March 2010 - No. 176

# FRuiTROP

English version

## CLOSE-UP:
## PINEAPPLE

Cherry imports:
increasing oscillation

Asparagus imports:
Peru leads the bunch

# Pineapple

Never happy! This seems to be the dominant feature that emerges from analysis of the world fresh pineapple market. For although volumes have increased on a permanent basis, with rocketing increase in the last decade, the value of the produce has fallen considerably on the European market. More fruits, low prices and smaller returns for sector operators. The weakness of the dollar means that the illusion is still there, but until when? Finally, the law of supply and demand is respected and that's all! But one can only be sorry that although pineapple has become commonplace thanks to the 'Sweet' variety it has been at the expense of quality. And from commonplace to vulgar is just a short step.

Photos © Guy Bréhinier

A report by
Denis Loeillet & Thierry Paqui

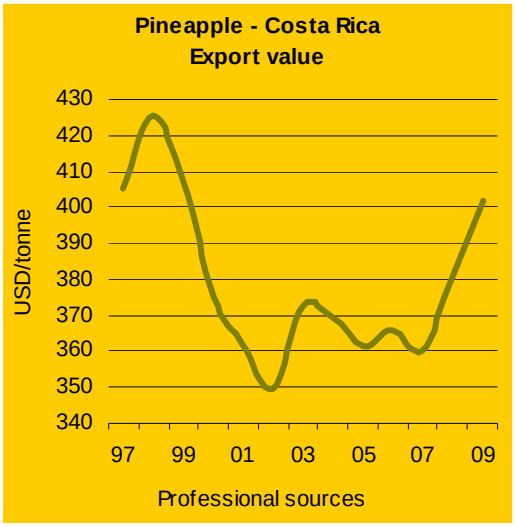
## Contents

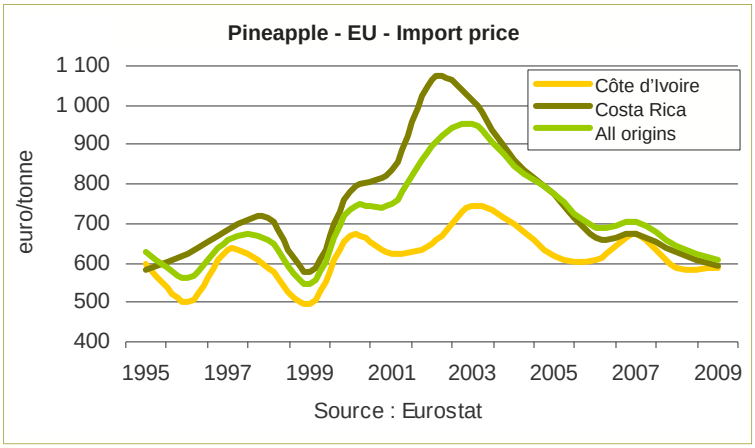
# Fresh pineapple market

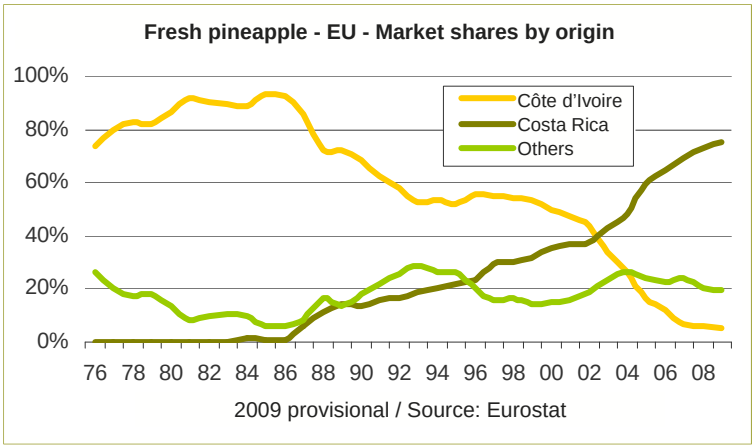
## From the banal to the vulgar

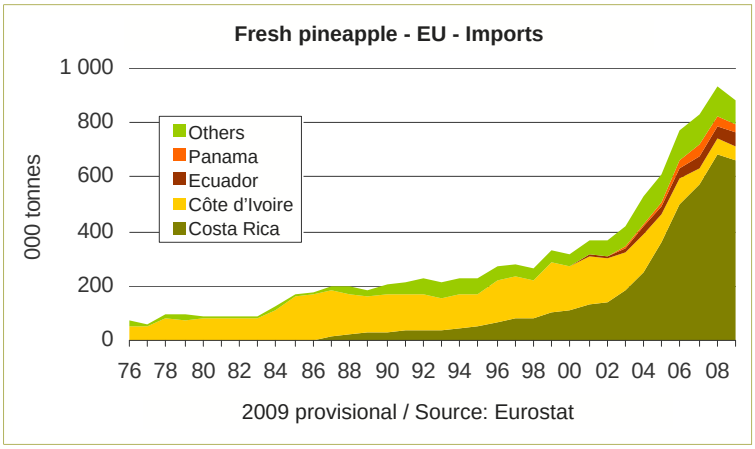
At the same time each year, FruiTrop publishes full coverage of the international pineapple market. Readers have been able to follow this success story since the first issue devoted to this fruit in 1994. I have found it difficult in the last 10 years to renew the list of superlatives used to describe this market as the trend has always been the same. But 2009 marks the end—doubtless provisional—of this avalanche of good performances. A single number summarises the change in the situation: -5%. This is the decrease in European fresh pineapple imports. The total has slipped below the 900 000-tonne mark to 880 194 tonnes. The last decrease was in 2000.

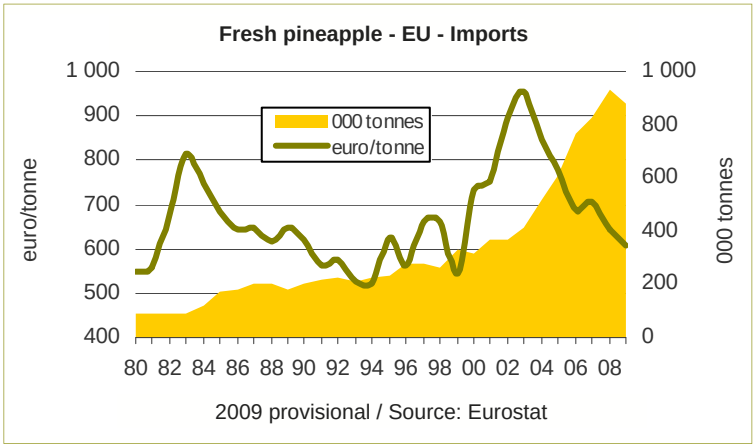
However, the comparison stops there. The drop in 2000 was caused entirely by a decrease of Côte d'Ivoire exports of nearly 20 000 tonnes. At the time, this source still covered 50% of market supply. The figure was no more than 5% in 2009. In 2000, the production sources that cover the market today were all in an upward phase—especially the leader, Costa Rica. In 2009, the latter country met 75% of European demand, further accentuating its grip on the world's leading import market by gaining a further 2% in market share. But in absolute terms, Costa Rica also participates in the decrease of European imports although less than other sources. African suppliers include Côte d'Ivoire once again, with exports sinking to less than 50 000 tonnes (-19%). Ghanaian exports decreased in the same proportions to less than






30 000 tonnes. In contrast, the good surprise is Cameroon, increasing its presence in Europe by a third, shipping 12 600 tonnes. In Latin America, Costa Rica lost ground (- 3%). The worst performances were those of Honduras (- 7%) and above all Panama (- 25%) and Brazil (- 37%). The survivor was Ecuador, which did much better than just defend its positions. Absent from the market in 2000, it shipped 55 000 tonnes to the EU in 2009, a 22% increase. This was a fine performance on a shrinking market!

## Pineapple misses a step

A growth crisis or a reversal of the trend? It is difficult to tell. Although development projects in Latin America, the recent growth of Ecuador, the very contained decrease of the giant, Costa Rica, etc. would seem to indicate a conjunctural error. Panama aims at overtaking Costa Rica as the world's leading producer and exporter (**FruiTrop 174**, page 14). The economic downturn can also be mentioned as an external factor affecting the sector. GNP decreased by more than 4% in 2009 in EU-27, the greatest fall since the creation of the common market in 1957. So it is not surprising to see repercussions on the pineapple market. One might also have thought that the meteorological shocks of 2008 and 2009 in Central America had reduced the export potential of countries like Costa Rica, Panama or Honduras. American imports contradict this hypothesis. Indeed, there is no depression in the United States, the other import market (700 000 tonnes). All that can be said is that there has been no growth. Costa Rica is practically alone on this market (82% market share) and exported almost to within a tonne the same volume as in 2008. This is proof that the weather problems mentioned above were soon overcome.

The crisis in value-added was more serious than the volume crisis. Our analysis below is very clear on this point. Unit value fell. In contrast with the possible recovery of volumes, the depreciation of the pineapple market is a weighty trend. Customs data confirm the market prices. Overall, for all sources, imported pineapple changed hands at EUR 592 per tonne in 2009 in comparison with EUR 1 064 in 2002 during the golden age of Del Monte's 'Extra Sweet' pineapple ('MD-2' variety) and before the avalanche of Super, Mega and Giga Sweet from its competitors. Analysis of customs figures gives us other information about the dynamics of the market. The comparative movement of the customs

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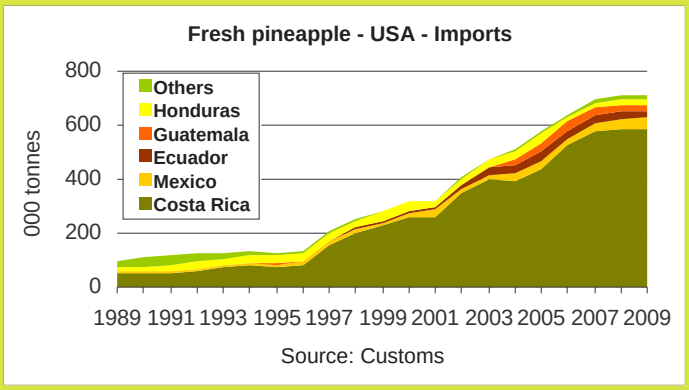
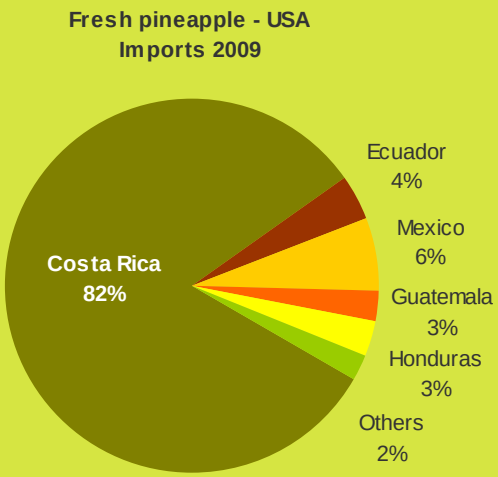
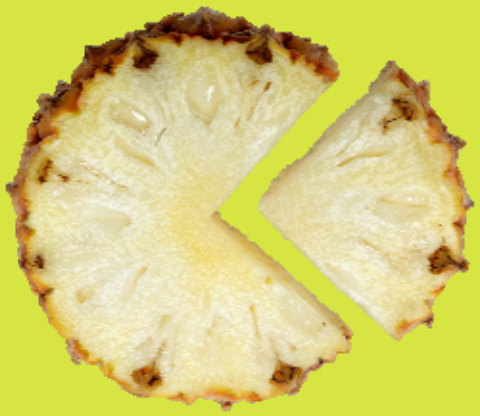
## Resistance in the United States

The US market was a good pupil in 2009. While the slump affected many sectors, demand for fresh pineapple held up in the United States. The import score at the end of the year was almost perfectly stable at 711 000 tonnes. Costa Rica, still the leader, kept its 82% market share. This Central American source favoured the US market at the expense of the EU, where it lost a small 3%. The opposite situation held for Ecuador which lost 4% in the United States and gained 22% in Europe. Mexico is now the second-largest supplier with a 6% market share.



