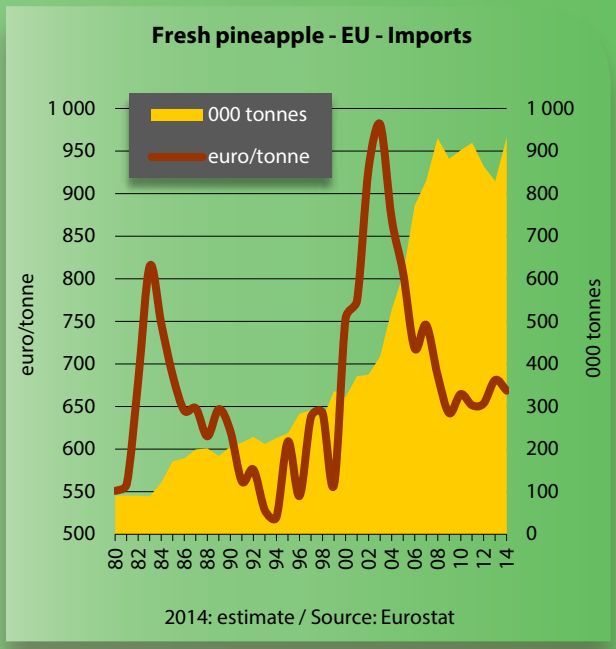
There is no such euphoria — to put it mildly — on the value side. We are a long way from the times when the pineapple was the stuff of investors´ dreams. Just a few years ago, there was no need to hesitate in referring to a big national deal in certain Central American countries. It is now hard to find a source that dares to claim any growth on this product. There is a long list of suppliers abandoning this market, or at least scaling back.

Ecuador, the banana giant, chanced its arm in the early 2000s. Since 2007, it has reduced its presence in the United States, now with exports representing just one tenth of what they used to be. Panama made up its mind later, in the late 2000s, to take the same path, but also abandoned ship very quickly. In 2014 it has exported just one quarter of what it did at its zenith four years ago. For the US market, we will finish off with Guatemala, which it is true has stabilised its export volumes to approximately 15 000 tonnes, but has nonetheless halved them in less than a decade. Among the qualified successes, we can mention Mexico, which for the past six years has exported 30 000 to 55 000 tonnes, and Honduras which is seeing steady growth, reaching practically 40 000 tonnes in 2013 and 2014.

The situation in Europe is even more entrenched, with infinitely more sources which have deserted or are deserting the market, such as Ecuador, Honduras or Cameroon, than sources which are growing, such as Benin. Let´s put Côte d'Ivoire, Ghana and Panama in the resilient category, with just a dash of optimism. Since the African continent, which is trying to assert itself on several highly targeted market segments, such as smooth Cayenne pineapple, Sugarloaf and more generally the air-freight pineapple market, now accounts for just 6 % of the supply to the EU, i.e. just under 60 000 t.

So who is ensuring the rest of the consumption, or rather the bulk of it? The supplier which has not yet been mentioned, and which is crushing the world fresh pineapple market under its full weight is of course Costa Rica. Mentioning this supplier only after two pages is a real editorial feat, so tight is its hold on the market. We will just briefly review the success story of the Costa Rican pineapple, which was long due to the company Del Monte and varietal innovation. It is not every day that a new market standard asserts itself, let alone via a new variety (MD-2 or Extra Sweet, its marketing nickname), within a few years stealing the mojo of the dominant source and variety of the time, i.e. Côte d'Ivoire and smooth Cayenne. Enjoying an impeccable logistics service, exemplary agro-tech-





nical expertise and a commercial organisation that still leaves nothing to improvisation, the trio Costa Rica/Del Monte/MD-2 has boosted demand. On the two biggest markets (United States and EU), it saw a fivefold increase between 1996 and 2014! Costa Rica exported 1.9 million tonnes in 2013, and in 2014 is set for well in excess of 2 million. Its market share is impressive, verging on a Soviet election result: 90 % for the United States and 85 % for the EU-27. Yet Costa Rica is not limiting itself to these economic areas, since in 2013 it exported its pineapples to more than fifty countries, nor to the fresh pineapple, since it is increasingly exporting pineapple juice.

The quest for MD-2 2.0

The dissemination of the MD-2 variety is a case study which is now taught in innovation management classes. Besides a few industrial products, where the rate of innovation is unrestrained, reinvention at regular intervals is a difficult job in the agricultural industry. Since while the electronics sectors, and in particular telephony, schedule the obsolescence of their devices, and call the slightest change in colour or shape a "major innovation", agricultural production remains constrained by what crop sci-

entists call the pedo-climatic complex, as well as by the varietal potential of the cultivars available. While Apple has released six versions of its Iphone in less than seven years, the MD-2 2.0 remains to be found. And furthermore, what innovations are we talking about? Colour, shape, texture, sugar-acidity balance, disease tolerance or resistance, productivity, etc.? True, there is much to do, but much has already been done with this pineapple variety, and improvements are protracted and costly to obtain, whether via varietal creation (with or without using GMO) or adapting the technical procedures. We are far removed from the ease with which manufacturers can change the colour of the product simply by adjusting a formula or modifying a process. We are in the living world, and this imposes its own tempo on the industry's desires to develop. There have been a few announcements emerging here and there about a new variety of pineapple, but hopes have just as quickly been deflated.

However, we can mention a major innovation within the grasp of the industry: a real innovation that could change the status of this fruit in the eyes of European consumers. An innovation which would take the pineapple out of the "also-ran" segment and recrown it as the king of fruits. An innovation which does not require any test tube, any transgenesis, any investment in production, or any additional pesticides. It involves simply paying a modicum of attention to the fruits on the shelf. Because you need to be a die-hard optimist to buy — note that we did not say consume — a pineapple under the conditions which some section managers abandon it. But this is a generalised problem. The fruits and vegetables section is short of "grooms", and it is a long and exhausting crusade to restore the workforce. However, it is only at this price (or rather cost, the distributors argue) that fresh fruit and vegetable consumption, especially for pineapple, will grow. And this is not us talking, it is the distribution sector bosses themselves. In an LSA article in February 2011, the representative of the Federation of commerce and distribution companies (a professional association bringing together the big French chains) noted that "(…) if the section receives particular care, the results very quickly take care of themselves." And a manager at Casino added: "In terms of differentiating image and turnover weight, the fruits and vegetables section is where it is all to play for." Perfect! The diagnostic has been established and all the players are agreed. The stakes are crucial, and go beyond just the fruits and vegetables section. So why is nothing moving? No doubt a stupid question, but to which we have never found an answer, besides the fact that it is expensive. True! But it brings in much more than this, including in terms of number of tubes of toothpaste sold.

True, the French Price and Margins Observatory has shown that the chains are already pulling out all the stops in terms of workforce in the sections. Indeed, the costs of dedicated section personnel, states the study published in 2013 (page 314 et seq.), are relatively high compared to the turnover (T/O) and gross margin. The average net margin of the fruit and vegetables section (6 %) as a proportion of T/O is among the lowest of the sections with a positive net margin, in spite of the weight of the section in the T/O (18 %) and gross margin (17 %). So if we believe the figures, we are at a deadlock.

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Ready-to-eat pineapple: a whole other product

But let's get back to the pineapple. There is another innovation which is changing, or even revolutionising, the service provided: the processed products very regularly available in stores. These are either "artisanal", with the pineapple cut before the eyes of customers, against a potent backdrop of tropical music, Madras fabrics and local colour; or industrial, with the pineapple in this case offered in sachets, boxes, pots, etc. This is aimed at the snacking segment, though

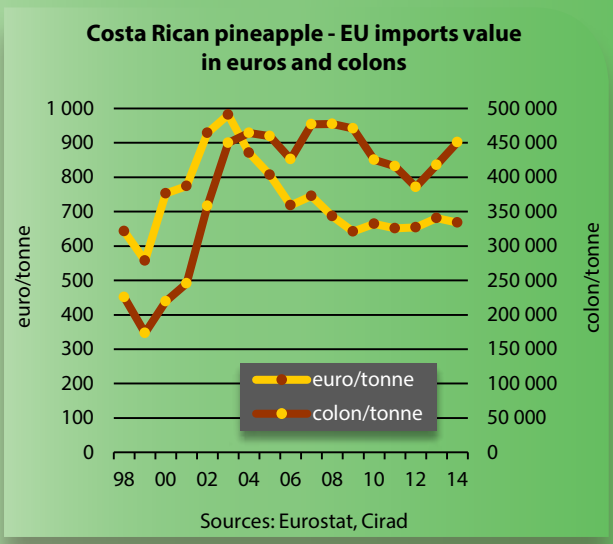
not exclusively. It is also targeting the higher socio-professional groups. Indeed, for the "industrial" supply, we regularly reach a figure of 20 euros per kilo of fresh pineapple, and even in excess of 30 euros! At this astronomical price, it comes without its skin and crown, as well as the chore of peeling. Better still.

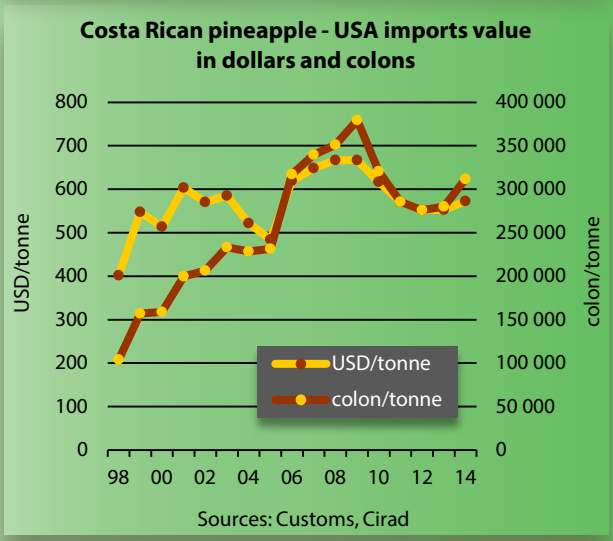
But are we actually still on the same market? These two segments have plenty in common. The unit of location is practically a common factor. In the case of the processed item, the supermarket shelves are extending into the catering sector, in particular fast food. The unit of time is more complicated. The processed item has a consume-by life of around eight days, whereas the fresh pineapple can go much longer, and even too far in terms of the state of freshness of the products on the shelf. Since while the pineapple seems robust, it is because it does not sag like the avocado, banana or pear. It quietly withers, going from a plain green to the most hideous shade of soiled brown, accompanied by a few midges gaily flitting about. Finally, we have already mentioned the radically different positioning in terms of retail price of the two products. Hence the unit of value is completely different. In short, we can easily conclude that there is not much in common between these two segments. The pineapple market will not find its salvation here.

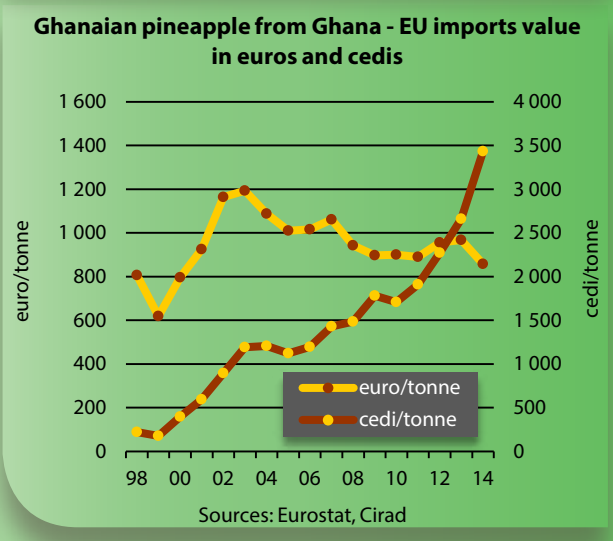
So what is Costa Rica's secret?