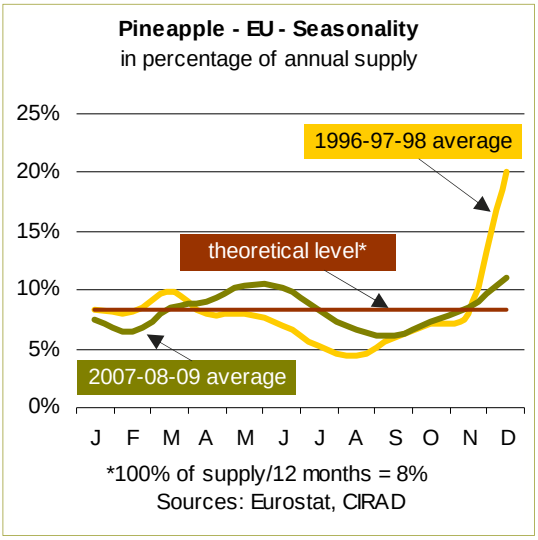



value of imports from Costa Rica and Côte d'Ivoire since 1996 shows that the over-valuing of 'Sweet' in comparison with the old 'Smooth Cayenne' standard is ancient history or soon will be. The unit value curves joined in 2009, wiping out ten years of very contrasting trends for the two sources, the former and the new leader.

### Sweet and sour

The driving force behind this ten-year interlude are finally very classic. They combine an immoderate increase in volumes resulting from the diversification of sources and operators preceding an overall decrease in quality at the import and retail stages. The fruit became ordinary and thus lost value. Pineapple meets what the Greek philosopher Epicurus (fourth century BC) referred to as the natural needs that are essential to life. The psychologist Abraham Maslow included the concept in his theory of self-actualisation (1943). He discusses the consumer's satisfaction of the first level of his needs, his physiological needs. This is obviously far from the concept of exotic fruits, the eating of which is more focused on pleasure in tasting, belonging to a privileged group or a need for singularity and originality.

But there is no point in being sorry for having attained the volume performance sought by all companies, except for Hermès in the luxury sector perhaps! European imports increased five-fold in 20 years! It has been a while since we could call pineapple a niche fruit or specialised produce. We should rather wonder when EU imports will reach the symbolic million-tonne level. According to Interfel's review, the French eat 1.8 kg of pineapple per person per year—precisely the European average. This is 400 g more than apricot, plum or cherry and on the same scale as avocado (the French being large




Photos © Guy Bréhinier

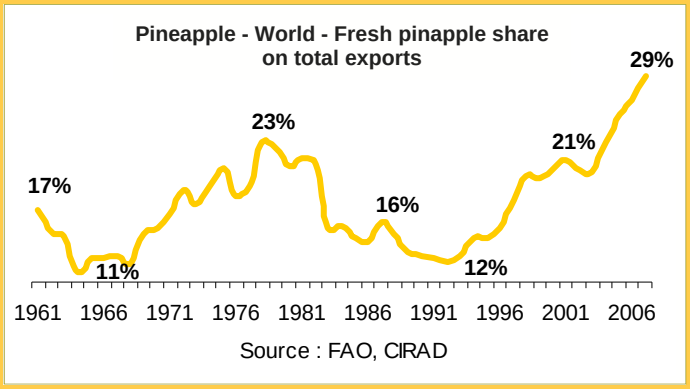
consumers in Europe), kiwi and strawberry. In addition to the question of volumes, pineapple has also progressed from niche consumption to mass consumption. The supply calendar is no longer keyed into Christmas and the New Year, Easter, the Chinese New Year, etc. Market releases are linear.

After a decade of development, the fruit has now become ordinary. Nevertheless, growth potential is still large if only as a result of supply pressure, which is not at all likely to decrease in the coming years. All Europeans have access to fresh pineapple. It is true that quality is sometimes mediocre but the prices are very affordable. The problem is elsewhere, in the returns to growers, whether integrated in a large fruit company or an independent farmer. What will be the resistance of Costa Rican growers faced with decreasing incomes? Costa Rican foreign trade figures are not alarmist in any case. Gaining 5%, export value exceeds USD 400 per tonne once again. Unit value rose for the second year running and we are now far from the USD 360 of 2007 or even the USD 350 recorded in 2002. So everything seems wonderful. And in any case other production zones can support the leader in its quest for an increase in export volumes. Ecuador and Panama come to mind. But beware of a bad remake of the trends experienced by the banana sector: relocation to socially more competitive zones that sometimes pay less attention to environmental aspects. A final rampart remains for Central American producers in the form of a favourable exchange rate that means they produce in dollars and sell part of the production in euros. Long may this last … ■

**Denis Loeillet**, CIRAD
denis.loeillet@cirad.fr

## One in three pineapples exported is fresh

Pineapple is a very large fruit crop at the world level. Production totals 20 million tonnes (source: FAO), putting it in seventh position with pear and ahead of peach and nectarine. Above all, production is very dynamic. It has doubled in the last two decades and quadrupled since the early 1970s. Nearly 90% of production is concentrated in a dozen countries. Traditionally, Asia accounts for more than 50% of production, with five countries in the world's top ten: Thailand (2.3 million tonnes), the Philippines (2.2 million), China (1.4 million), India (1.3 million) and Indonesia (1.3 million). Thailand lost the position of world leader that it had held for decades to Brazil (2.5 million tonnes) and is threatened by the strong growth of the Philippines. In addition to supplying their vast domestic and regional markets with fresh fruits, the Asian sources are strongly focused on export markets for canned fruits and juice.




Costa Rica is now the world's fourth-largest producer with 1.6 million tonnes and is specialised in the fresh pineapple market—the foundation of its very rapid development. It exported a little more than 1.4 million tonnes in 2009, that is to say three-quarters of world export supply. Its production volume has enabled it to play a role on the juice market for a number of years.

World production developed for more than ten years. The annual growth rate frequently exceeded 5% and even approached 10% from 2005 to 2007. It seems that this is no longer the case. Estimated figures for 2009 show that production decreased again after a difficult 2008. If demand has increased favourably in recent years, it is because the fresh fruit segment has fuelled production and world exports. One in three pineapples exported is fresh against one ion five less than ten years ago. Two-thirds of the pineapple traded on the international market consists of processed pineapple products such as cans (rings or pieces) and juice (single or concentrated).

Pineapple - Production and world imports - Tonnes

| | World production | Imports - Fresh fruit equivalent | | | | |
|---|---|---|---|---|---|---|
| | | Concentrate | Single juice | Preserve | Fresh | Total import |
| 1969-71 average | 5 462 915 | 2 | 145 681 | 738 506 | 160 356 | 1 044 545 |
| 1979-81 average | 9 775 626 | 3 042 | 342 479 | 982 024 | 365 659 | 1 693 204 |
| 1989-91 average | 11 498 232 | 2 338 905 | 286 742 | 1 477 613 | 586 539 | 4 689 800 |
| 2000 | 15 098 078 | 1 850 544 | 485 560 | 1 693 091 | 1 051 523 | 5 080 718 |
| 2001 | 15 697 460 | 1 972 783 | 627 080 | 1 648 209 | 1 152 605 | 5 400 677 |
| 2002 | 15 800 498 | 3 037 896 | 423 297 | 1 663 795 | 1 315 833 | 6 440 821 |
| 2003 | 16 091 486 | 3 476 396 | 435 638 | 1 820 324 | 1 462 466 | 7 194 824 |
| 2004 | 16 667 677 | 3 347 365 | 445 556 | 1 887 859 | 1 708 114 | 7 388 894 |
| 2005 | 17 813 831 | 3 172 969 | 491 587 | 2 043 347 | 1 962 354 | 7 670 257 |
| 2006 | 19 498 103 | 3 484 438 | 525 283 | 2 211 427 | 2 293 695 | 8 514 844 |
| 2007 | 21 008 795 | 3 354 366 | 560 480 | 2 133 141 | 2 495 569 | 8 543 555 |

Sources: FAO, Cirad

| Pineapple — EU Monthly imports in 2009 — Tonnes | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Origin** | J | F | M | A | M | J | J | A | S | O | N | D | **Total 2009*** | **Total 2008** |
| **Extra-EU, incl.** | **60 040** | **68 218** | **83 049** | **81 303** | **87 214** | **90 119** | **68 580** | **61 536** | **53 977** | **56 691** | **68 660** | **100 809** | **880 194** | **930 525** |
| Costa Rica | 43 233 | 47 168 | 59 806 | 56 473 | 68 219 | 73 335 | 57 768 | 49 805 | 41 068 | 41 454 | 51 782 | 72 123 | 662 234 | 680 179 |
| Ecuador | 3 833 | 7 057 | 5 118 | 5 169 | 4 063 | 4 446 | 4 162 | 3 963 | 4 147 | 4 031 | 4 061 | 4 783 | 54 832 | 45 011 |
| Côte d'Ivoire | 2 208 | 4 395 | 6 023 | 6 388 | 3 851 | 2 067 | 1 548 | 1 920 | 3 026 | 4 022 | 3 457 | 8 514 | 47 421 | 58 902 |
| Panama | 2 120 | 1 580 | 2 425 | 3 235 | 2 755 | 2 356 | 1 385 | 2 771 | 2 615 | 2 385 | 2 784 | 3 381 | 29 792 | 39 686 |
| Ghana | 2 018 | 2 523 | 3 580 | 3 088 | 1 361 | 2 055 | 1 360 | 1 368 | 1 352 | 1 931 | 2 795 | 5 286 | 28 718 | 35 633 |
| Honduras | 2 318 | 2 116 | 2 018 | 3 213 | 3 128 | 3 236 | 659 | 568 | 453 | 620 | 812 | 2 374 | 21 514 | 23 127 |
| Brazil | 2 881 | 2 155 | 2 114 | 1 284 | 1 755 | 601 | 291 | 108 | 256 | 1 031 | 1 255 | 1 720 | 15 450 | 24 688 |
| Cameroon | 836 | 758 | 1 402 | 1 868 | 1 241 | 1 479 | 1 092 | 549 | 649 | 580 | 951 | 1 211 | 12 613 | 9 924 |
| Benin | 146 | 139 | 179 | 137 | 136 | 80 | 67 | 154 | 184 | 240 | 322 | 351 | 2 134 | 1 851 |
| Thailand | 155 | 82 | 49 | 114 | 120 | 177 | 110 | 116 | 45 | 117 | 89 | 180 | 1 353 | 2 954 |
| South Africa | 90 | 53 | 97 | 86 | 79 | 53 | 52 | 67 | 56 | 57 | 66 | 252 | 1 010 | 1 315 |
| Togo | 58 | 83 | 82 | 78 | 68 | 99 | 27 | 18 | 14 | 85 | 144 | 153 | 908 | 849 |
| Dom. Rep. | 3 | 13 | 13 | 30 | 56 | 62 | 2 | 36 | 36 | 60 | 60 | 249 | 618 | 247 |
| Mauritius | 21 | 30 | 43 | 31 | 31 | 28 | 19 | 26 | 25 | 32 | 48 | 162 | 496 | 607 |
| Uganda | 29 | 24 | 35 | 28 | 27 | 23 | 14 | 17 | 24 | 22 | 20 | 30 | 294 | 383 |
| Belize | 0 | 0 | 0 | 0 | 258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 258 | 0 |
| Colombia | 2 | 0 | 43 | 19 | 26 | 0 | 0 | 3 | 4 | 0 | 4 | 0 | 101 | 41 |
| Guinea | 14 | 10 | 10 | 17 | 10 | 9 | 6 | 0 | 2 | 0 | 5 | 15 | 98 | 200 |
| Sri Lanka | 11 | 3 | 4 | 3 | 8 | 6 | 4 | 8 | 9 | 5 | 2 | 3 | 65 | 190 |
| China | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 44 | 696 |
| Peru | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 41 | 0 |
| Kenya | 0 | 0 | 5 | 5 | 0 | 0 | 6 | 4 | 3 | 10 | 0 | 2 | 34 | 14 |
| **Intra-EU, incl.** | **38 875** | **31 815** | **45 701** | **43 698** | **42 945** | **45 063** | **36 764** | **32 237** | **29 922** | **30 616** | **31 155** | **7 847** | **416 640** | **487 477** |
| Netherlands | 13 678 | 10 622 | 16 065 | 14 636 | 15 615 | 18 215 | 12 300 | 14 528 | 11 948 | 11 169 | 11 648 | 3 021 | 153 446 | 163 895 |
| Belgium | 8 786 | 6 422 | 11 092 | 10 654 | 9 792 | 11 404 | 8 976 | 7 140 | 6 365 | 6 930 | 6 660 | 2 390 | 96 610 | 133 488 |
| Germany | 3 863 | 2 624 | 3 610 | 3 203 | 3 091 | 3 754 | 2 954 | 2 048 | 2 142 | 1 787 | 2 474 | 194 | 31 740 | 43 369 |
| France | 3 260 | 3 107 | 2 725 | 4 009 | 3 564 | 2 599 | 2 173 | 1 941 | 2 038 | 2 198 | 2 670 | 281 | 30 565 | 32 973 |
| Italy | 2 275 | 2 224 | 3 291 | 2 924 | 3 084 | 2 180 | 2 897 | 1 408 | 1 768 | 2 118 | 2 177 | 847 | 27 191 | 26 770 |
| Spain | 2 125 | 2 326 | 2 668 | 3 614 | 2 657 | 2 871 | 2 167 | 2 195 | 1 612 | 1 997 | 1 981 | 307 | 26 520 | 29 121 |
| Ireland | 1 460 | 894 | 2 506 | 996 | 995 | 211 | 3 184 | 987 | 1 730 | 1 726 | 47 | 0 | 14 735 | 21 992 |
| United Kingdom | 932 | 728 | 1 375 | 925 | 841 | 1 250 | 1 140 | 1 368 | 1 659 | 1 424 | 1 332 | 736 | 13 709 | 10 600 |
| Portugal | 1 751 | 2 165 | 1 469 | 1 855 | 1 131 | 1 600 | 257 | 276 | 291 | 909 | 1 555 | 0 | 13 258 | 17 182 |
| Czech Rep. | 353 | 197 | 396 | 424 | 403 | 86 | 149 | 64 | 54 | 76 | 182 | 0 | 2 384 | 2 873 |
| Sweden | 135 | 158 | 149 | 158 | 230 | 145 | 280 | 149 | 168 | 150 | 118 | 0 | 1 840 | 1 899 |
| Poland | 11 | 28 | 4 | 18 | 1 241 | 485 | 5 | 2 | 10 | 0 | 24 | 2 | 1 831 | 348 |
| Austria | 155 | 168 | 153 | 123 | 154 | 157 | 172 | 48 | 73 | 86 | 123 | 9 | 1 420 | 1 449 |
| Greece | 46 | 31 | 47 | 28 | 39 | 15 | 46 | 25 | 45 | 31 | 72 | 0 | 423 | 359 |
| Slovakia | 4 | 24 | 65 | 67 | 49 | 39 | 14 | 9 | 3 | 7 | 16 | 35 | 332 | 151 |
| Luxembourg | 5 | 29 | 29 | 9 | 11 | 12 | 7 | 14 | 4 | 6 | 10 | 25 | 162 | 179 |
| Lithuania | 18 | 1 | 35 | 24 | 14 | 2 | 6 | 9 | 0 | 1 | 43 | 0 | 153 | 130 |
| Latvia | 0 | 0 | 0 | 1 | 31 | 18 | 37 | 28 | 10 | 1 | 0 | 0 | 126 | 5 |
| Denmark | 8 | 61 | 16 | 19 | 4 | 7 | 1 | 0 | 2 | 2 | 4 | 0 | 124 | 500 |
| Slovenia | 4 | 7 | 5 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 18 | 0 | 41 | 13 |
| Estonia | 0 | 1 | 3 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 1 | 0 | 9 | 7 |
| Hungary | 7 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 10 |
| Finland | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 149 |
| Romania | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |

* 2009 provisional / Source: Eurostat

# Pineapple by air
# Review of the 2009 season

## Prices smoothing

The price range has narrowed considerably for fruits from the various sources that shipped pineapple to the French market by air in 2009. The considerable differences between fruits from certain sources have now been replaced by a kind of regulation making it possible to maintain equivalent prices throughout the year. It is true that differences still exist but they are smaller, with average prices ranging from EUR 1.70 to 1.90 per kg for all sources.

Supply of air pineapple was still dominated by three main sources: Cameroon, Benin and Ghana. This was completed by smaller arrivals from Côte d'Ivoire, Guinea and now Togo.

### Benin sought-after for taste

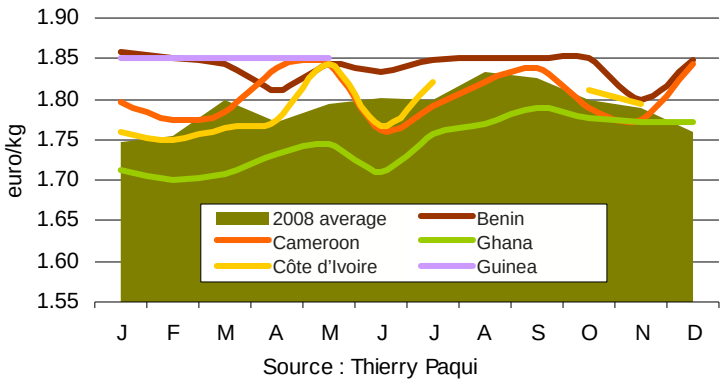
The position continued to be excellent for supply of pineapples shipped from Benin by air. Prices of 'Smooth Cayenne' held at a good level, averaging EUR 1.78 to 1.85 per kg according to the volume of supply. Although these fruits are sought-after and appreciated for their taste qualities, it has to be admitted that the source is still having difficulty in establishing a professional image. The fault lies above all in the absence of production and export structures. Most of the pineapples from Benin found on the French market are farm gate purchases, which prevents the setting up of even quality for exported fruits. In spite of the efforts made on sorting by some people, quality was often somewhat erratic. The main defects mentioned during the season were lack of colour and fruits badly or not brushed, with this affecting presentation.

Exports of 'Sugarloaf' pineapple from Benin continued to grow, to the point at which they are more sought-after than the country's 'Smooth Cayenne'. Sales were more regular with more stable prices, higher than those mentioned above, the average being EUR 1.85 to 1.95 per kg throughout the season. The impression of fine or quality produce was the same for both 'Sugarloaf' and 'Smooth Cayenne'. Unfortunately, this good image set by the source was sometimes damaged by fruits that lacked shine or had blemished skins.

### Cameroonian produce too disparate

Produce from Cameroon has an important position on the air pineapple market. In spite of increasing costs (airport taxes, high air freight prices), they continued to be a dominant force. Unfortunately, the increase in export volumes was often at the expense of quality and this was harmful for a production source whose fruits have not always received the recognition that they deserved. The average price fluctuated between EUR 1.70 and 1.88 per kg throughout the season. Too much disparity in quality according to brand prevented more profitable sales of fruits from Cameroon. The availability on the same market of fruits that had been well prepared and others that should not have been on the air market often accounted for the price differences of up to EUR 0.30 per kg often observed. Not all the operators were in the same position and there is considerable scope for increasing exports of pineapple from Cameroon by air. The results achieved by SIIM (the leading importer of fruits from Cameroon) are exemplary in this respect. With strict specifications and serious work at the head of the chain, this company succeeded in releasing more even, better coloured fruits that therefore sold at higher prices than the average for fruits from Cameroon. However, given the irregularity of

**Pineapple by air - France - Import price in 2009**




Source : Thierry Paqui

Photos © Guy Bréhinier

the fruits released on the market, several operators chose to stop working with Cameroonian exporters. An accumulation of problems of quality and the funding of seasons often make work with this source too risky.

## Green Ghana

Ghana is the third largest supplier of the French market. In spite of a serious image problem as its fruits are reputed to be too green, this production source has strengthened its position in France considerably. With lower freight costs than its competitors, Ghana succeeds in selling its fruits well in spite of their lack of colour. The DELIGHANA brand has succeeded in convincing purchasers of the quality of its produce over the years, with fairly even fruit quality and good packaging. Indeed, they are always in the upper part of the price range for fruits from Ghana. Several Ghanaian exporters chose to refocus their air shipments of pineapple to the French and Swiss markets as they are considered to be more profitable. Exports to markets like Belgium gradually decreased and have now stopped.

Supply of 'Smooth Cayenne' shipped from Ghana by air is completed by that of 'Sugarloaf'. The latter were not as well coloured as those of competing sources and it was difficult to conclude sales at more than EUR 1.80 per kg. The green 'Sugarloaf' fruits from Ghana allowed slightly greater segmentation of the air pineapple market. The colour criterion—especially for 'Sugarloaf'—means that the more coloured fruits sell better and the less well coloured ones fetch lower prices.

Fruits from Côte d'Ivoire, Guinea and now Togo completed supply. These were available less regularly and in much smaller volumes, tending to sell in part of what is already a niche market. The prices of fruits from these supply sources were generally stable as the quality did not change much. However, it is difficult to forecast a large increase in the volumes exported from these countries in the coming years ■

**Thierry Paqui**, Consultant
paqui@club-internet.fr

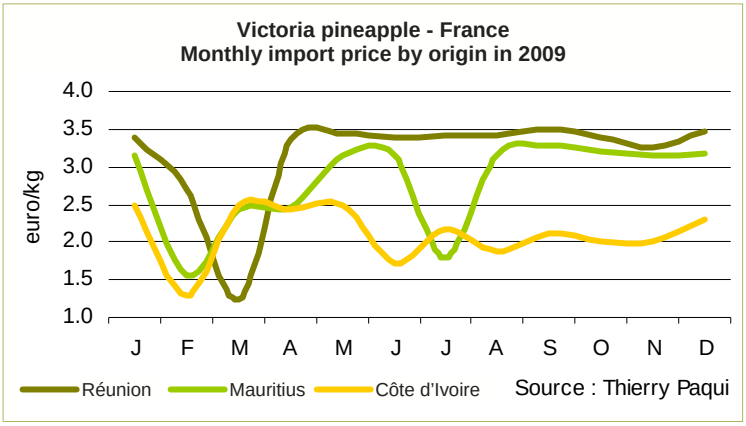
# 'Victoria' pineapple

## Air freight the only solution

Operators agree that the 2009 season was a difficult one for sales of 'Victoria' pineapple. As in preceding years, the greater part of supply was by air from Réunion and Mauritius. It was completed by decreasing quantities arriving by sea from Côte d'Ivoire. Indeed, 'Victoria' imported by sea is sold per kg like air-freighted fruits and not per box but at much lower prices.