But let's not spoil our pleasure at seeing the rapid growth of the world market. According to Comtrade, in 2013 it amounted to just over 2.8 million tonnes, i.e. an average annual growth rate over the past twelve years of more than 10 %: a figure worthy of the growth rates of the Chinese economy. It is all the bigger since world production has increased by just 3.6 % per year since 2001. Nowadays, 12 % of world production can be found on the international fresh pineapple market. If we add volumes of processed pineapple (canned and juice) sold, we reach the record figure of 8.4 million tonnes (in fresh fruit equivalent), i.e. doubling the world market in around fifteen years.

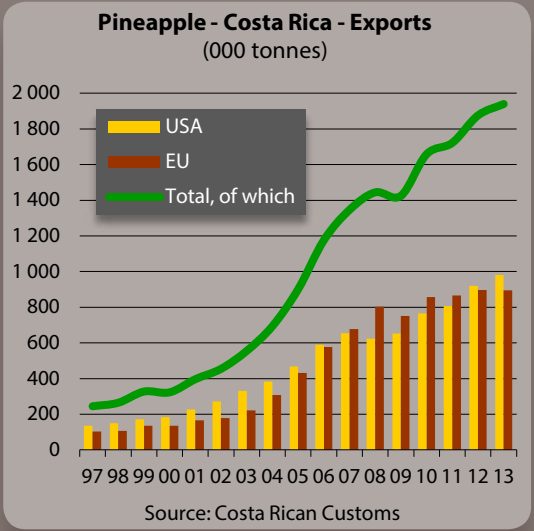
Now let's turn to the value of the fresh pineapple on the markets. Thierry Paqui, a specialist consultant who edits a weekly letter analysing the European pineapple market, for which you will find further on in the dossier an analysis of the past market season, rates the economic results as highly disappointing. It is not the first time that the

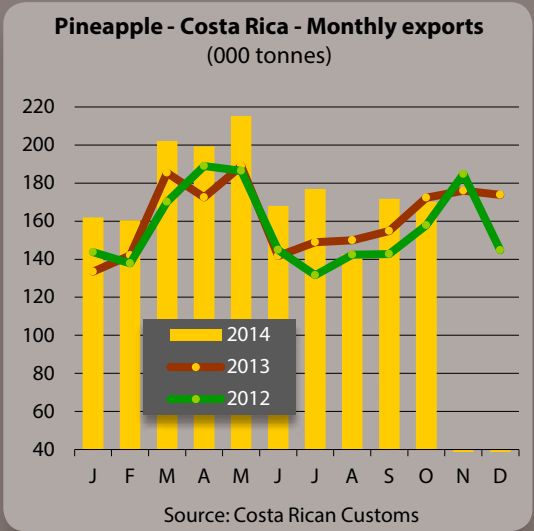


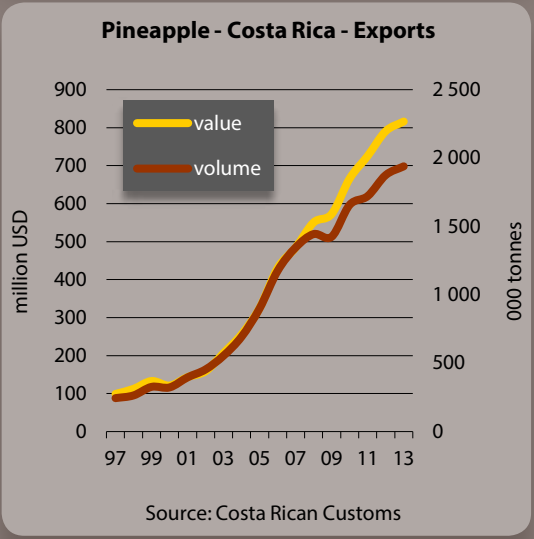


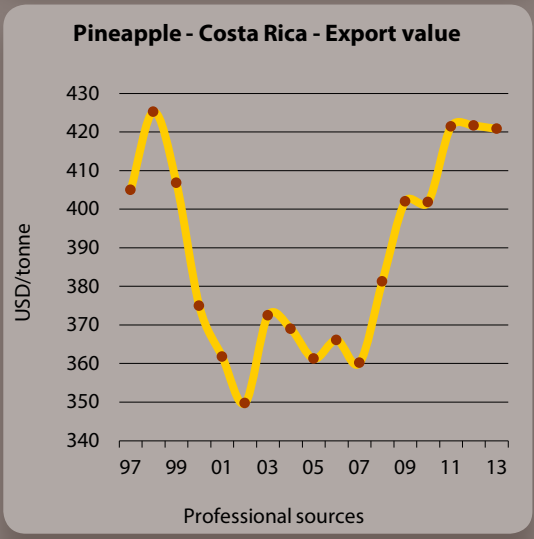


Pineapple – Costa Rica









Fresh pineapple — Costa Rica — Monthly exports

Mois	2013				2014			
	Total, of which	USA	EU-27	Others	Total, of which	USA	EU-27	Others
January	133 441	60 624	66 420	6 397	161 942	84 383	71 183	6 376
February	142 055	64 738	71 010	6 307	160 480	77 191	76 735	6 554
March	185 436	97 773	82 588	5 075	202 144	104 544	92 550	5 050
April	172 461	81 778	86 293	4 390	199 313	108 547	86 319	4 447
May	188 916	97 994	87 141	3 781	215 329	113 763	95 937	5 629
June	141 661	73 929	65 041	2 690	168 028	91 263	72 752	4 013
July	148 980	78 263	67 070	3 647	176 869	92 746	79 131	4 993
August	149 955	78 596	68 374	2 984	142 550	77 563	59 817	5 170
September	154 807	86 175	64 670	3 962	171 773	98 096	67 237	6 439
October	172 292	93 557	72 265	6 471	170 206	92 539	69 245	8 422
November	176 030	84 241	79 161	12 629	0	0	0	0
December	173 762	83 676	84 900	5 186	0	0	0	0
Total	1 939 795	981 343	894 932	63 519	1 768 634	940 634	770 907	57 093

Source: Customs

downstream segment of the industry has complained of low prices. We have reiterated many times over in these columns the deterioration of fruit market value. Following a purely neo-classical economic rationale, the growth in volumes has caused a fall in value, and even a fall in added value, because of an increase in production costs on top of that. The terms of trade are highly unfavourable for the product. Except that, in theory, the supply should have been adjusted downward. This was the case for the outsider sources which, as we have seen, are deserting the world market. But this free space has been recovered by producers in Costa Rica. The giant has made another step forward. Over the last twelve months (November 2013 to October 2014), Costa Rican exports exceeded 2.1 million tonnes, for an absolute record! But what is the secret of the producers? At the same time last year, FruiTrop (October 2013, no.215) put forward a number of hypotheses. Let's look at the euro/colon exchange rate. In Europe, the annual average value of Costa Rican pineapples stabilised in 2014 at 615 euros/tonne (estimated figure) as opposed to 617 euros in 2013. Translated into the colon, the observation is very different. Indeed, the revenue in local currency rose 8 % under the spell of the exchange rate. There is a clear and massive impact. This is also the case for fruits exported to the United States, with an even more marked effect, of around 11 %. It is undeniable that the exchange rate is a powerful antidepressant for pineapple producers.

Conversely this advantage, over which producers evidently have no control (macroeconomic data), is not the whole story. Indeed, the counter-example can be found in Ghana. Its fruits were valued disappointingly on the European market in 2014. On average, the fall in euro was more than 10 % from 2013. The situation is turned on its head if we break the exchange rate spell over this figure. The price in cedi actually climbed 29 % in just one year. So long live the devaluation of the cedi! But this wave of the magic wand seems to be having no effect on Ghanaian pineapple exports, which are on a downward trend. It is true that the annual inflation rate amounted to nearly 17 %, thereby reducing the producers' margins for manoeuvre. By way of comparison, the inflation rate in Costa Rica is far more moderate, around 5 % in 2014, which leaves producers greater latitude.

Import prices on a downturn

So the average import prices, after a respite in 2013, have taken a downturn. Spring and summer 2014 were particularly difficult. The average price dropped by half a euro per box to 6.6 euros. Maybe the only minor satisfaction is to observe that the price amplitude was extremely limited both downward and upward. But besides the volumes placed on the market, the supply marking this season was unbalanced with a shortage of small fruits, and therefore an excess of large ones. So much so that at one point, the smallest sizes found takers at prices never reached for this type of fruit: a last straw.

Excessive volumes, for sure, not enough care both upstream and downstream certainly, easing of the fall in import prices via the exchange rate for certain sources undoubtedly, a catastrophe heralded for years which never arrives; in short the fire is smouldering. The coin is balanced on its edge… we just need to see which way it will fall! Is it the time for restructuring and concentrating large volumes in the hands of a few? That is what some are expecting and glimpsing signs of, to finally tell on the natural market trend: the fall in value. But does the only, near-miraculous, solution lie in eliminating the small players? Even if this assertion were valid, the production base in Costa Rica alone is enormous. As we have seen in other industries, small volumes can have big effects. The scattering of production capacities is such that there is a plethora of operators on the market. The local professional association counts more than 170 export companies, and access to long-distance transport is particularly easy. To sum up, operating on this market is like living on a volcano. The earth there is fertile, but you never know what tomorrow will bring ■

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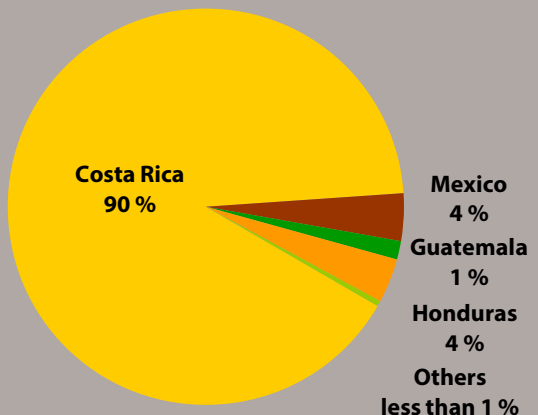
Pineapple – United States

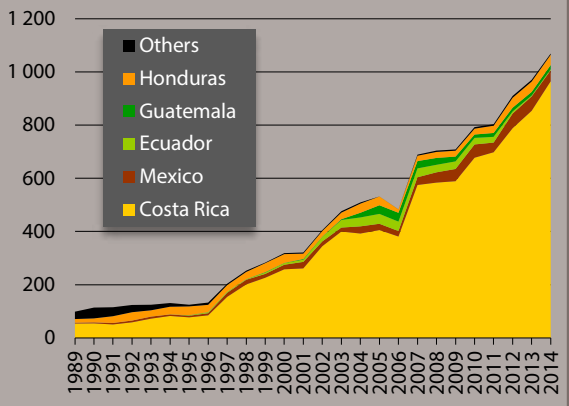
No limit!

It has been written: US pineapple imports this year will reach 1.1 million tonnes. This is still an estimate, since the customs figures were established provisionally in September 2014. Yet such is the weight of the multi-year trend that there is little risk in extending the curves. If we take away approximately 100 000 tonnes forwarded to Canada, the US market is a millionaire! Costa Rica is leaving just crumbs for its competitors. It holds a 90 % market share, leaving 4 % apiece to Mexico and Honduras. US consumption is slightly different from Europe. Salad bars are one of the major outlets, with demand focused on large sizes (jumbo), and the consumption peaks are slightly different from in Europe. While they are highly marked for the Easter and end-of-year holidays in Europe, consumption in the United States at these times is well below the annual average. Conversely, the months of March, April and May (sometimes June) see the supply skyrocket, up to 50 % above the annual average.