'Victoria' pineapple has a festive character among small exotics, and sales are generally brisker when there are celebrations (Easter, Christmas, Chinese New Year, etc.). Sales are fairly limited and dull at other times. Clients interested in this type of fruit are ready to pay a fairly high price but quality must be perfect. Under these conditions, it is difficult to compare the quality of fruits arriving by air with those shipped by sea. Prices of 'Victoria' from Côte d'Ivoire are therefore lower. Indeed, the latter source only succeeds in existing on this already very competitive market by lowering prices. Although this makes it possible to conserve a certain volume of sales, the approach is difficult to justify in the long term when production costs and profitability are taken into account.

Thus exports of 'Victoria' pineapple by sea from Côte d'Ivoire continued throughout 2009, even though volumes were down, and halted completely in February 2010. These exports benefited from the logistics set up by SCB (a subsidiary of Compagnie Fruitière) for its shipments of 'Sweet' pineapple (Ana'dou brand). However, the question of the continuing of these exports of Victoria by sea is raised as it is difficult to establish these fruits with regard to quality (intrinsic quality and appearance) in competition with fruits arriving by air from Réunion and Mauritius.




'Victoria' pineapple has a niche market that by definition cannot take large volumes. The least fluctuation in quality or volume can affect demand or the movement of prices. These features are not favourable for exports of 'Victoria' pineapple by sea, at least to the French market where competition from fruits shipped by air is very strong.

### Progress of the season

As in previous years, fruits from Réunion were the reference with regard to quality. They thus sold a little better than those from rival sources even if they tended to be less dominant as regards quality in 2009.

Demand for 'Victoria' never really increased throughout the 2009 season. It remained fairly small and was just enough to take the small quantities released. Strikes in Réunion, which also affected supply from Mauritius in Weeks 8 to 12 did not affect consumption or prices. The absence of fruits from Réunion and Mauritius simply resulted in better sales of the few fruits from Côte d'Ivoire available on the market. This is practically a full summary of the 2009 season. Supply was small with fruits often of mediocre quality and no complaints by operators of a shortage of produce.

In contrast with preceding seasons when periods of strong demand were followed by periods of smaller sales, there was a curious impression that sales of 'Victoria' hung fire throughout the season, with customers seeming to have lost all interest in the fruit.

As demand remained small, the increase in the quantities of 'Victoria' arriving by boat from Côte d'Ivoire (weeks 37 to 45) caused prices to collapse, the only way of shifting goods and avoiding having to destroy these fruits that have a limited lifetime ■

**Thierry Paqui**, Consultant
paqui@club-internet.fr

Photos © Guy Bréhinier

# Pineapple by sea
# Review of the 2009 season

## Disenchantment with 'Sweet'

The economic downturn that started in 2008 doubtless affected sales on the sea pineapple market in 2009—unless performance simply confirms the unfavourable price movement observed on four major markets (Germany, Belgium, France and the Netherlands) for a number of years. It therefore seems fairer to say that the downturn just accentuated a general fall in prices on a market where operators seem to make less and less profit.

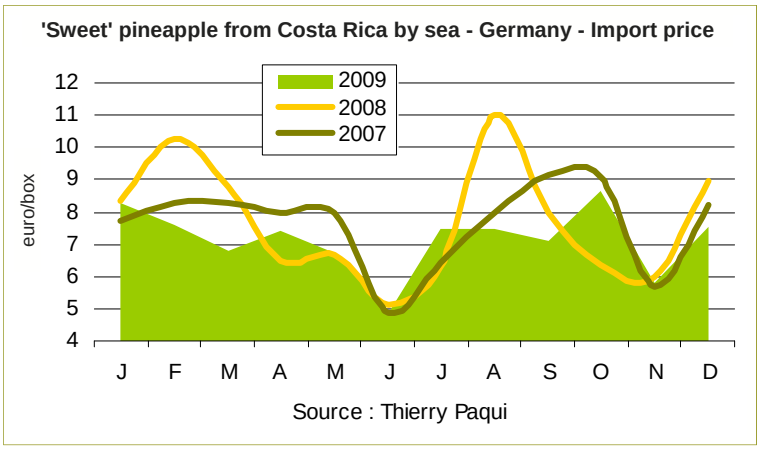
Average prices remained much the same in 2009, but with a few small differences. 'Sweet' fetched an average of between EUR 6.30 and 7.80 and sometimes 8.00 per box at the import stage whereas the price of 'Smooth Cayenne' oscillated at between EUR 6.00 and 7.00 per box. The peak sales period lasted for a month in 2008, with prices averaging EUR 10.00 to 12.00 per box. In 2009, prices during the same peak period had difficulty holding at between EUR 8.50 and 10.00 per box!

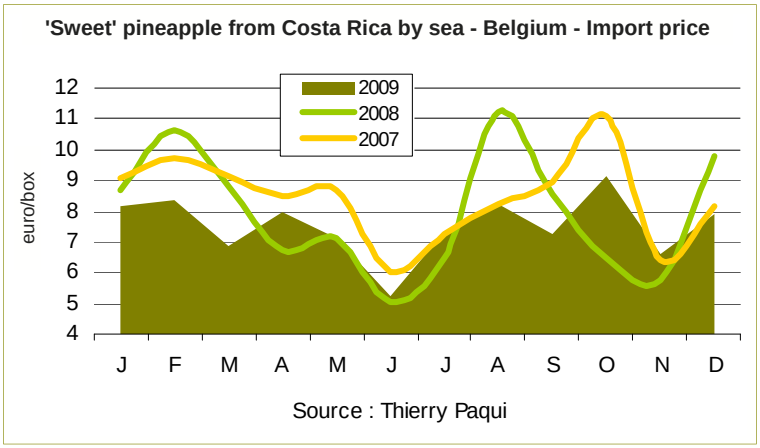
It is thus easy to understand operators' concern as their margins were gradually shaved. The volumes sold in Europe mean that pineapple is considered by some as a fruit for mass consumption, having left the 'exotics' category long ago.

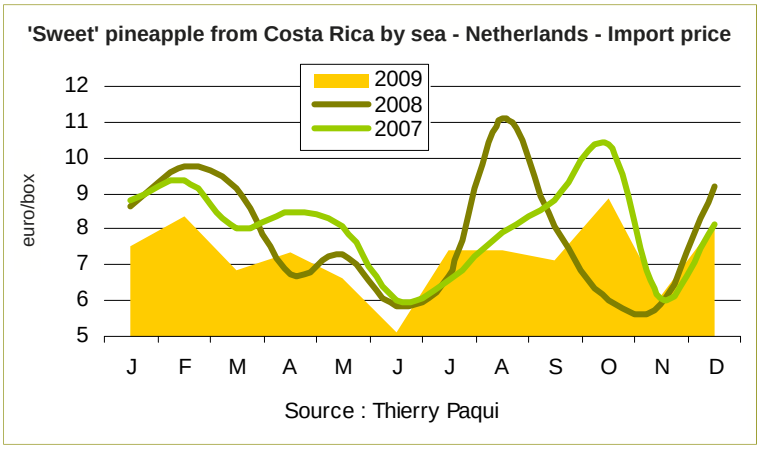
As is always the case, the volumes of 'Sweet' available on the market governed the pattern of the season. Fault was frequently found with quality. The fruits received lacked colour but were often fragile and ripened too quickly. This meant that they could not be kept in store for long and this put further pressure on sales. The only remaining option for recovering market fluidity was a decrease in prices.

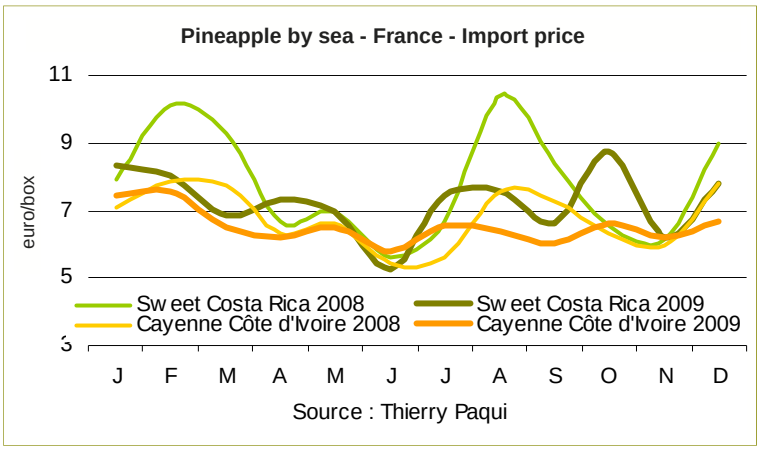
A new phenomenon appeared on the pineapple market—a certain lack of interest in the fruit. Although the promotion operations set up with supermarket chains enabled the more or less successful sale of stocks, it was often noticed that consumers seemed unenthusiastic. Demand was too small several times during the season to take the small volumes of fruits available, even though supply was limited.

Photo © Guy Bréhinier




## Progress of the season

Prices of pineapple were satisfactory but no more during the first part of the season (Weeks 1 to 21). Sales were not very dynamic and operators juggled with supply imbalanced by too many small fruits and demand that was only just strong enough to take the volumes released. The first peak period for the market occurred during this phase. In contrast with the situation in 2008, when it lasted for nine weeks with average prices of EUR 9.00 to 12.00, the first 2009 peak lasted for hardly three weeks, with average prices ranging from EUR 8.50 to 11.00 per box.

During this comparatively short period, both sales and the volumes available on the market were too small and limited for operators to be able to profit. Demand often remained very small, without it being possible to create an impression of shortage that would have allowed sales at better prices.

The second phase of the season (Weeks 22 to 28) was marked by a considerable increase in supplies of 'Sweet' from Latin American sources and especially Costa Rica. The European market received enormous quantities of fruits when demand was slow or even non-existent. This caused a very serious fall in prices, with the trend lasting for the whole of this seven-week period. The increase in Latin American supply of 'Sweet' occurred at the start of the very early sales of the season's fruits. Pineapples thus reached the market when general demand was focused on other fruits. Prices fell more markedly to from EUR 4.30 to 5.50 per box.

The situation was particularly difficult to handle as fruit quality was very uneven. Operators could not keep these fruits for more than two days before serious deterioration of quality and had to let prices go in a general sauve qui peut movement to avoid even more catastrophic losses.

The third and last phase (weeks 29 to 53) was fairly regular. In the 2008 season, this phase consisted of two peak periods lasting 7 and 4 weeks respectively. Three were observed in 2009, lasting 4, 5 and 2 weeks but, unfortunately, sales were not very strong. Operators were frustrated and now fear the worst for a sector that had brought them good profits for a decade ■

**Thierry Paqui**, Consultant
paqui@club-internet.fr

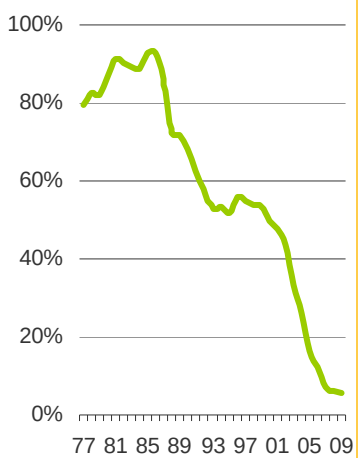
## Can the Côte d'Ivoire pineapple sector rise from its ashes?

Côte d'Ivoire was long the driving force behind pineapple exports from ACP production sources and especially African countries exporting to the European markets. The arrival of 'MD-2', aka 'Sweet', took a swipe at the preponderant role that it played on the European market.

The combination of several factors—both political and related to strategic choice and shortage of investment capacity—prevented a change of variety in Côte d'Ivoire. Just remember that Ivorian exports consisted of 'Smooth Cayenne' at the time. The arrival of a new hybrid, 'MD-2', in 1996, upset the market situation completely. Thus, in 1995, before the arrival of 'Sweet', pineapple exports from Côte d'Ivoire formed 52% of European supply with a total of 120 000 tonnes shipped to the EU. At the time, Costa Rica already had a 22% market share with 50 000 tonnes. In 2009, more than a decade after the introduction of 'Sweet' and after European market growth of more than 200%, exports from Côte d'Ivoire formed only 5% of European supply at only 47 000 tonnes.

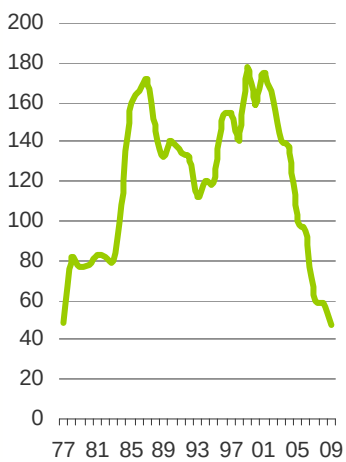
After months of reflection, the main fruit sector operators in Côte d'Ivoire held a symposium in Bassam from 17 to 29 October 2009 (Symposium des opérateurs des filières fruitières de Côte d'Ivoire) to pool their analyses and identify priorities for actions to re-launch Ivorian fruit sectors and pineapple in particular.

**Fresh pineapple - EU**
**Côte d'Ivoire**
**market share**




Source : Eurostat

**Fresh pineapple - EU**
**Côte d'Ivoire imports**
000 tonnes




Source : Eurostat

Several important decisions were made and renew hope. They include varietal diversification, the obligation for small growers to group in blocks of a minimum of 30 hectares in order to improve technical supervision and to harmonise cultural practices and, finally, the opening up of new international outlets, in particular in the sub-region.

Apart from the fact that the production sources competing with Côte d'Ivoire have not waited for this awakening and that all the decisions taken during the symposium require significant funding, unfortunately it must be admitted today that the deteriorated institutional and political situation that had discouraged investors does not seem to be improving. But the potential is there. It will be reminded nevertheless that this sector was the leading export fruit sector in the whole of West and central Africa.

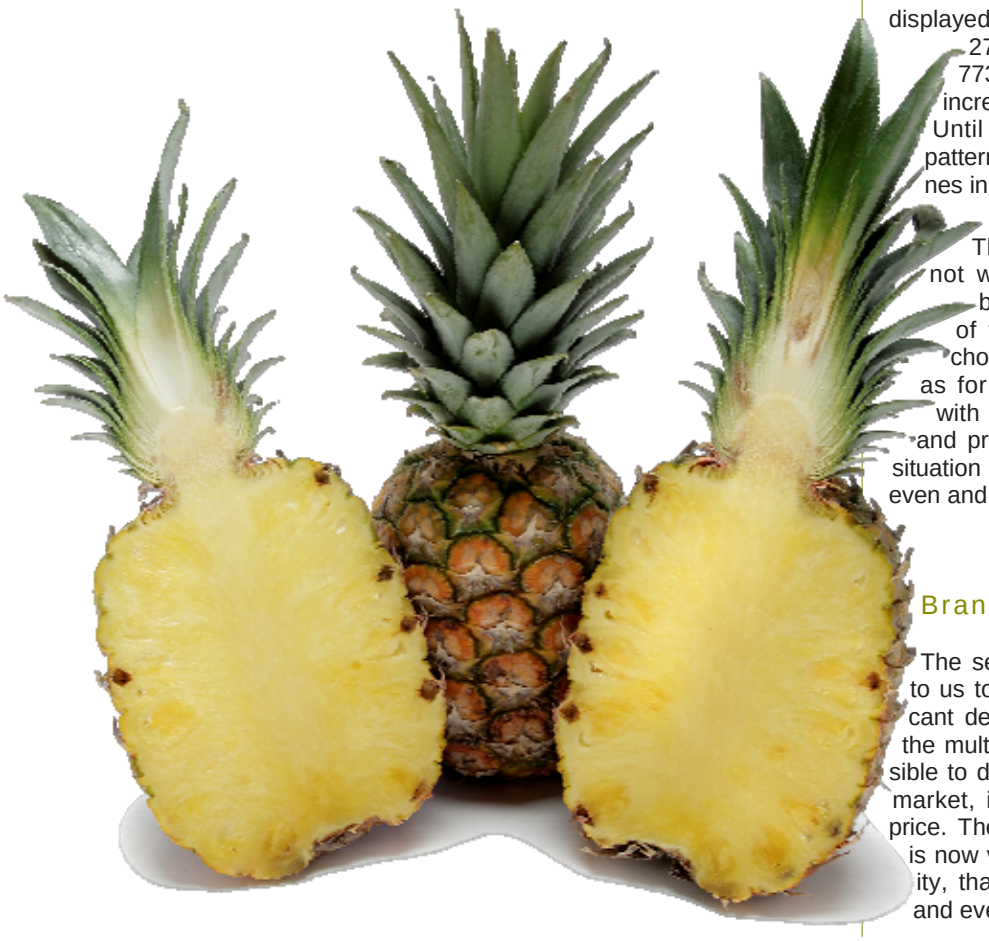
Photos © Guy Bréhinier

# 'Sweet' pineapple

## The cup is full

The question of choice of variety is no longer raised on the pineapple market. At least, if it does come up the terms are different. It seems clear today that 'MD-2' or 'Extra Sweet' pineapple has come out victorious and has also crushed both all the other competing varieties and the short-lived hope that they could resist its rocketing growth.

Indeed, before Del Monte introduced the hybrid variety 'MD-2' in 1996, 'Smooth Cayenne' and 'Champaka' were the main varieties found on the European market. The two main sources Côte d'Ivoire (specialised in 'Smooth Cayenne') and Costa Rica (that concentrated on 'Champaka' for a while) shared a European market that had difficulty in taking 275 000 tonnes of pineapple at prices that were fairly mediocre or even low.



It must be admitted that nothing seems to have been left to chance in the communication strategies of Del Monte, whose main production zone is in Costa Rica. The quality, reliability and regularity of the produce and the organisation of marketing all helped to establish the new fruit in European and world food habits.

### Uneven quality a dominant feature

But more still, the very high prices paid for Del Monte brand fruits were a great surprise for operators and nearly all the Latin American production sources were encouraged to grow 'Sweet'. From 19978 to 2002, prices were sometimes twice as high as those fetched by 'Smooth Cayenne' and 'Champaka'. Following Costa Rica, numerous sources dived into the new market. As a result, the European market displayed tremendous growth, increasing from 275 000 tonnes in 1996 to more than 773 000 tonnes in 2006. That is to say an increase of more than 181% in a decade! Until the poor performance in 2009, the pattern continued with a record 31 000 tonnes in 2008.

The increase in European imports was not without repercussions. The first has been greater unevenness in the quality of the fruits received. Consumers first chose 'Sweet' as much for its even quality as for its organoleptic features. However, with the multiplication of brands, sources and production and marketing systems, the situation is much less clear. Quality is now uneven and very irregular.

### Brand replacing variety

The second effect, and the one that seems to us to be the most important, is the significant decrease in prices of 'Sweet'. Although the multiplication of sources has made it possible to diversify those supplying the European market, it has also had a negative effect on price. The segmentation of the 'Sweet' market is now via brands, carrying an image of quality, that succeed or not in imposing quality and evenness in supply.

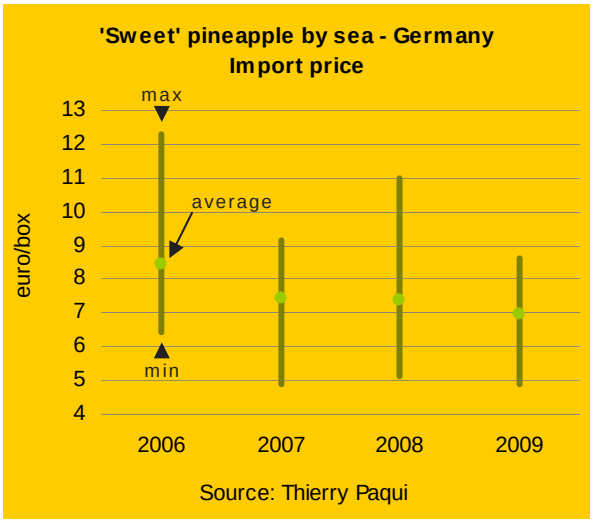
In addition, quality problems are continuing in a particularly difficult economic context. The downturn that started in September 2008 and continued throughout 2009 made it impossible to reverse the downward price trend observed in 2008. Production costs remained identical or even increased while returns from the European market fell steadily. Worse still, the volumes of pineapples available for Europe were such that there was no hope of a price recovery.

To manage and sell stocks under conditions of growing, more diversified supply, operators with no brand policy or established brand have to allow prices to fall. This phenomenon is accentuated when produce is more plentiful on the market.

The last problem caused by the exponential growth of the pineapple market is that of the speed with which arriving fruits must be managed. The storage period for a pineapple imported by sea is limited to no more than a few days. Quality problems then appear rapidly. This is not the case for example for operators selling fruits such as avocado, kiwi or even litchi. Indeed, the latter can sometimes wait for several days or even several weeks for an improvement in market conditions before starting to sell the fruits concerned. Receiving ever-increasing volumes of pineapple therefore requires a sales network on the same scale.

This is where the German discount supermarkets and the large chains come into operation. These chains can sell large quantities of fruits but are also those that exert the most pressure on prices. In a context of plethoric supply and sluggish demand, the price argument is the sole basis for negotiation, especially as quality problems resulting from poor sales have to be managed.

The lack of interest in pineapple observed in recent years is such that several operators do




Photos © Guy Bréhinier

firmly envisage a collapse of either the market or prices. Indeed, how long can producers in Costa Rica and other Latin American producer countries continue to put up with the worsening of European market conditions?

The balance is more delicate from one year to the next. According to source and operator, production and transport costs for Latin American pineapples delivered to Europe varied between EUR 6.35 and 6.85 per box in 2009. The arithmetical average of the season's prices ranged from EUR 7.15 to 7.40 per box according to the market. Unfortunately, it is not a faithful reflection of reality as it does not show the low prices (as little as EUR 4.25 and 5.5 per box) when supply is larger or the average lying between EUR 6.25 and 7.50 per box for several months of the year. This means that several operators feel that the annual average import price for 'Sweet' is between 6 and 7 euros per box! This does not leave much room for manoeuvre for producers and exporters.