Fresh pineapple - USA - 2014 imports
(estimate)

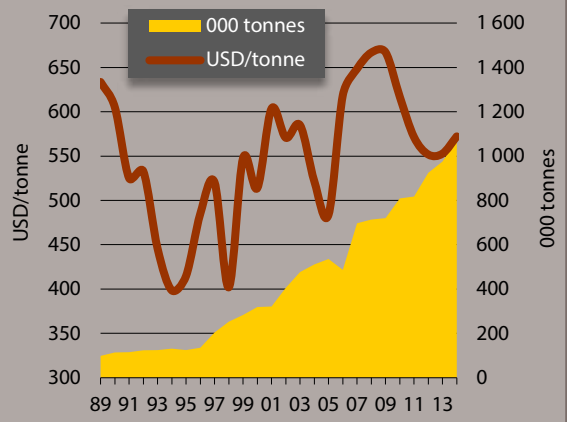


Fresh pineapple - USA - Imports
(000 tonnes)



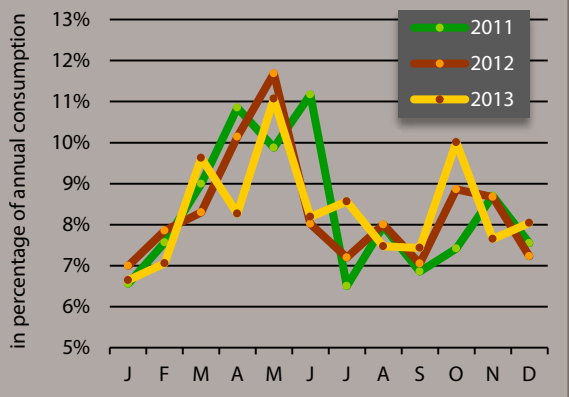
2014: estimate / Source: Customs

Fresh pineapple - USA - Imports



2014: estimate / Source: Customs

Fresh pineapple - USA
Consumption calendar



Months / Source: Customs

Producer country file

Pineapple in the Dominican Republic

by **Bettina Balmer**, consultant
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The Dominican Republic is attempting to revitalise the pineapple sector, which is not without its difficulties. Despite good pedoclimatic conditions and land availability, the country is not among the big pineapple producer and exporter countries, whereas it started off the early 1990s in fine form with the arrival of two multinationals. They left the territory around ten years after setting up.

Nonetheless, the Dominican Republic retains the high ambition of recovering a place on the international stage with this fruit. In the mid-2000s, the government implemented a policy of varietal conversion and development of pineapple production for export, thanks to various measures and international aid.

It is too soon to harvest the fruits of this recent development, due in particular to the weakness of the organisations, and the lack of producer know-how and interest in exports. For now, they are still primarily supplying the internal market, which is much more lucrative and less demanding than the international markets. However, a small group of producers seems to be aiming to target foreign trade, not as a relief market but out of a desire to break through.

Pineapple – Dominican Republic

History

Flashback on recent highlights of the industry:

- **1987-1995 :** Chiquita active in the country. At the height of its activity, the group had 1 500 ha and 1 500 employees. Varieties: Costa Rica clones, and then smooth Cayenne.
- **1987-1997:** Dole active. The multinational had up to 3 500 ha of land, with 3 600 employees. Variety: smooth Cayenne.
- **In 1992,** the Dominican Republic was the leading pineapple producer country in the Caribbean/Central America zone, with 5 million boxes exported. The two multinationals left the country for primarily political reasons (problem of land access, being forced to purchase locally manufactured boxes, etc.).
- **From 2000-2002:** introduction of variety MD-2 from Costa Rica, and period of conversion to the detriment of smooth Cayenne. The government set up a sprout imports and conversion programme (in parallel with actions by private producers). Nonetheless, the quality of imported sprouts was not up to scratch, and would deteriorate over time.
- **2005-2010:** programme to develop the competitive advantages of pineapple production via the CNC (Consejo Nacional de Competitividad) with funds from the Inter-American Development Bank (IADB).
- **2007-2012:** strategic plan to develop a pineapple cluster, built on the main producers' association in the country, APROPIC. It enjoyed a wealth of various funds, in particular USAid. This cluster is currently dormant. Taiwan offered 5 tractors to APROPIC.
- **August 2012:** inauguration of the APROPIC packing station, largely funded by USAid. This station would remain something of a white elephant, barely used by a few exporters and left unfinished (lacking facilities such as a foot bath, etc.).
- **December 2012:** agreement for a distribution programme of 10 million MD-2 sprouts imported from Costa Rica, with FEDA support (see box).
- **May 2014:** signature and start-up of a second project managed by APROPIC, funded by IADB, and supervised by the CNC, to last 18 months. It is aimed at revitalising the export pineapple sector via strengthening the association, certification and other actions.
- **May 2014–February 2015:** project aimed at training around twenty trainers and supporting Global-GAP certification of six producers, funded by the European Union via the TBT programme.

FEDA (*Fondo Especial de Desarrollo Agropecuario*) is an institution directly dependent on the Presidency of the Republic. Its objective is agricultural promotion and rural development through innovation and technology transfer. It is aimed at agricultural and funding associations, primarily small structures. This fund manages more than one hundred agricultural projects.

The country's main pineapple production association (or even the only one), APROPIC has enjoyed FEDA's support since January 2013, with 10 million high genetic quality sprouts from Costa Rica. Under this loan in kind, amounting to 80 million DOP (1.432 million euros), the beneficiary producers (of which there are 94) are obliged to return three sprouts for each sprout planted. This programme is aimed at replacing the MD-2 plants imported in the early 2000s, which are suffering from genetic degeneration. Furthermore, FEDA has financed 226.5 tonnes of fertilisers for the pineapple producers.

Collecting sprouts

Pineapple – Dominican Republic

Location

In October 2014, the land dedicated to pineapple cultivation (preparation and production) covered a surface area of between 1 500 and 2 000 hectares. Nonetheless, the country has plenty of land to spare: some agree on a potential of 100 000 ha suitable for this product, of which 50 000 ha in the area around Cevicos. According to professional sources, the country's stock at this time was 55 million plants.

90 % of production consists of the variety MD-2, introduced in the 2000s, with the rest primarily smooth Cayenne and Sugarloaf. There is no organic or fair trade pineapple production, as in the banana sector.

Current production is mostly packed into two provinces: Monte Plata (around the cities of Monte Plata and Bayaguana) and Sanchez Ramirez (around Cotui, Cevicos and Fantino). Santiago province (La Canela) also produces this fruit, though to a lesser extent.

According to official sources, there are more than 600 pineapple producers in the country. Nonetheless, the sector is characterised by a host of very small, unstable farms (production changing with the cyclical conditions, and with no structured production plan), for which this product is not a priority.

Furthermore, given the high production cost, the biggest (and most stable) farms are very often in the hands of owners not dedicated to this activity, but who have the funds to invest in this product.

The production areas are highly fragmented. Besides the farm of one of the country's leading groups, which currently extends over 230 ha, with a major expansion plan aimed primarily at the export sector, there are 13 farms each in excess of 30 ha.

For now, only two farms are GlobalGAP certified. A European Union programme (underway upon the publication of this dossier) is aimed at preparing six farms for this certification. Yet this is not the first initiative of this sort, the previous ones having failed.

Pineapple – Dominican Republic – Breakdown by surface area of active members of APROPIC

	< 3 ha	3 < ha < 9 ha	9 < ha < 31 ha	> 31 ha
Number of producers	29	27	26	13
%	31 %	28 %	27 %	14 %

Source: APROPIC, which has 97 active members, i.e. up to date with their fees (number subject to change) out of the 130 registered members

Pineapple – Dominican Republic

Production

As already mentioned, the Dominican Republic enjoys good pedoclimatic conditions which enable pineapple production all year round. It has a higher insolation than Costa Rica, but has a shallower topsoil layer, despite good acidity.

Since good agricultural practices (GAP) are still not mandatory (although they should be under Decree 52-08, governing the general application of GAP), few farms apply them. The productivity, mechanisation and technical level of the farmers are low. The State's agricultural outreach services suffer from a chronic lack of means to help the producers, and so are not meeting their objective.

There are few producers who apply rotation plans in order to cover the whole year. There are also few who can manage production of two fruits per plant. Production as such is not organised so as to regulate arrival to market or to pool input purchases. Those producers' organisations that are in place suffer from the absence of efficient governance. There is no "industry" coordination to date, despite the efforts deployed recently under projects funded by international backers. The traceability and quality control systems are practically non-existent because of the low requirement level of the local market (which sells more than 90 % of production).

The planting density is on average around 56 000 plants per hectare. Production has a low degree of mechanisation, and employs relatively cheap labour. According to the Ministry of Agriculture, the purchase of sprouts represented 40 % of the production cost in 2013, while labour counted for just 11 %. These figures contradict those of certain producers, which proposed the following breakdown: 15 % for domestically-produced sprouts (more for sprouts imported from Costa Rica), 45 to 50 % for agrochemical products and other inputs, and 20 to 25 % for labour.

According to professional sources, compared to Costa Rica, labour is cheaper, but fuel is more expensive (+ 30 to 40 %: cost of transporting a container from the packing station to port), as are boxes (1.35 USD/box + 18 % ITBIS, a local form of VAT, as opposed to 0.85 USD/box in Costa Rica). The competitiveness of the Dominican pineapple in this respect is questionable.

Pineapple production in the Dominican Republic is free from the following organisms (quarantine organisms):

- snail (*Opeas pumilum*: Achatinoide: Subulinidae);
- weevil (*Metamasius dimidiatipennis*: Coleoptera: Curculionidae);
- tecla ("little butterfly" or fruit miner; *Strymon basilides*: Lepidoptera: Lycaneidae);
- soldier caterpillar (*Elaphria nucicolora*: Lepidoptera: Noctuidae);
- stable fly (*Stomoxys calcitrans*: Diptera: Muscidae);
- *Fusarium guttiforme*;
- Pineapple Mealybug Wilt associated virus (PMWaV).

The mealybug remains the main phytosanitary problem encountered in pineapple shipments from this country, explaining some rejects on entry to the United States and European Union.

Activity for the Cevicos pineapple festival (October 2014)

Pineapple – Dominican Republic

Outlets

At present, more than 95% of production is sold on the local market, which is particularly lucrative: a large fruit can sell for up to 1 USD (44 DOP, exchange rate for mid-October 2014), ex-farm. Taking all sizes together, the price would be an average of 18 DOP per fruit.

Local annual consumption fluctuates between 24 and 25 million units, and demand remains in excess of supply. The national market comprises 10.4 million inhabitants, as well as nearly 4 million tourists who visit the Dominican Republic every year.

As mentioned above, the requirement level of purchasers on the national market is low. The quality standards of fruits sold locally are barely defined, other than by size. Note that fruits very often come directly from the field, without going via packing stations.

Pineapples are classified by four sizes, according to their approximate weight.

Pineapple – Dominican Republic
Price for local market (DOP)

Size	Ex-farm price	Supermarket retail price
Large (> 2 kg)	45-55	80-95
Medium (1.5 to 2 kg)	30	60-80
Small (< 1.5 kg)	15	30
Very small (< 300 g)	5	Uncommon, generally sold in the street

Source: survey (October 2014)

3rd Cevicos national pineapple festival (October 2014)

Fruit and vegetables retail outlet

Logistics

The Dominican Republic enjoys good export infrastructures. The main ports used are Caucedo and Haina. Air-freight shipments leave via the capital's airport (Las Americas), as well as those of Puerto Plata, Punta Cana and La Romana. Due to the mass influx of tourists (4 million per year), air freight is relatively cheap, and there are many flights.

Compared to Costa Rica, Dominican exporters have an advantage in terms of time: they are 4 to 5 days ahead for shipments to Europe, and at least 2 days ahead for the East Coast of the United States.

Pineapple – Dominican Republic

Exports

The Dominican Republic has recently exported (last five years) approximately between 2 000 and 6 000 tonnes of fruits per year, which represents a jump up from previous years, but is still modest on the international stage.

There are a small number of exporters: 7 to 8 regulars, mainly producers.

The country is still in the conversion phase, not in terms of variety, but from the old plants to the new MD-2 sprouts under the FEDA programme. The first fruits from these new sprouts were exported to Italy in April 2014, but the result of this programme should be more apparent in 2015.

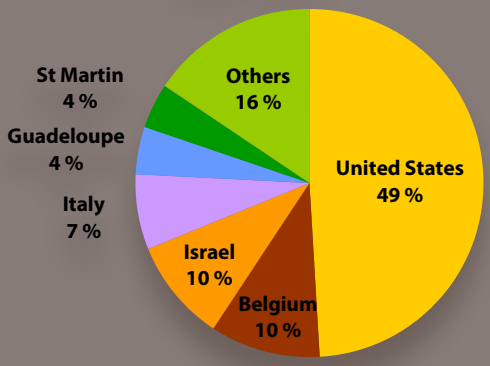
In the short term, we should not see a jump in exports due to the entry of these 8 million sprouts (deducting at least 20 % for losses), especially as the producers are not very focused on external trade for the time being. For 2014, professionals are agreed on an export volume of between 5 000 and 5 500 tonnes. In 2015, some are even predicting a fall in production due to this conversion.