Fortunately, the US market seems to have held up better than Europe. And the protective role of the currency should not be ignored, as this means basing sales in Europe on a strong euro and intermediate costs on a weak dollar. However that may be, the situation is becoming increasingly tense on the European pineapple market and several operators are beginning to have serious doubts about its future ■

**Thierry Paqui**, Consultant
paqui@club-internet.fr

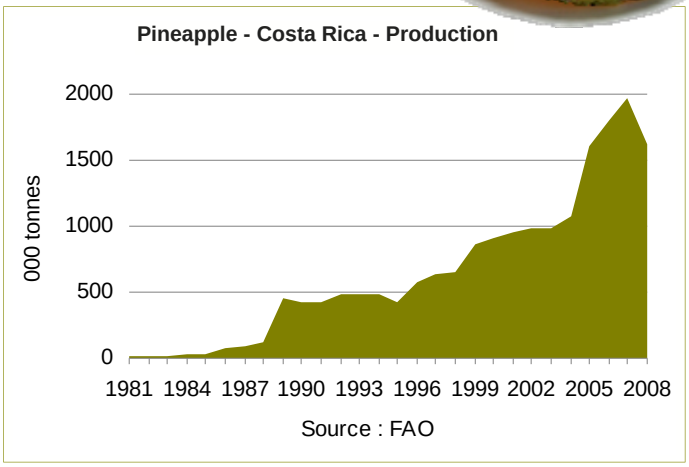
Producer country sheet

# Pineapple in Costa Rica

***In less than a decade, Costa Rica has become the world's fourth-largest producer and the leading exporter of pineapple. This explosive development is the result of the winning combination of a variety, 'Sweet', well-suited to international trade, and the industrial and commercial strength of Del Monte, a multinational group that has historically been the driving force behind pineapple growing in Costa Rica. The enormous increase in cultivated area and in the number of operators since 2003 in a context of strong increase of international competition has caused a distinct decrease in the profitability of the crop.***

## Production zones

The plantations, covering some 42 500 ha in 2005, are concentrated mainly in two areas of the large alluvial plain in the north-eastern part of the country. About 31% of national production is from the north of Limon province, around the town of Guacimo. High humidity makes cultivation conditions merely acceptable in this zone where banana growing is traditional, but the existence of infrastructure and the proximity of the port of Limon are strong points. The San Carlos region, further west, inland, has been in the leading position for a few years and accounts for approximately 50% of production. Cultivation conditions are excellent in this pioneer zone traditionally used for extensive livestock farming and where there are numerous small farmers. The zone in which the crop first developed—in Puntarenas province in the south of the country—is the site of about 18% of production. Del Monte is still by far the major stakeholder in this region with the vast PINDECO industrial plantation close to the town of Buenos Aires. The pineapple sector employs nearly 100 000 people.

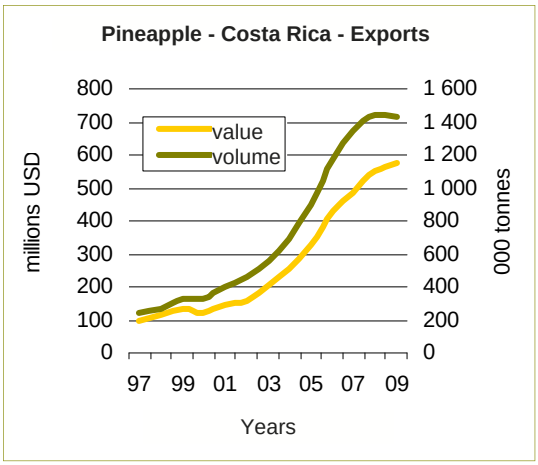

## Production

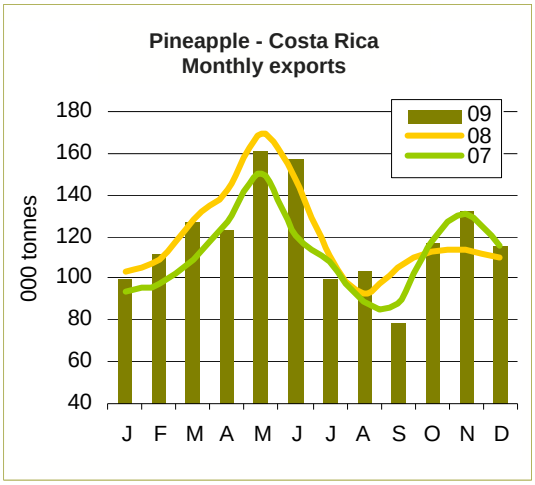
The emergence of the Costa Rican pineapple industry is recent and closely linked to the name Del Monte. The first stage in development was the setting up in 1978 of the PINDECO estate, a thoroughly modern industrial plantation devoted to exports of the 'Champaka' variety. Production reached 450 000 t at the end of the 1980s and then went no further as the skin of the variety remains green when ripe and it did not gain a good foothold on certain major markets. The introduction in the PINDECO estate of 'Sweet' (or 'MD-2'), with low acidity and well-suited to shipping by sea, combined with the power of a multinational company in production and marketing, was the beginning of an exemplary success story that radically changed the world market. Production began to increase rapidly in 1996 in response to clear commercial success in both the United States and Europe and approached a million tonnes at the beginning of the 2000s. The official entry of the variety in the public domain in 2003 caused a staggering increase in planted areas and the number of exporters—both in Costa Rica (1 220 producers in 2008) and in other Latin American countries.

Photos © Guy Bréhinier

## Exports

The volumes exported had increased gradually to 550 000 t in 2003 before rocketing, reaching 1 444 458 tonnes in 2008. Exports decreased slightly in 2009—for the first time in a decade—but still exceeded 1.4 million tonnes. A decrease in the profitability of the crop is noted and also worsening average quality in recent years. Europe has taken over half of Costa Rican exports (54%) since 2007.



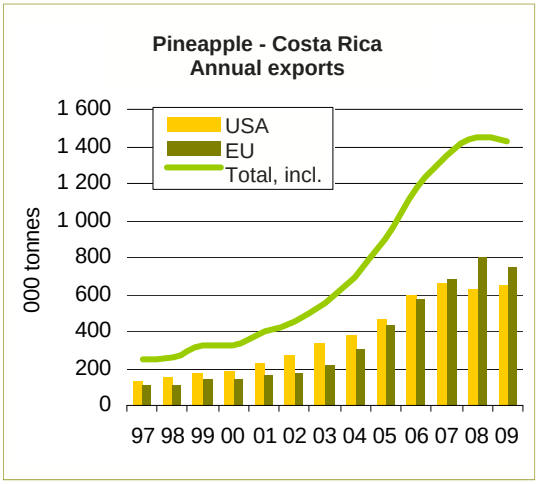

Pineapple - Costa Rica
Monthly exports in 2009

| tonnes | **Total,** incl. | **USA** | **EU** | **Others** |
|---|---|---|---|---|
| January | 99 494 | 43 620 | 54 001 | 1 873 |
| February | 111 553 | 48 318 | 61 100 | 2 135 |
| March | 127 252 | 63 876 | 61 399 | 1 977 |
| April | 123 756 | 51 426 | 70 401 | 1 929 |
| May | 160 400 | 71 722 | 86 420 | 2 257 |
| June | 157 368 | 75 926 | 79 612 | 1 830 |
| July | 99 620 | 46 451 | 51 751 | 1 419 |
| August | 102 828 | 47 241 | 54 862 | 725 |
| Sept. | 78 296 | 39 386 | 37 973 | 937 |
| Oct. | 116 671 | 56 320 | 58 928 | 1 423 |
| Nov. | 131 976 | 56 252 | 73 465 | 2 258 |
| Dec. | 115 579 | 51 726 | 61 160 | 2 693 |
| **Total** | **1 424 793** | **652 263** | **751 072** | **21 457** |

Pineapple - Costa Rica
Annual exports

| tonnes | **Total,** incl. | **USA** | **EU** | **Others** |
|---|---|---|---|---|
| 1997 | **244 880** | 134 898 | 103 271 | 6 712 |
| 1998 | **264 563** | 149 135 | 106 678 | 8 749 |
| 1999 | **327 187** | 170 730 | 136 224 | 20 232 |
| 2000 | **323 064** | 183 417 | 136 161 | 3 486 |
| 2001 | **396 645** | 227 016 | 165 963 | 3 666 |
| 2002 | **454 672** | 271 339 | 177 784 | 5 549 |
| 2003 | **555 407** | 331 601 | 221 548 | 2 259 |
| 2004 | **694 140** | 383 519 | 307 142 | 3 479 |
| 2005 | **900 963** | 466 755 | 432 517 | 1 691 |
| 2006 | **1 175 697** | 589 635 | 577 437 | 8 624 |
| 2007 | **1 346 326** | 655 095 | 677 209 | 14 022 |
| 2008 | **1 444 458** | 623 157 | 802 676 | 18 624 |
| 2009 | **1 424 793** | 652 263 | 751 072 | 21 457 |

Source: national customs




## Logistics

The fruits travel by road to the port of Limon, from where they are exported in specialised ships or containers to the two major markets—the United States and Europe (shipping time approximately 10 to 14 days to the EU in specialised ships).

© Denis Loeillet

Producer country sheet

# Pineapple in Ghana

*With the contribution of SPEG (Sea-Freight Pineapple Exporters of Ghana)*

***Formerly a major stakeholder on the air pineapple market, Ghana developed shipments by sea from the mid-1990s. At the peak of the trade in 2004, it exported as much as 71 000 tonnes. Estimates for 2009 show exports of 29 000 tonnes, with more than two-thirds shipped by sea ('Sweet'). This was completed by shipments of 'Smooth Cayenne' and 'Sugarloaf' by air. Ghana has a 3% share of the European market.***

## Production zones

According to FAO data for 2008, pineapple production in Ghana is 68 000 tonnes, that is to say less than 1% of world production. The fruit is grown mainly in the south and centre of the country. The main areas concerned by pineapple are the Western region, the east of Ashanti and Greater Accra. The crop provides a livelihood for about 2 500 families (Ministry of Agriculture, 2009). In the mid-2000s, the switch to 'Sweet' had a strong impact on the sector, leaving by the roadside a fair number of growers and exporters who did not have sufficient financial capacity.

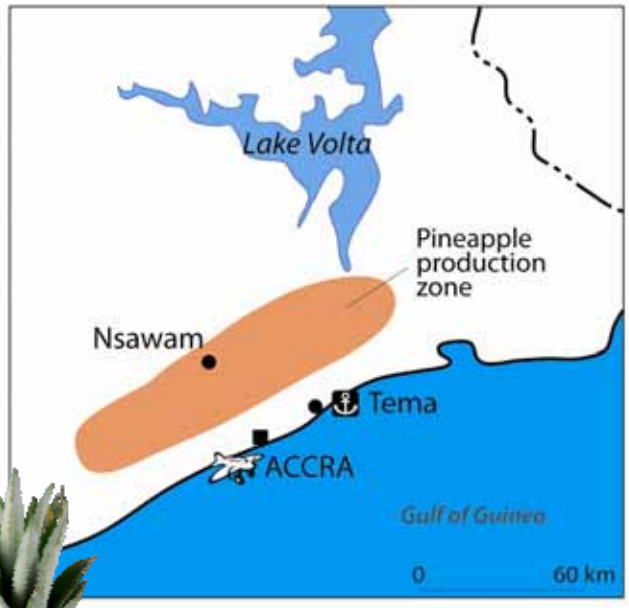

## Organisation

Schematically, three operator categories can be identified:

- growers with large facilities, generally plantations of 40 hectares or more;
- growers with medium-sized farms of between 20 and 40 hectares;
- finally, small growers.

In most cases, the first two categories export their crop themselves while small growers sell their fruits to operators in the other two categories or by forming cooperatives of small growers. The main operators are Golden Exotics Ltd (40 to 50% of the total, a subsidiary of Compagnie fruitière), Milani Ltd, Bomarts Farms Ltd, Prudent Exports Ltd, Koranco Farms Ltd, Gold Coast Fruits Ltd, Georgefields Farms Ltd, Jei River Farms Ltd, Volta River Estates Ltd (VREL), etc.

Ghana is a major stakeholder in the market for organic and fair trade pineapple.




© Régis Domergue

## Varieties and production calendar

'Smooth Cayenne' was the traditional variety in Ghana. When 'Sweet' appeared, the sector was quick to change varieties, thus benefiting from market enthusiasm for the innovation (now 95% of supply). The few farms where 'Smooth Cayenne' is still grown (4%) export the fruits by air. 'Sugarloaf' is another variety that is gradually making its way (1%), shipped by air.

The Ghanaian pineapple production calendar covers the whole year. Production peaks are observed at Easter and in the run-up to Christmas and the New Year.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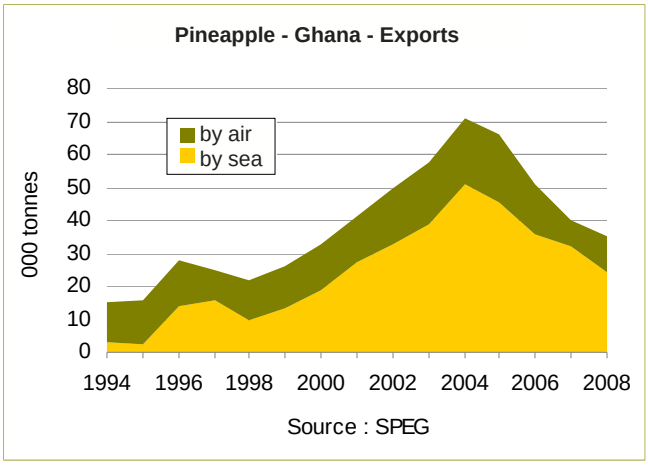


## Outlets

The Ghanaian government and donors like the World Bank and the United States have done much to reduce the country's dependence on cocoa exports. Thus, the value of horticultural exports increased from USD9.3 million in 1994 to USD50 million in 2006. This is to a great extent the result of pineapple exports as their value in 2006 exceeded USD19 million, that is to say 38% of the total. In 2009, Ghana exported 29 000 tonnes of pineapple to the EU, a 3% market share. This is far from the 10 or 11% seen at the beginning of the 2000s. The trend is for a decrease. Italy, Belgium, France, the United Kingdom and Germany are the main European outlets. Outside the EU, Ghana exports pineapple to Switzerland.


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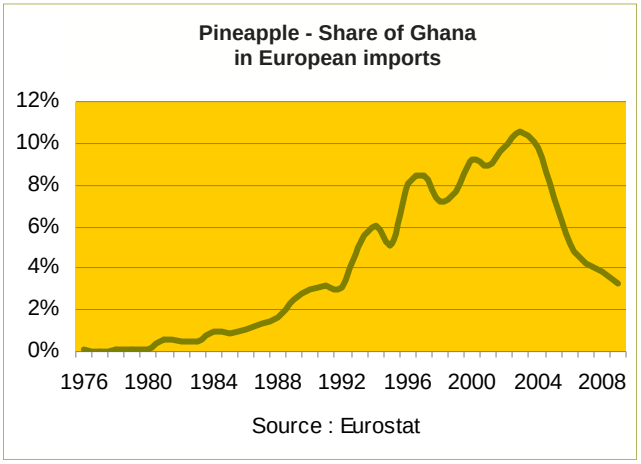


| Pineapple — Ghana — Logistics | | |
|---|---|---|
| **Departure** | **Arrival** | **Transit time** |
| **By sea** | | |
| Tema | Port Vendres (France)<br>Vado (Italie)<br>Dover (UK)<br>Antwerp (Belgium) | 12 days<br>13 days<br>12 days<br>14 days |
| **By air** | | |
| Accra | Main European cities and Middle East | 6 hours |


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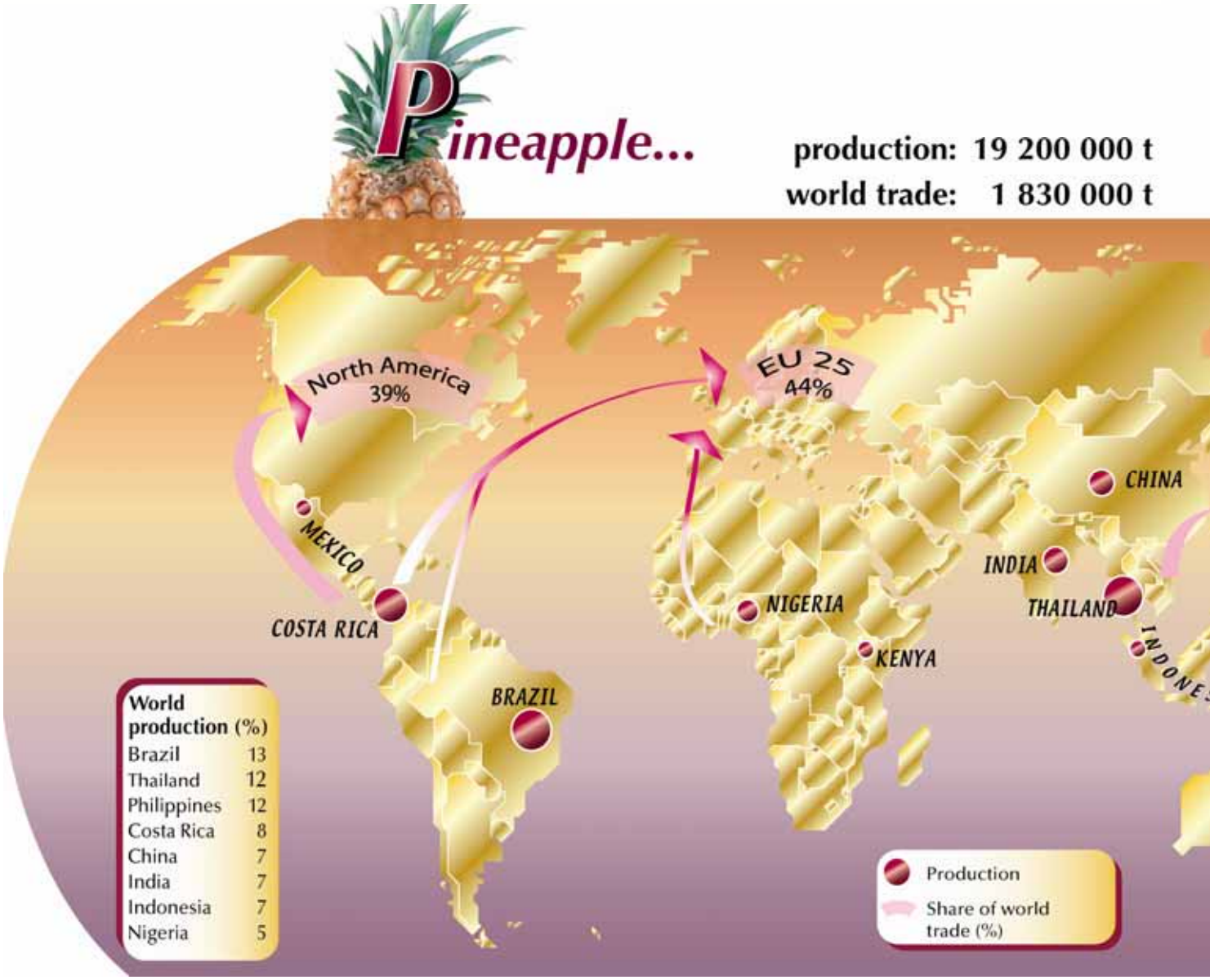



## Pineapple — United States imports

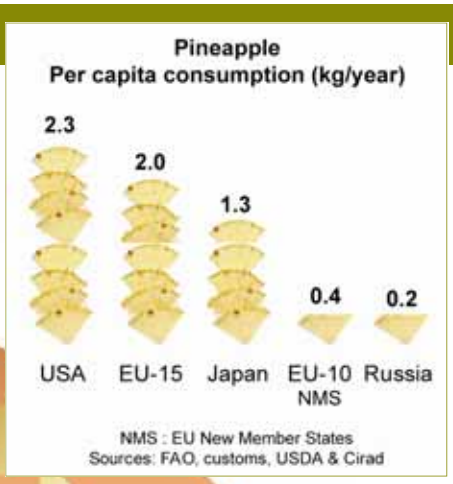
| tonnes | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total, incl.** | **252 848** | **283 097** | **318 837** | **321 299** | **405 714** | **476 660** | **511 050** | **577 792** | **634 069** | **696 820** | **713 584** | **710 673** |
| Costa Rica | 200 899 | 226 029 | 257 783 | 261 199 | 344 731 | 399 826 | 392 323 | 438 954 | 522 520 | 574 954 | 583 916 | 582 370 |
| Mexico | 17 597 | 14 491 | 17 200 | 24 527 | 18 041 | 14 974 | 27 033 | 27 339 | 22 073 | 29 018 | 38 726 | 45 455 |
| Ecuador | 2 289 | 5 163 | 6 505 | 8 443 | 17 780 | 28 578 | 33 608 | 37 199 | 35 830 | 33 411 | 28 331 | 27 288 |
| Honduras | 26 950 | 33 555 | 32 841 | 20 122 | 20 629 | 24 728 | 34 419 | 32 988 | 12 685 | 20 160 | 22 620 | 21 546 |
| Guatemala | 266 | 1 718 | 633 | 2 531 | 733 | 2 918 | 17 563 | 32 491 | 33 069 | 27 474 | 25 790 | 19 017 |
| Panama | 136 | 0 | 125 | 255 | 422 | 482 | 1 762 | 3 774 | 3 373 | 7 754 | 9 254 | 10 633 |
| Thailand | 2 951 | 2 093 | 2 837 | 3 605 | 3 095 | 4 191 | 3 996 | 4 548 | 3 488 | 3 264 | 4 096 | 3 666 |
| Others | 1 760 | 48 | 913 | 617 | 284 | 962 | 347 | 458 | 1 032 | 786 | 851 | 698 |