In the medium term, the quantities available for export should be greater, especially if, meanwhile, certain producers succeed in their GlobalGAP certification procedures. At the time of writing this article, six of them have begun the process, under the programme funded by the European Union. Furthermore, APROPIC is supported by another project (funded by the Inter-American Development Bank), which is aimed at certifying 25 producers (including the first six mentioned). While not ideal, it is still at least ambitious given the current technical level of the producers in terms of application of good agricultural practice and their motivation for export.

Exports are focused primarily on the United States, the European Union and the Caribbean (Haiti and the other Caribbean islands, including the French West Indies). After an initial attempt in 2007, some producers and packing stations have passed the certification test required by Israel, which has resulted in an annual flow varying from 80 to 500 t since 2009.

Collecting sprouts

Pineapple - Dominican Republic
2014 exports (7 months): 3 119 tonnes
Source: Customs



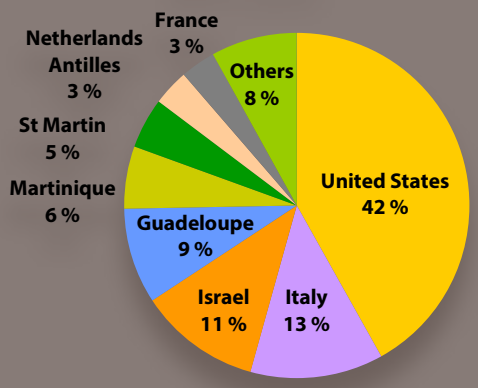
Pineapple – Dominican Republic – Exports

Year	Volume (tonnes)	Value (total FOB USD)	Value (FOB USD/kg)
2006	265	129 750	0.49
2007	389	238 812	0.61
2008	465	349 873	0.75
2009	2 151	1 407 470	0.65
2010	3 875	2 627 437	0.68
2011	5 938	3 268 774	0.55
2012	4 519	2 404 059	0.53
2013	4 161	2 578 027	0.62
2014 (7 months)	3 139	2 172 222	0.69

Sources: DGA , CEI-RD

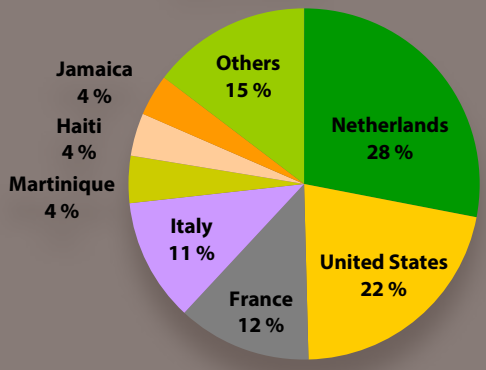
Pineapples for the local market

Pineapple - Dominican Republic
2013 exports: 4 161 tonnes
Source: Customs



Export quality pineapple

Pineapple - Dominican Republic
2012 exports: 4 519 tonnes
Source: Customs



Pineapple with its sprout

2013-2014 sea-freight pineapple season

A sense of unfinished business

Overall, the pineapple season now ending is leaving a sense of unfinished business for many operators. The slightly smaller Sweet supply from Latin America was constantly unbalanced by sizes ill-suited to demand. The prices fluctuated more frequently than during the 2012-13 season, but above all it is the resumption of crumbling profit margins which is starting to pose problems. And yet the Latin American supply has been a bit smaller over the past twelve months, sparing the European market the famous annual "natural flowering" episode, which previously led to unrestrained volumes being received from Latin America at certain times of the season.

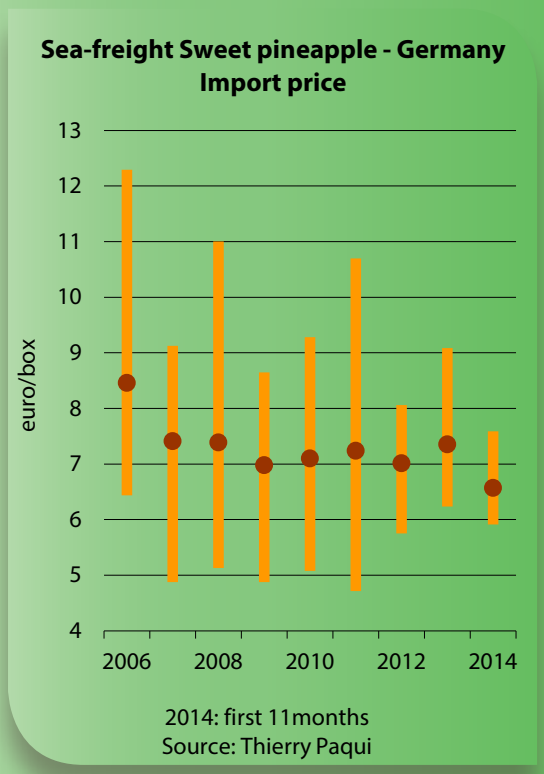
© OCAB Côte d'Ivoire

Despite the statistical data presented in the previous article, which show progress on the international pineapple market in terms of volume, operators felt a completely different experience this season. Indeed, they generally believe that volumes to market were smaller, which contradicts the customs data both for exports (Costa Rican data) and imports (Eurostat data). This proves how unbalanced the market was in terms of quality and sizes sought, and therefore difficult in commercial terms.

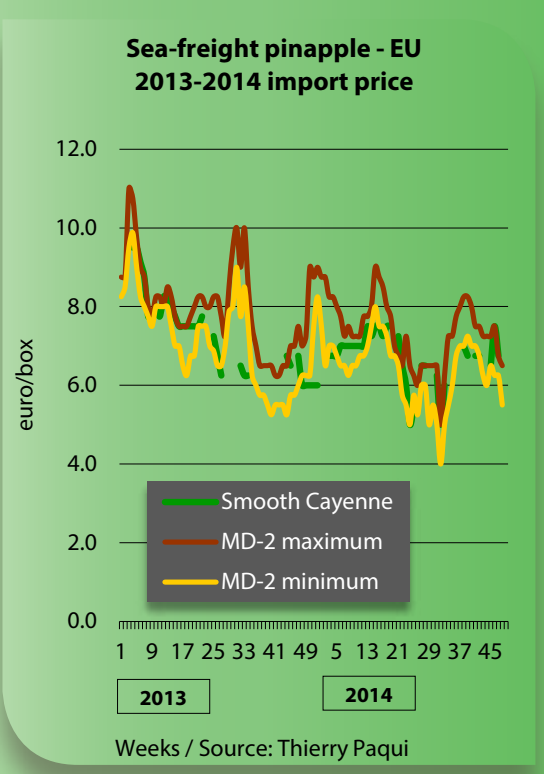
The impact of natural flowering

Over the past season (from week 40 2012 to week 38 2013), natural flowering in Latin America (and more particularly in Costa Rica) was so great that we are apparently continuing to feel the repercussions. This at least partly the reason why the Latin American supply of Sweet over the past twelve months was less abundant on the European market. This relative scarcity of supply was also due to climatic events (floods in particular) which affected the production and quality of Latin American pineapples, consequently limiting their availability. Throughout the season, the operators, used to having to manage the flow of fruits associated with natural flowering, were expecting these notorious volumes, fearing the worst. The season now ending actually played out at a false tempo without the market ever being flooded by large but unscheduled volumes of fruits, as has very often been the case in recent years.

Nonetheless, the situation was not rosy throughout the season. Indeed, although limited, the supply was too often out of step with demand. Either because it mainly comprised small fruits, or because the large fruit supply was higher. So importers had to continually manage this imbalance, which provides a glimpse of the narrow margin for manoeuvre they had in terms of choosing volumes and sizes.



2014: first 11months
Source: Thierry Paqui



Weeks / Source: Thierry Paqui

The predominant role of the supermarket sector

The predominant role played by the supermarket sector in the pineapple trade, a previously exotic fruit which has now become a mass consumption fruit, is constantly being confirmed. So once again it was the operators referenced by purchasing centres who sold the most fruit, based on the most stable prices. However, keeping in the good graces of these purchasing centres also left its marks. The supply imbalance often forced certain operators to purchase the sizes that they lacked at high prices, to be able to meet their commitments. So these purchases, often made at the last moment, several times led to speculative sales made at above-market rates.

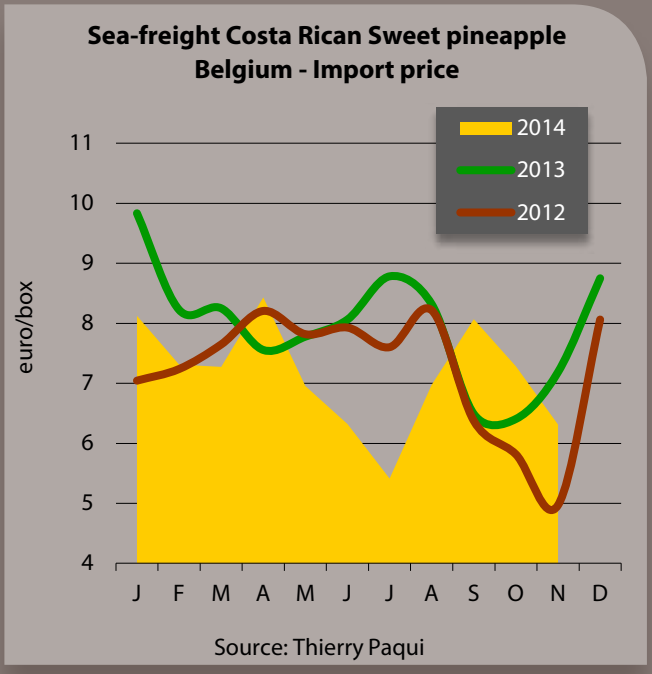
Unfortunately, while the overall Sweet supply remained limited, and sometimes less than demand, there were no price increases, as was the case last season. Very much the opposite: average rates, which for several years seemed to have stabilised at between 6.30 and 8.00 euros/box, depending on the size, dipped again to between 5.5 and 7.75 euros now, or even 7.50 euros/box (ex-quayside price). This range, which is increasingly tending to become the norm, did not exempt the market from resorting to clearance sales or post-sale prices, when it was swollen and struggling to absorb even the limited volumes on the market.

Reorganisation of supply?

This practically generalised fall in rates, despite the markets not being oversupplied, shows that marketing draws on several factors. It is no longer just the supply quantity; it must also be in step with demand.

However, not all the operators are in the same boat. It has to be observed that those which have a real impact on the production policy, and consequently on commercial choices, as is the case with the leading Sweet producer in Africa, tend to come out better.

In this regard, operators have not failed to bring up how much demand had fallen over recent months. Very often, when the supply was less than demand, operators only just managed to stabilise rates. The ability to maintain or strengthen prices was more due to the scarcity of the supply on the markets at certain times of the season than to real demand for the fruit.



It is true that the spring and summer brought some particular market conditions, with an early, abundant and inexpensive supply of seasonal fruits. However, this is not enough to justify the lack of interest in the fruit shown on several occasions over the past twelve months (October 2013 to November 2014). Need we ask ourselves the fateful question yet again? In becoming a mass consumption product available in quantity at any time of year, with no real seasons, has the pineapple ended up becoming something ordinary, or even humdrum?

The purchase of the Venecia brand by a historic operator, DOLE, tends to confirm this supposition. Selling an influx of volumes amounting to more than 4 million boxes per year is no small matter, even if you have an established distribution network. The process is often to the detriment of the price per box, and consequently to the detriment of the price paid to the producers.

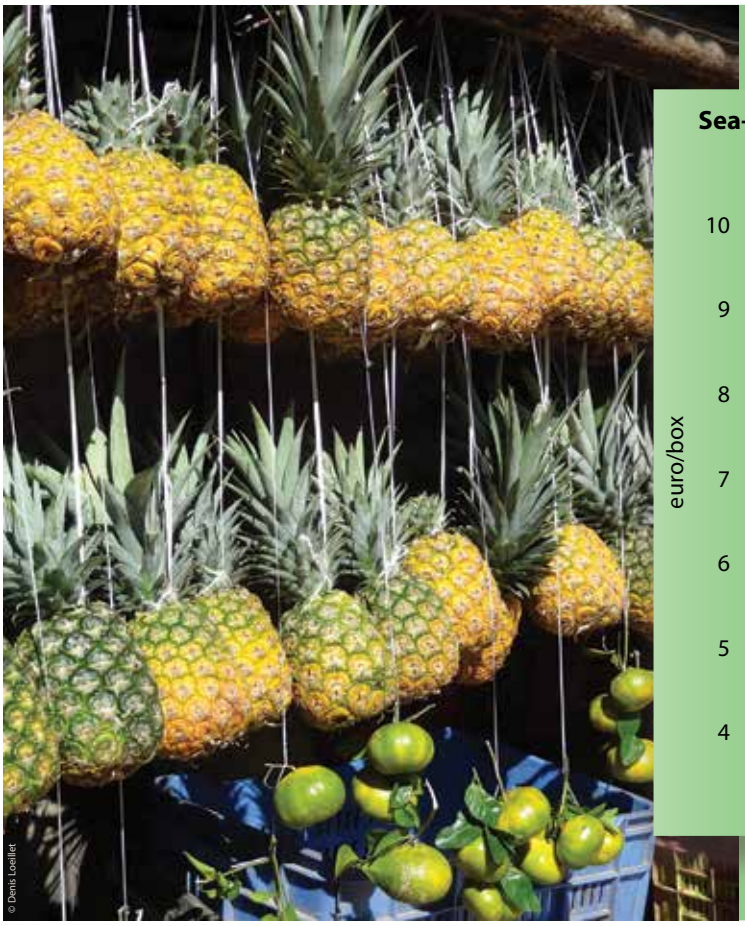
Certain operators seem to have already asked themselves the question. This goes for the leading African producer of Sweet, "Compagnie Fruitière", which first wound up its Cameroonian production to refocus on the quality of its Ivoirian and Ghanaian supplies. The stability of its prices over the year confirmed its choice of cutting back its production to stabilise its volumes at a threshold enabling it to maintain a tight supply all year round.

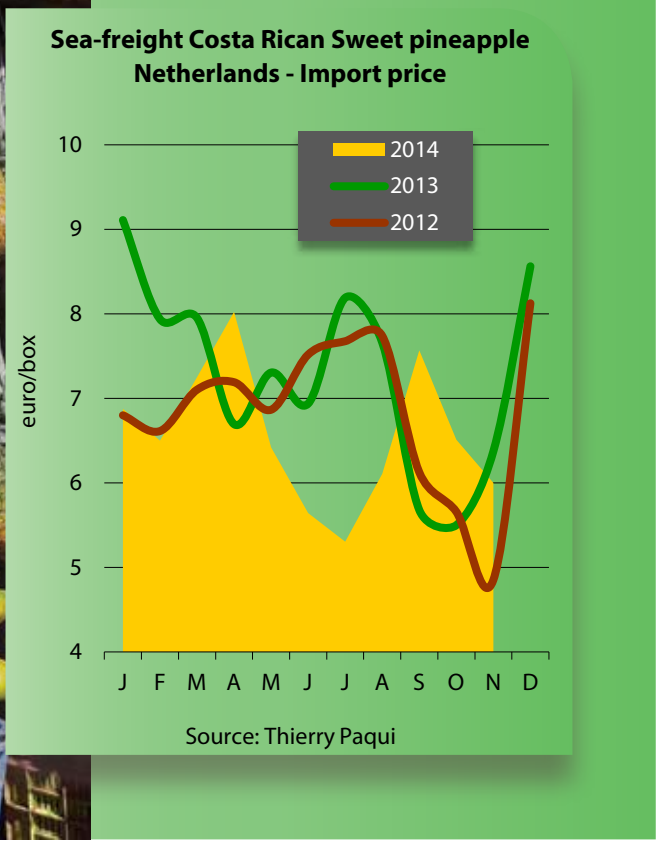
It is apparently not alone in wanting to take this path. In view of the good results obtained on the European market in recent months because of a smaller supply, Del Monte — the company behind the introduction and development of Sweet — also seems to be contemplating the possibility of scaling back permanently to guarantee a better level of return.

We have already mentioned several times the fact that the pineapple market was not infinitely extendable. It would seem that, caught up by the economic realities of profitability, certain operators, and not the smallest among them, are drawing lessons from a policy of unrestrained supply, by seeking to reduce their volumes to achieve better value for their fruits. Let's hope that this is not a cyclical phenomenon, but actual structural choices which will benefit the pineapple market, and encourage other key operators to commit to this path.

Key moments of the 2013-14 season

Once more it is the Latin American sources, particularly Costa Rica, which have imposed their tempo on the pineapple season. As stated above, the supply remained unbalanced and above all ill-matched to demand, and so was not really able to establish itself. So the operators had to spend a lot of time optimising their stock management, in which they met with more or less success.





Weeks 40 to 49, 2013

This was a chaotic, confused period before the end-of-year holidays. From early October, the Sweet supply mainly comprised large fruits, which demand, affected by the All Saints' holidays, struggled to absorb. The operators spent the month trying to clear the leftover fruits from September. Batches of highly heterogeneous quality weighed down the market, and despite charging post-sale prices or clearance prices of between 1 and 3 euros/box, the market remained swollen. Certain operators took the decision to reduce their import volumes. The slight fall in the supply only started to take effect towards late November, with demand often lifeless over the period. The gradual rise in prices in late November cannot conceal the difficulties encountered by the operators in selling the fruits, with an average price per box of between 5.50 and 6.80 euros. They expended most of their efforts in optimising their stock management, which complicated the launch of the promotions for the Saint Nicholas and end-of-year holidays.

Week 50 2013 to week 5 2014

The period was marked by a steep fall in supply and rates, while demand remained lukewarm. A few years ago, December was the month of the pineapple: the supply saw steep growth in order to satisfy demand, pending volumes from Africa and then Latin America. This now seems like a different age. The Latin American Sweet supply was low for the end-of-year holidays, and the beginning of 2014. This fall did not result in an increase in rates, since demand remained lifeless. While the markets are used to demand falling in January, this time they experienced it in December. However, prices saw a slight rise in response to the supply shortfall, which above all helped maintain some degree of price stability. Yet from early January, the Sweet supply, although limited, was again unbalanced by the excess of unpopular small sizes. Although the average rate remained relatively stable at between 7 and 8 euros/box, or even 8.50 euros, we saw the rates range widen to the detriment of these small fruits. At the end of the year, the Cayenne supply remained confined to its niche, with still restricted volumes selling at between 6 and 6.8 euros/box, depending on availability.

Weeks 6 to 13, 2014

The period leading up to Easter was relatively quiet. The Sweet supply remained limited, often disrupted by shipping delays (especially in March). Demand adapted to the small and still unbalanced supply, with more small-sized fruits in February, and conversely, more large-sized fruits in March. The stability in rates, on average between 6.50 and 7.50 euros/box, was due to the scarcity of the supply, which facilitated some degree of sales fluidity. At the end of this period, prices strengthened as it became clear that the Easter supply would remain low.

Weeks 14 to 19, 2014

Before Easter, rates rose steadily. The supply, limited and consequently less than demand, did not enable all operators to satisfy their commitments. This situation gave rise to speculative sales, leading certain operators to sometimes pay for fruits at slightly above-market rates. Prices, high due to the scarcity of imports, held up at between 7 and 8 euros/box.

Weeks 20 to 35, 2014

From May, the seasonal fruits became available, with in particular stone fruits offered at low prices. They captured the bulk of demand from spring to late summer. Pineapple rates then began a downward spiral, which continued throughout the summer and which affected all the operators. It was the small sizes which suffered most from the indifference of demand. The average rate constantly declined, plunging at the lowest point of the sales depression to 4.5 euros/box!

This average rate for the period, of between 4.50 and 7.50 euros/box, will definitely have consequences, and show through in the annual sales accounts of several export companies. It was the rather high demand from Eastern Europe, particularly Russia, which helped prevent more pronounced falls in rates. When Russia imposed an embargo on European agricultural products, operators feared for several days that the situation might deteriorate a little more if the Russian market were closed to the pineapple. It was most fortunate that these were re-exports of extra-European produce, and therefore not affected by the embargo.

Weeks 36 to 40, 2014

True, re-exports to the East European markets did somewhat relieve the European market, but demand, still lifeless, did not manage to absorb the volumes on the market. Given the low level of return per box of fruit, several operators decided to cut back their imports a bit further. This choice had a positive effect on demand and on prices. The demand, now in excess of volumes, helped restore some vitality to the market during the period. Prices were higher, with average rates of between 6.80 and 8.30/box.

Weeks 41 to 48, 2014

The final phase was characterised by an unbalanced supply, mainly comprising large-sized fruits increasingly struggling to sell despite the fall in rates. In addition to poor sales there were now quality problems adding slightly more complications to the marketing process. Little hope could be seen from Russia and the East European markets. Indeed, the operators have been faced with deteriorating rouble-euro exchange rates since the beginning of the year, as well as with the consequences of the Russian embargo, blocking "mixed load" lorries, such as those consisting of European agricultural produce and pineapples.

The season ended with a difficult November, revealing glimpses of significant losses with average rates ranging from 7.50/box at the beginning of the period, to struggling to maintain 5.50/box at the end of the month. So the operators were all left awaiting signs promising a more dynamic market and sales for the Saint Nicholas and end-of-year holidays ■

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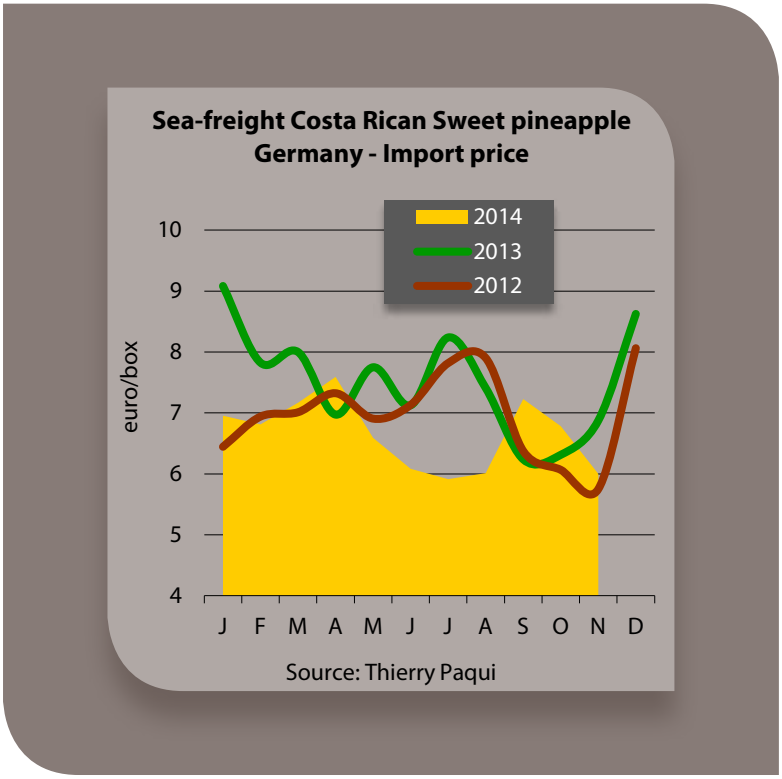


2013-2014 air-freight pineapple season

Brands for quality

The air-freight pineapple season was marked by a heterogeneous supply quality, and therefore by varying valuation. The supply of Sugarloaf, or bottle pineapple, though limited in volume compared to the conventional Cayenne supply, is increasingly establishing itself in the air-freight niche.

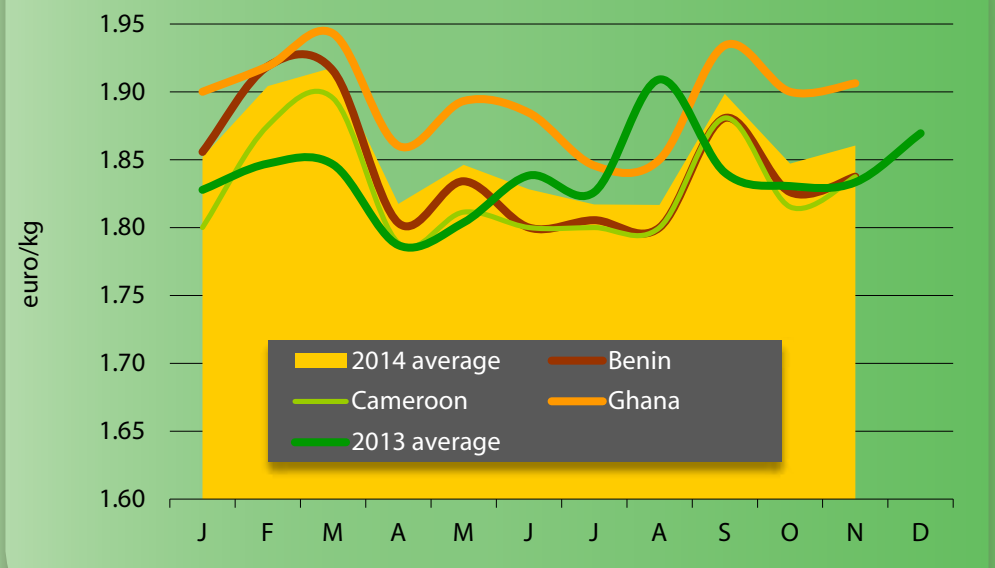
© Guy Brehinier

The air-freight pineapple season described below relates to the supply of smooth Cayenne from Benin, Cameroon and Ghana. We have incorporated the Sugarloaf supply (mainly from Benin), which as a niche within the niche, managed to sell better when the quality was right and volumes were not excessive. In the absence of these two criteria, the fruit sold less well than the conventional Cayenne.

During this season, the quality of supply from Benin and Cameroon remained fairly heterogeneous. Hence batches from these two sources had more complications in marketing, raising a number of disputes. Nonetheless, the average prices charged at the wholesale stage were slightly better than last season, between 1.75 and 2.00 euros/kg, as opposed to 1.75 and 1.95 euro/kg. The operators often had to considerably reduce their imports in order to clean up the market, thereby preventing a more pronounced slump in rates.

So it was Ghanaian fruits which once again were the most regular and best valued.

Air-freight pineapple - France - 2013 and 2014 import price



Source: Thierry Paqui

Key moments of the 2013-14 season

Weeks 40 to 52, 2013

At the outset, sales were listless while the overall supply remained limited. Certain operators opted to reduce their imports in order to revitalise demand, which helped improve the fluidity of Cayenne sales until week 47 (mid-November). Unfortunately, the significant increase in the Cayenne supply, which began in the second half of November and which continued until week 50, came at a time when demand had not really refocused on the fruit. It should also be recognised that the heterogeneous quality of the fruit from Cameroon and Benin could not attract or secure the loyalty of customers seeking quality products. As is often the case before Christmas, several operators, unused to handling large volumes of pineapple, found themselves in possession of large batches of heterogeneous quality. Once again, it was through some operators applying heavy cuts and sometimes suspending imports, from week 51, that the flow of stocks was facilitated, reinvigorating the market for the last week of the year. Over the period, the average Cayenne rates varied from 1.80 to 1.93 euro/kg.

Large in October, and smaller in the run-up to the end of the year, the Sugarloaf supply sold at average rates of between 1.75 and 1.93 euro/kg.

Weeks 1 to 18, 2014

The supply was very small. Initially, this situation benefitted the more abundant Cameroonian fruits. Unfortunately, once again the heterogeneous quality of certain batches from Cameroon and Benin gave rise to some hesitant sales, which ended either in batch returns, or in disputes. In spite of that, the average rate remained fairly stable, even rising, since very often the excessively small supply was unable to fully satisfy demand. The increase in volumes after Easter, up against the arrival of the first seasonal fruits, led to post-sale prices, though the average rate for Cayenne was largely between 1.75 and 1.95 euro/kg, while for Sugarloaf they varied from 1.80 to 2.05 euros/kg depending on the scale of the supply.


© Thierry Lescot

Weeks 19 to 35, 2014

The early arrival of stone fruits greatly reduced activity on the pineapple market. Demand showed little interest in the fruit, forcing the operators to considerably lower their volumes. Despite some concerns about fruits from Cameroon and Benin, sales were relatively fluid on a market which overall was fairly quiet. Under these conditions, the arrival of the first fruits from Côte d'Ivoire went rather unnoticed.

The average Cayenne and Sugarloaf rates for the period were roughly the same, 1.80-1.85 euro/kg and 1.80-1.90 euro/kg respectively.

Weeks 36 to 48, 2014

This period was marked by a relative scarcity in the pineapple supply, which facilitated stock management, and enabled fluid sales. The quality of fruits from Benin and Cameroon remained heterogeneous. Though we cannot talk about sanctions as such, we did see purchases refocus on sources or brands deemed a safer bet. Hence purchasers had become more cautious, preferring to pay more for brands from Ghana, Cameroon and latterly Côte d'Ivoire, provided that they are sure the product quality is right ■

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Is France seeing a new hand on the air-freight pineapple market?

The recurrent quality problems affecting pineapple production in Benin and Cameroon are preventing importers from these sources from really developing a high-quality image of the product. However, with Ghana, previously a somewhat ordinary source, and the return of Côte d'Ivoire, increasingly well worked products are available, of more regular quality, and better suited to the expectations of a niche market. Hence the air-freight pineapple market is a fairly selective niche market on the rise. It currently represents just under 10 000 tonnes, and is reaching customers ready to pay more for the assurance of obtaining higher-quality fruits.

An air-freight pineapple purchaser wants a product that not only looks good, but also has irreproachable quality. True, accidents can happen, but quality defects must under no circumstances represent the rule, just a few exceptions. To be able to supply a near-irreproachable pineapple, you need to be involved in the production process, but also guarantee the arrival of the product in good condition to the destination market (packing and palletisation).

Over the last season, fruit from Benin and Cameroon was often found wanting. While the job seems to have been at neglected times at the packing stations in Cameroon, the fact remains that most exports actually did go through a station, which was not the case in Benin. With little involvement in the production process, Benin's exporters have less opportunity to guarantee some degree of regularity in production. Purchasing and packing at the field-edge do not really help guarantee quality, sorting and uniformity of the exported batches.

While the source was restricted in terms of volumes (less than 1 500 tonnes/year), the field-edge system could still work. However, it is less and less suited to the current increase in supply from Benin, which exceeded 3 000 tonnes in 2013, and for 2014 is heading for 4 000 tonnes. It has now become essential to professionalise this industry, and prevent any makeshift practices which are detrimental to the image of the source. The fruits, hitherto packed under fairly precarious conditions and shipped loose in wet or fragile boxes, are increasingly struggling to cope with the structured and well-organised competition found from Ghana or Côte d'Ivoire.

For a long time Ghana was considered a rather ordinary source. This is no longer the case. We can reasonably say that the brand DELIGHANA has now asserted itself. Based on its know-how and marine logistics (palletisation), it has succeeded in promoting a value-adding, robust packaging for its air-freight exports, gradually relegating its Ghanaian competitors to oblivion. With its scarlet packaging, as well as its well worked fruits increasingly rated by wholesalers, this brand, the supply of which remains deliberately limited and sold via a network of operators, has increasingly asserted itself, with fruits often pre-sold before becoming available on the market.

After an absence of a few years from the air-freight market, since this summer we have seen a winning return for Ivorian fruits. The strategy employed is the same as Ghana's. A pineapple operator, producer and sea-freight exporter, CANAVESE, has been able to harness its expertise and logistics to develop a brand. Involved in the production process, and in command of quality from end to end, it has opted to sell only the top end of its production range. The whole operation is supported by solid work at the packing station, which covers not only the packing, but also palletisation, in order to guarantee delivery under optimal conditions. With its supply limited by choice, yet well valued and pre-sold, the Ivorian brand is increasingly positioning itself as one of the players with which the air-freight market will have to reckon.

Four brands (DELIGHANA, DIBRA, BURQUIAH and now ANANGO) are increasingly standing out on the lucrative but uncertain air-freight pineapple market. The particular emphasis placed on the choice of distribution circuits, packing (brand promotion), labelling (use of barcodes) and palletisation is paying off.

On a market as selective as the air-freight pineapple, these brands will gradually marginalise their competitors. Their slow but steady rise, if it continues, will end up splitting the market, with on the one hand the serious operators (importers and exporters) which will continue to add value to production and the work done on the plantations, and on the other those which will continue with makeshift practices and find continuously shrinking margins.

© Guy Bréhinier

2013-14 Victoria pineapple season

Size upsetting the balance

Over the 2013-14 season, the Victoria supply was irregular in terms of volume, and too often unbalanced in terms of size. This was particularly the case for the Reunion supply, which struggled to maintain its domination on the market. Demand, less high very early in the season, moved away from the fruit in favour of an abundant and cheap seasonal supply.

Unlike last season, there were no periods of frenzy for the fruit. Demand was often at a standstill, with operators regularly struggling to clear their stocks. In addition, the Reunion supply did not match demand. Comprising small fruits (sizes 9 and 10), little in demand on the market, it was fairly limited, often complicating the job of the operators working this source. While some opted to turn to the Mauritian supply, other remained loyal to the Reunion supply, sometimes in spite of themselves. Which is what explains the arrival on the markets, at times, of fruits of unwanted sizes and therefore more difficult to sell.

Reunion's production was affected once more by storms (cyclone Besija), and by a high level of self-consumption, with both factors limiting the availability of fruits for the export market.

Despite the sporadic presence of a few batches imported from South Africa, Mauritius and Reunion remained the key players on the Victoria market. With the supply available all year round, there was no real phenomenon of shortage which, as was the case last season, could have boosted demand and sales. As stated above, the excessive availability of small sizes from Reunion prevented the source from achieving better value. Although the quality of Reunion's Victoria is recognised, the fruits on offer still need to be those that the market is seeking.

During this last season, the average rates for Victoria at the import stage fluctuated between 2.60 and 3.50 euros/kg for Mauritian fruits, and between 2.90 and 3.70 euros/kg for Reunion fruits.

© Régis Domergue

Key moments of the 2013-14 season

Weeks 40 to 49, 2013

The season got off to a lukewarm start. Faced with fairly meagre demand, the Mauritian supply, steadier in volume, sold at stable basic price levels, whereas the Reunion supply had a little more difficulty in establishing itself. The gradual increase in the Reunion supply, from week 40, occurred mainly with unbalanced batches, out of step with demand. It would be more accurate to say that during this period, the Reunion supply struggled to find its customers. While it normally sells at prices well above those from the other sources, it had to make the best of average rates equal to or sometimes less than those of the Mauritian products. Hence in October, the Reunion supply mainly comprised size 8 fruits, which struggled to find their position. In November (weeks 45 to 48), it was the availability of the extreme sizes (6 and 10) which predominated. To sell off their stocks, operators had no other choice but to give free rein to the prices of the sizes more difficult to sell. This resulted in price ranges widening, and a fall in the average rate of Reunion fruits, which saw its most critical moment in weeks 46 and 47. During this first period, the average rate for Mauritian fruits fluctuated between 3.00 and 3.15 euros/kg, while for Reunion fruits it was between 2.90 and 3.10 euros/kg.

Week 50, 2013 to week 18, 2014

The improvement of the market conditions only started from week 50 for Reunion fruits. Despite promotions coming late, they managed to reposition themselves in the festive fruits niche, enjoying a fine spell which lasted until week 9. This period also coincided with a reduction in the Reunion supply, due to cyclone Besija, which helped it sell better with average rates of 3.25 to 3.55 euros/kg, as opposed to 2.60 to 3.15 euros/kg for Mauritian fruits. In April, the market, anticipating larger incoming shipments, had to be content with a smaller overall supply. This led to higher rates, with average prices up to 3.75 euros/kg for Reunion and 3.50 euros/kg for Mauritius.

Weeks 19 to 35, 2014

The early arrival of seasonal fruits diverted demand away from Victoria. However, it did not have any dramatic consequences on rates, since the supply was reduced to adapt to the weakness of demand. Only the fruit stalwarts continued purchasing it, for whom even a high price is justified as long as the quality follows. Hence the fruits continued to sell at fairly high levels, of between 3.40 and 3.75 euros/kg for Reunion, and between 2.90 and 3.45 euros/kg for Mauritius.

Weeks 36 to 48, 2014

Increasingly substantial volumes of Victoria gradually returned to the market. Unfortunately, demand had not yet completely switched back to the fruit. In addition, we should note the arrival of large batches of small-size Reunion fruits, which were less well valued. Under these conditions, pending the real promotion effort for the end-of-year holidays, we saw slow sales, with fairly wide rate ranges, varying according to the sizes on offer. Operators with lower levels of small fruits got better value for them, whereas the others were forced to let prices go a bit, to prevent their stocks from swelling, as well as quality problems. The average rate for Mauritian fruits was between 2.95 and 3.20 euros/kg, and for Reunion fruits between 3.00 and 3.15 euros/kg ■

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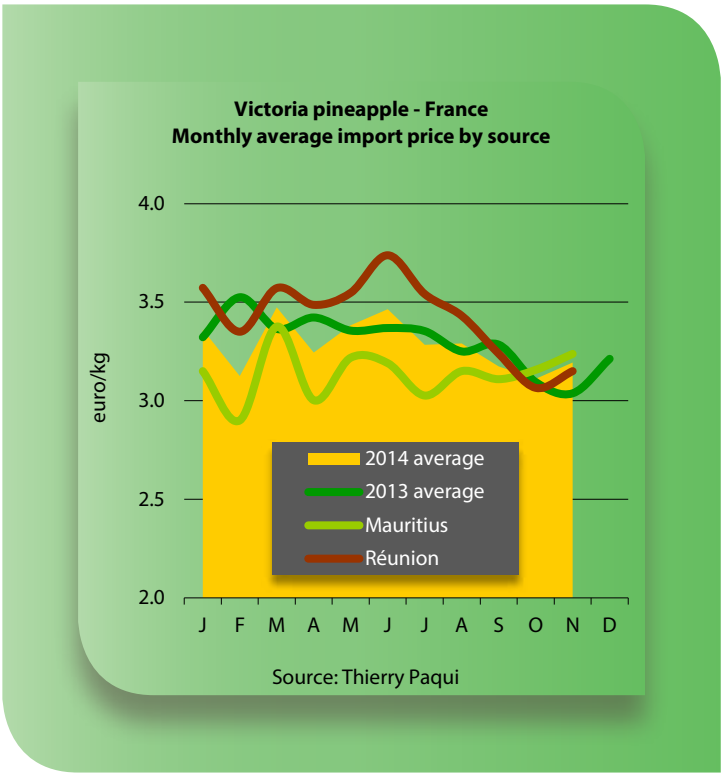
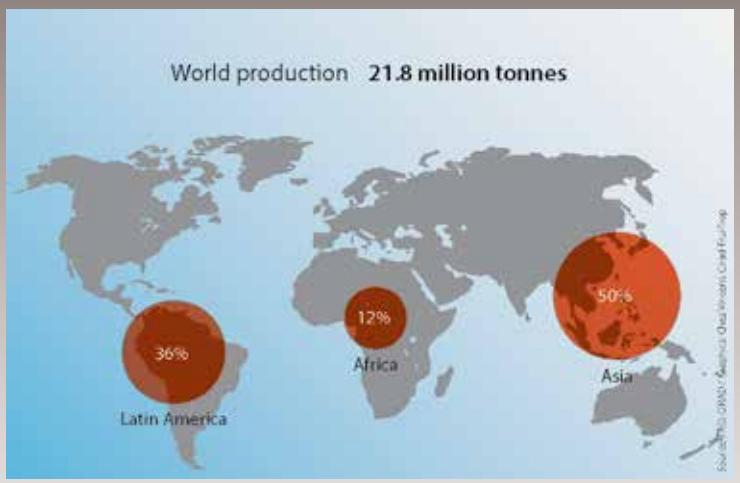


PINEAPPLE - Production (2012)



Pineapple - The 10 leading producer countries	
tonnes	**2012**
Thailand	2 650 000
Costa Rica	2 484 729
Brazil	2 478 178
Philippines	2 397 628
Indonesia	1 780 889
India	1 456 000
Nigeria	1 420 000
China	1 000 000
Mexico	759 976
Colombia	551 133

Sources: FAO, professionals

PINEAPPLE - Imports (2013)

Pineapple - The 6 leading importer countries	
tonnes	**2013**
United States	975 588
Netherlands	277 812
Japan	181 197
Belgium	148 224
United Kingdom	123 936
Canada	122 630

Source: national Customs

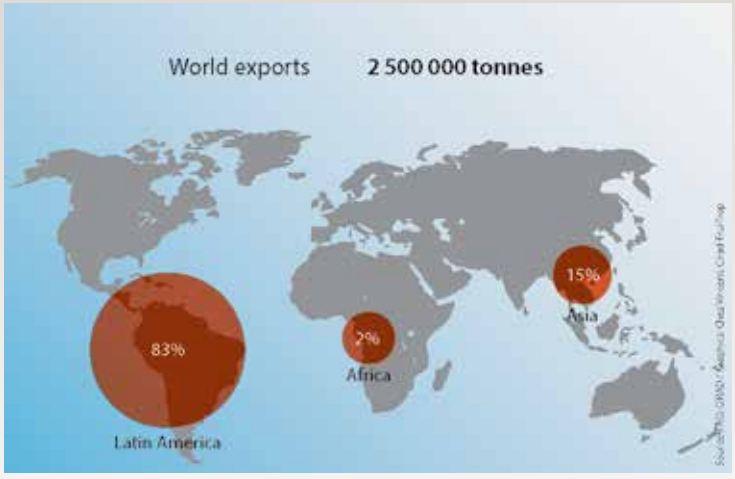
USA - Imports - Main supplier countries					
tonnes	2009	2010	2011	2012	2013
Total	**720 122**	**808 684**	**817 131**	**924 526**	**975 588**
Costa Rica	589 146	677 451	697 648	788 463	853 891
Mexico	46 051	50 000	36 440	55 222	54 182
Honduras	22 067	21 858	27 241	37 288	38 894
Guatemala	18 067	12 650	14 664	14 105	13 804
Panama	11 557	16 203	14 113	14 676	5 093
Others	779	1 460	1 504	2 381	3 272
Thailand	3 898	4 367	3 964	4 516	3 264
Ecuador	28 558	24 695	21 557	7 875	3 188

Source: US Customs

Canada - Imports - Main supplier countries					
tonnes	2009	2010	2011	2012	2013
Total	**96 521**	**103 301**	**108 672**	**121 314**	**122 630**
Costa Rica	85 019	92 618	99 769	112 751	114 929
USA	6 423	4 347	3 012	2 480	3 289
Others	2 121	2 621	2 610	2 594	2 213
Honduras	1 174	1 590	2 098	2 879	1 508
Ecuador	1 783	2 126	1 183	610	691

Source: COMTRADE

PINEAPPLE - Exports (2013)



Pineapple - The 6 leading exporter countries	
tonnes	**2013**
Costa Rica	1 939 795
Philippines	468 159
Panama	93 057
Honduras	79 086
Mexico	56 997
Ecuador	51 789

Sources: national Customs, professionals

Central and South America - Main markets					
tonnes	2009	2010	2011	2012	2013
Total	**45 786**	**48 705**	**63 726**	**46 214**	**54 809**
Chile	23 342	27 677	37 328	20 146	27 703
El Salvador	8 764	9 586	10 000	10 151	11 866
Argentina	12 067	9 683	12 095	10 394	10 970
Peru	167	109	2 271	3 133	1 397
Mexico	167	368	685	1 018	1 035
Uruguay	758	750	715	779	910
Paraguay	415	217	331	537	746
Colombia	107	314	301	56	182

Source: COMTRADE

European Union - Imports - Main supplier countries					
tonnes	2009	2010	2011	2012	2013
Extra-EU total, of which	**881 610**	**901 645**	**919 309**	**864 016**	**828 926**
Costa Rica	663 472	725 406	738 259	723 119	702 029
Panama	30 082	26 485	36 097	27 506	35 557
Ghana	28 723	34 497	40 920	35 339	31 266
Côte d'Ivoire	47 488	38 184	28 304	24 946	25 364
Ecuador	54 865	42 714	39 100	24 516	16 364
Others	7 548	9 272	13 171	11 914	11 508
Cameroon	12 530	13 119	12 556	9 771	4 373
Honduras	21 514	11 307	10 901	6 842	2 458
Brazil	15 389	663	3	63	7

Source: EUROSTAT

Other West European countries - Main markets					
tonnes	2009	2010	2011	2012	2013
Total	**28 423**	**29 620**	**28 958**	**27 671**	**26 886**
Switzerland	21 420	22 716	21 980	20 617	19 960
Norway	6 544	6 392	6 520	6 585	6 453
Iceland	458	511	459	469	473

Source: COMTRADE

Russia - Imports - Main supplier countries					
tonnes	2009	2010	2011	2012	2013
Total	**34 622**	**48 334**	**45 622**	**49 377**	**50 395**
Costa Rica	15 526	27 698	32 567	35 068	39 926
Ecuador	5 126	8 747	4 638	4 720	2 671
China	1 868	1 998	1 635	1 728	1 975
Panama	1 860	1 843	1 803	2 703	1 937
Others	1 232	1 355	1 274	1 928	1 904
Côte d'Ivoire	5 764	5 137	2 675	1 790	1 211
Ghana	1 364	1 066	892	1 348	635
Cameroon	751	383	121	62	119
Brazil	1 131	107	17	30	17

Source: COMTRADE

Other East European countries - Main markets					
tonnes	2009	2010	2011	2012	2013
Total	**9 271**	**11 171**	**12 521**	**15 040**	**15 285**
Ukraine	5 293	6 184	7 565	8 862	8 525
Croatia	1 948	2 137	2 188	2 510	2 580
Belarus	1 215	1 765	1 502	1 899	2 437
Georgia	247	358	526	1 021	978
Serbia	568	727	739	748	765
Bosnia	526	610	539	528	499

Source: COMTRADE

Japan - Imports - Main supplier countries					
tonnes	2009	2010	2011	2012	2013
Total	**143 982**	**142 582**	**155 752**	**174 025**	**181 197**
Philippines	143 120	141 561	154 294	172 627	180 062
Taiwan	824	971	949	713	871
Others	38	17	43	56	216
USA	-	33	466	629	48
China	-	-	-	-	-

Source: Japanese Customs

Other Asian countries - Main markets					
tonnes	2009	2010	2011	2012	2013
Total	**93 699**	**110 878**	**149 317**	**141 674**	**148 444**
South Korea	54 526	60 565	73 010	73 131	75 917
China	21 120	32 857	58 163	47 762	48 250
Singapore	16 144	15 430	16 163	17 995	20 219
Kazakhstan	1 908	2 026	1 981	2 786	4 058
Malaysia	840	1 388	1 994	2 455	1 165
Azerbaijan	1 322	2 602	2 394	1 447	1 156

Source: COMTRADE

Oceania - Main markets					
tonnes	2009	2010	2011	2012	2013
Total	**8 406**	**8 478**	**9 391**	**9 880**	**11 962**
New Zealand	6 119	6 004	6 778	7 195	8 096
Maldives	1 909	2 138	2 165	2 318	3 439
Australia	378	336	448	367	427

Source: COMTRADE

Near East - Main markets					
tonnes	2009	2010	2011	2012	2013
Total	**8 748**	**12 696**	**21 759**	**19 229**	**20 917**
Turkey	5 153	7 769	15 366	13 103	14 068
Lebanon	670	1 443	2 155	1 975	2 696
Morocco	2 163	2 193	2 292	2 349	2 570
Jordan	548	830	1 260	1 500	981
Israel	214	461	686	302	602

Source: COMTRADE

Persian Gulf - Main markets					
tonnes	2009	2010	2011	2012	2013
Total	**30 867**	**42 104**	**46 305**	**45 371**	**58 725**
United Arab Emirates	11 000	12 800	12 110	16 615	27 660
Saudi Arabia	3 505	11 072	14 921	16 137	19 151
Yemen	1 772	1 311	2 835	4 849	4 281
Qatar	1 800	1 842	2 465	2 524	3 539
Oman	1 240	1 695	3 047	2 354	2 100
Iran	7 000	8 890	9 409	698	1 490
Kuwait	4 000	4 000	164	694	504
Bahrain	550	493	1 354	284	498

Source : COMTRADE

Pineapple quality defects

Photos © Patrick Fournier, Pierre Gerbaud, Horta Gabon

Internal browning

Internal browning

Thielaviopsis paradoxa on a lateral blemish

Beginning of *Thielaviopsis paradoxa* on peduncle

Thielaviopsis paradoxa external appearance

Sun scald on 'Victoria'

Sun scald on 'Victoria'

Over-ripeness

Scales

Attack by insects

Crack
malformation or deformity

Colour variation
in the same batch

Damaged, scorched crown

Crown too long
and crushed by box lid

Beginning of internal browning

Beginning of internal browning in 'Victoria'

Thielaviopsis paradoxa

Beginning of *Thielaviopsis paradoxa* on a blemish

External symptom of *Penicillium funiculosum* on Sugarloaf

Internal symptom of *Penicillium funiculosum* on Sugarloaf

Translucent

Mould (*Penicillium*) on peduncle after transport

Mould after transport (*Penicillium*)

Micro-bruising

Dry bracts on 'Victoria'

Peduncle cut irregularity

Irregular crown size

Poorly reduced crown

Double crown

Pineapple growing

This article is drawn from three main sources:

- 'Crop management sequence - Pineapple', PIP, 52 pages. www.coleacp.org
- 'L'ananas', Alain Guyot, ISTOM lectures
- 'L'ananas, sa culture, ses produits', Claude Py & Claude Teisson, 568 pages, Maisonneuve et Larose

The pineapple, *Ananas comosus*, a member of the Bromeliaceae family, originated in South America. The cultivated pineapple still has several traits of this parentage:

- its root system is extremely fragile and the plant prefers light, well-tilled soil;
- it tolerates very dry spells by strongly reducing growth but still surviving;
- the base of the leaves is the most efficient zone for uptake of nutrients and it responds well to foliar fertilisation;
- flowering is induced by low temperatures and short days and is erratic under natural conditions. This gives rise to the most remarkable feature of cultivation—flowering induced artificially by a cropping operation.

Growers can thus—almost as they wish—control harvest date and yield, as fruit weight depends on the size of the plant at the moment at which flowering is induced artificially. Fruit quality is determined essentially by sugar content and acidity, and varies considerably according to weather conditions and the fertilisation applied. In simple terms, nitrogen intake determines weight and potassium intake determines quality. It is an extremely heterogeneous compound fruit whose base is always at a later stage of development than the upper part. Pineapple is not climacteric and after harvesting the main change in the fruit is a gradual loss of its qualities. This deterioration must therefore be limited in the fresh fruit packing and transport chain—fast transport and sales with no breaks in the cold chain. When the fruit is processed, this must be performed as quickly as possible.

Plant cycle

The pineapple exhibits three main phases:

- **the vegetative phase** from planting to the differentiation of the inflorescence (flowering);
- **the fruiting phase** running from differentiation to harvesting of the fruits;
- **the sucker growth phase:** from fruit harvesting to the destruction of the plant.

The parts of an adult pineapple plant are as follows:

- **stalk:** a short club-shaped stem that contains starch reserves and has a fibrous structure that makes mechanical destruction difficult;
- **leaves:** with a maximum of 70 to 80, these can be more than 1 m long and 7 cm broad. Their appearance indicates the state of health of the plant and growth vigour;
- **fruit:** a compound fruit that is the equivalent of a fused, compressed bunch. Its weight depends on plant size at floral induction and the nutritional state of the plant at that stage. It is determined first of all by the number of eyes;
- **crown:** a leafy part topping the fruit;
- **roots:** underground and above-ground. The underground roots are fragile and the slightest discontinuity of the soil profile strongly disturbs growth. The roots are put out in the first month after planting. They then just lengthen and no new root emission takes place before the fourth or fifth month;
- **shoots:** these are of two types—slips that grow on the stalk beneath the fruit, and true shoots that grow at the leaf insertion point on the stalk.

Ethephon

Ethephon is widely used around the world on flower, grain and fruit crops. France alone has no less than 24 registered uses in fruit growth, flowering and maturation processes.

Ethephon is registered for two specific uses in pineapple growing: for triggering the flowering process (floral induction treatment) and the regulation of fruit ripening (degreening). In both cases, the ethylene released by the product acts on physiological mechanisms.

Pineapple possesses the feature of being able to flower on demand, and floral induction is generally performed using gaseous ethylene dissolved in water. As application is a big operation, the process is generally used only on mechanised plantations. Another method used on non-mechanised smallholdings is calcium carbide. However, this is somewhat dangerous as the acetylene gas released is inflammable and even explosive if it comes into contact with copper.

The product that is easiest to use is Ethephon, even though it is less effective on varieties such as 'Smooth Cayenne' and MD-2, more popularly known as 'Sweet'.

Cultivation

- **Soil:** alluvial or volcanic at an elevation of less than 600 metres. Deep soil. Good drainage. Gentle slopes (less than 4%). As 'Sweet' is susceptible to Phytophthora (a fungal disease), the ideal soil pH range is 5.0 to 6.5.
- **Plants:** 50 000 to 70 000 plants per hectare. The quality of planting stock is of fundamental importance: genetically pure 'Sweet' stock with no defects (spines, diseases, etc.), of uniform size (calibrated in 100 g categories), propagules must be as heavy as possible to shorten the cultivation period (but not too heavy as natural flowering should be avoided) and treated with registered pesticides to prevent the spread of pests and diseases.
- **Post-harvest:** 'Sweet' is susceptible to bruising.
- **Nutrition:** fertiliser is applied by spraying every two weeks. The fertilisation programme starts after the harvest.
- **Weeds:** these can reduce yields and harbour pests and diseases that attack planted fields if they are not eradicated in time.

Controlling flowering

When the plant reaches the appropriate stage of development it becomes sensitive to climatic factors and meteorological factors (day-length, decrease of minimum temperature and cloud cover) that determine the differentiation of the inflorescence. Natural flowering then occurs that is not compatible with the commercial management of a plantation. Floral induction treatment (FIT) consists of changing the natural cycle of the plant for the following purposes:

- homogenisation of flowering;
- control of production;
- control of average fruit weight;
- harvest planning.

The date of FIT is determined according to:

- the harvest date desired;
- the FIT/harvest date interval for the period (historical or calculated from the sums of temperatures);
- plant weight (a good indicator being the weight of leaf 'D') that determines that of the fruit.

Three floral induction substances are used:

- acetylene in calcium carbide form: grains are placed in the centre of the floral rosette or mixed with water to make an acetylene solution;
- ethylene gas: less dangerous than acetylene, treatment with an ethylene solution can be mechanised;
- ethephon (Ethrel®): this is an ethylene generator. It is much easier to use than the first two alternatives but the results are often mediocre, especially in very hot conditions.

Degreening treatment

This is performed by application of Ethrel and is to achieve homogeneous fruit colour and reduce the number of picking operations. Ethrel releases ethylene as it breaks down. It does not have an effect on all maturation phenomena but mainly targets colour. It must be applied fairly close to natural fruit maturity in order to be effective with no major disadvantages. Fruits treated in this way are easy to recognise as their colour is not scaled from bottom to top but uniform throughout the shell.

Protection from sun scald

This seasonal phenomenon occurs above all during very sunny periods. Fruits that have lodged, whose stalks are too long or that have a deficient leaf system are those most exposed to sun scald. Several protective methods can be used: tying the leaves in a bunch over the fruit or the whole crop ridge, mulching with grass, or lifting up lodged fruits.

Photos © Claude Teisson

Sun scalding

The main pineapple varieties

'Smooth Cayenne' was for a long time practically the only variety exported fresh and tinned. The Hawaiian hybrid 'MD-2' took over its position on the fresh pineapple market, mainly as a result of its extraordinary capacity for withstanding cold and transport. The robustness of this fruit after harvesting was hitherto unknown and is opening up new prospects in the breeding of new varieties by hybridisation. Other varieties with good taste qualities are preferred on domestic markets but do not keep at all well: 'Perola' in Brazil and 'Queen' in Asia and the Indian Ocean.

Smooth Cayenne

Leaf edges: spines behind tip only
Fruit shape: cylindrical
Fruit colour: green & yellow
Fruit eye diameter: medium
Fruit eye profile: slightly prominent
Flesh colour: pale yellow
Flesh firmness: medium
Flesh texture: smooth
Weight without crown: 1 500 g
Height without crown: 148 mm
Diameter: 121 mm
°Brix : between 14.5 and 16.5
Acidity (meq%ml): between 13.5 and 15.0
Sugar/acid ratio: between 1.0 and 1.2
Flesh maturity homogeneity from bottom to top: with a gradient
Agronomic potential: high yielding
Susceptibility: susceptible to core rot, susceptible to *Phytophthora*, susceptible to soil pests
Post-harvest potential: good, susceptible to internal browning

Victoria

Leaf edges: spines along all margins
Fruit shape: trapezoid
Fruit colour: golden yellow
Fruit eye diameter: small
Fruit eye profile: prominent
Flesh colour: yellow
Flesh firmness: medium
Flesh texture: crisp
Weight without crown: 1 300 g
Height without crown: 172 mm
Diameter: 108 mm
°Brix : 14.8
Acidity (meq%ml): 10.9
Sugar/acid ratio: 1.36
Flesh maturity homogeneity from the bottom to the top: with a medium gradient
Agronomic potential: good yielding. Maturation more rapid than Smooth Cayenne (- 10 to - 15 days)
Susceptibility: very susceptible to core rot, susceptible to Phytophthora, susceptible to soil pests

Sweet

Leaf edges: spines occur irregularly along both margins
Fruit shape: cylindrical
Fruit colour: green & yellow
Fruit eye diameter: medium
Fruit eye profile: flat
Flesh colour: yellow
Flesh firmness: medium
Flesh texture: smooth
Weight without crown: 1 400 g
Height without crown: 143 mm
Diameter: 116 mm
°Brix : between 12.8 and 13.7
Acidity (meq%ml): between 6.15 and 10.10
Sugar/acid ratio: between 1.31 and 2.11
Flesh maturity homogeneity from bottom to top: homogeneous
Agronomic potential: high yielding. Maturation more rapid than Smooth Cayenne (- 4 to - 5 days)
Susceptibility: low susceptibility to core rot, very susceptible to *Phytophthora*, average susceptibility to soil pests
Post-harvest potential: good, not susceptible to internal browning

Observations made in commercial plantations in Central and West Africa:

- average weight of exported fruits (size B10, B9, A8, A7, A6, A5): 1 430 g, varying from 1 150 to 1 890 g
- °Brix: min 13.4° (October), max 14.5° (January)
- Free acidity (meq%ml): min 6.0 (April), max 7.7 (February)
- Sugar/acid ratio: min 1.8 (February), max 2.4 (April)

Post-harvest potential: very susceptible to internal browning

Observations made in commercial plantations in Réunion:

- average weight of exported fruits: 700 to 800 g
- °Brix: average 13° in July-August and 18° from November to April
- Free acidity (meq%ml): average 16 in July-August and 13 from November to April
- Sugar/acid ratio: average 0.8 in July-August and 1.4 from November to April
- Crown weight: 15% of total fruit weight from August to December and 30% from March to May

Photos © Guy Bréhinier

Note: data collected in production conditions in Martinique except for the 'Observations' section (source: CIRAD)