Source: US customs

## Pineapple — Japanese imports

| tonnes | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total, incl.** | **84 710** | **89 866** | **100 092** | **118 344** | **122 871** | **122 690** | **142 281** | **155 426** | **152 479** | **165 794** | **144 408** | **143 981** |
| Philippines | 84 016 | 88 329 | 98 378 | 115 818 | 120 164 | 120 482 | 139 165 | 152 577 | 151 567 | 165 118 | 143 745 | 143 120 |
| Taiwan | 635 | 1 000 | 832 | 938 | 368 | 861 | 1 025 | 841 | 421 | 459 | 660 | 824 |
| USA | 12 | 0 | 0 | 533 | 1 138 | 579 | 1 786 | 1 751 | 385 | 16 | 0 | 0 |
| China | 30 | 261 | 416 | 533 | 730 | 596 | 263 | 252 | 106 | 167 | 0 | 0 |
| Others | 17 | 274 | 466 | 521 | 470 | 173 | 42 | 5 | 0 | 34 | 3 | 37 |

Source: Japanese customs (code 080430010)



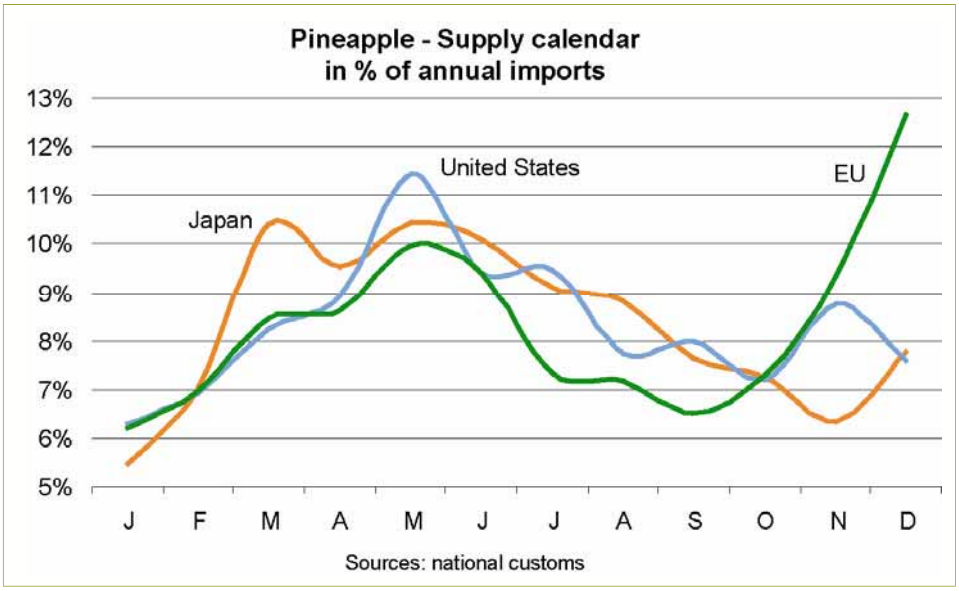


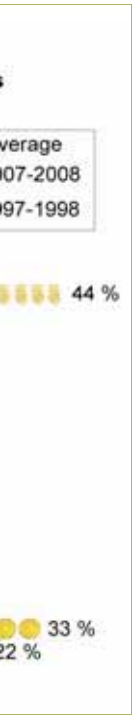
| Pineapple World production | |
|---|---|
| 2008 | tonnes |
| **World** | **19 166 560** |
| Brazil | 2 491 974 |
| Thailand | 2 278 566 |
| Philippines | 2 209 336 |
| Costa Rica | 1 624 568 |
| China | 1 402 060 |
| India | 1 305 800 |
| Indonesia | 1 272 761 |
| Nigeria | 900 000 |
| Mexico | 685 805 |
| Vietnam | 470 000 |
| Colombia | 436 044 |
| Kenya | 429 065 |
| Venezuela | 363 075 |
| Malaysia | 319 130 |
| Guatemala | 230 566 |

| Pineapple World exports* | |
|---|---|
| 2008-09 | tonnes |
| **World** | **1 830 000** |
| Costa Rica | 1 424 800 |
| Philippines | 270 054 |
| Ecuador | 99 425 |
| Honduras | 52 965 |
| Côte d'Ivoire | 54 000 |
| Panama | 52 139 |
| Ghana | 30 000 |
| Mexico | 49 400 |
| Guatemala | 47 460 |
| Malaysia | 19 713 |
| Brazil | 32 565 |
| United States | 10 739 |
| Cameroon | 12 000 |
| Thailand | 12 563 |
| Bolivia | 4 185 |

| Pineapple World imports | |
|---|---|
| 2008-09 | tonnes |
| **World** | **1 830 000** |
| EU-27, incl. | 881 000 |
| *Belgium* | 279 936 |
| *Netherlands* | 171 376 |
| *United Kingdom* | 137 174 |
| *Italy* | 88 601 |
| *Spain* | 66 850 |
| United States | 710 673 |
| Japan | 143 981 |
| Canada* | 100 000 |
| South Korea* | 77 300 |
| Russia* | 33 400 |
| Singapore* | 18 000 |
| Switzerland* | 17 000 |
| Argentina* | 12 400 |
| Chile* | 10 800 |

* Estimates / Sources: FAO, EU, USA, Japanese customs




Pineapple — EU Imports and re-exports

| tonnes | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total extra-EU, incl.** | **281 449** | **263 211** | **332 581** | **318 289** | **367 017** | **369 483** | **410 889** | **521 933** | **609 484** | **770 927** | **830 041** | **930 525** | **880 194** |
| Costa Rica | 83 400 | 79 024 | 106 225 | 112 740 | 135 024 | 139 172 | 179 154 | 250 425 | 363 169 | 500 128 | 570 969 | 680 179 | 662 234 |
| Ecuador | 154 295 | 141 580 | 177 775 | 158 163 | 174 505 | 160 537 | 135 686 | 136 009 | 99 685 | 36 570 | 49 260 | 45 011 | 54 832 |
| Côte d'Ivoire | 23 912 | 18 968 | 25 659 | 29 321 | 32 590 | 35 745 | 43 093 | 51 421 | 44 984 | 94 427 | 59 253 | 58 902 | 47 421 |
| Panama | 16 | 521 | 1 233 | 348 | 3 564 | 7 823 | 19 575 | 27 521 | 32 598 | 31 394 | 37 624 | 39 686 | 29 792 |
| Ghana | 18 | 214 | 16 | 17 | 35 | 0 | 3 649 | 9 627 | 12 111 | 40 109 | 35 463 | 35 633 | 28 718 |
| Honduras | 10 005 | 9 602 | 6 370 | 5 176 | 9 111 | 13 385 | 13 329 | 17 571 | 25 275 | 26 581 | 26 336 | 23 127 | 21 514 |
| Brazil | 114 | 18 | 107 | 54 | 52 | 220 | 230 | 802 | 10 237 | 12 639 | 16 400 | 24 688 | 15 450 |
| Cameroon | 3 604 | 5 747 | 5 710 | 2 975 | 2 098 | 2 005 | 3 484 | 3 963 | 4 411 | 8 493 | 9 295 | 9 924 | 12 613 |
| Benin | 8 | 12 | 9 | 31 | 73 | 471 | 570 | 3 476 | 3 255 | 4 349 | 1 874 | 1 851 | 2 134 |
| Thailand | 2 502 | 3 043 | 3 543 | 4 641 | 5 030 | 5 326 | 4 855 | 4 560 | 4 604 | 3 359 | 3 697 | 2 965 | 1 353 |
| South Africa | 556 | 747 | 1 404 | 1 154 | 844 | 1 625 | 2 158 | 1 772 | 1 985 | 3 404 | 2 072 | 1 315 | 1 010 |
| Guatemala | 320 | 341 | 357 | 591 | 676 | 898 | 936 | 1 206 | 1 155 | 4 678 | 3 763 | 2 918 | 3 |
| Others | 2 698 | 3 395 | 4 173 | 3 078 | 3 414 | 2 277 | 4 168 | 13 581 | 6 017 | 4 797 | 14 035 | 4 327 | 3 120 |
| **Total intra-EU, incl.** | **139 250** | **127 659** | **189 707** | **160 238** | **182 877** | **234 559** | **247 772** | **287 963** | **344 425** | **433 840** | **472 461** | **487 477** | **416 640** |
| Netherlands | 11 387 | 11 174 | 22 137 | 14 011 | 24 081 | 26 145 | 34 814 | 56 760 | 81 661 | 139 341 | 130 209 | 163 895 | 153 446 |
| Belgium | 30 466 | 26 890 | 43 945 | 38 885 | 31 545 | 48 285 | 50 398 | 75 128 | 102 314 | 117 123 | 160 583 | 133 488 | 96 610 |
| Germany | 74 588 | 67 316 | 90 343 | 78 639 | 86 301 | 106 340 | 84 325 | 75 830 | 59 748 | 55 745 | 36 098 | 43 369 | 31 740 |
| France | 8 221 | 8 891 | 11 987 | 12 023 | 8 915 | 11 586 | 25 209 | 32 052 | 44 511 | 47 020 | 33 190 | 32 973 | 30 565 |
| Spain | 6 810 | 3 318 | 4 762 | 5 795 | 16 216 | 13 836 | 7 812 | 8 309 | 12 835 | 18 211 | 38 233 | 29 121 | 26 520 |
| Ireland | 1 774 | 1 780 | 2 133 | 1 304 | 1 412 | 1 371 | 1 658 | 2 439 | 3 408 | 6 121 | 12 003 | 21 992 | 14 735 |
| Portugal | 4 707 | 6 967 | 11 085 | 5 452 | 8 323 | 7 030 | 13 801 | 10 592 | 7 285 | 14 486 | 26 786 | 17 182 | 13 258 |

* 2009 provisional / Source: Eurostat

# 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. 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 cultural operation.

Growers can thus—almost at their 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 nutrition determines weight and potassium nutrition 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.



## Cycle of the plant

Pineapple displays 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 aerial. 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 request and floral induction is generally performed using gaseous ethylene dissolved in water. As application is a large operation, the process is generally used only on mechanised plantations. Another method used on small non-mechanised holdings 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'.

© Denis Loeillet

© Denis Loeillet

## 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 material is of fundamental importance: genetically pure 'Sweet' material 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.

## Control of 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 flowing;
- control of production;
- control of average fruit weight;
- harvest planning.

The date of FIT is determined according to:

- the harvest date desired;
- the FIT to harvest time 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.

## Protection from sunscald

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 sunscald. Several protective methods can be used: tying the leaves in a bunch over the fruit or the whole crop ridge, mulching with grass, lifting up lodged fruits.

Photos © Claude Teisson

Sunscald

## 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 in the whole shell.

# The main pineapple varieties

Photos © Guy Bréhinier

*'Smooth Cayenne' was for a long time practically the only variety exported fresh and canned. 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.*

## '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:** 1 300 g
**Height without crown:** 143.4 mm
**Diameter:** 115.7 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 the bottom to the 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

## 'Smooth Cayenne'

**Leaf edges:** spines behind tip only
**Fruit shape:** cylindrical
**Fruit colour:** green & yellow
**Fruit eye diameter:** medium
**Fruit eye profile:** slightly proeminent
**Flesh colour:** pale yellow
**Flesh firmness:** medium
**Flesh texture:** smooth
**Weight without crown:** 1 410 g
**Height without crown:** 148.2 mm
**Diameter:** 120.7 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 the bottom to the 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:** proeminent
**Flesh colour:** yellow
**Flesh firmness:** medium
**Flesh texture:** crisp
**Weight without crown:** 1 200 g
**Height without crown:** 171.6 mm
**Diameter:** 107.6 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

*Note: under production conditions in Martinique, source CIRAD*

# Pineapple quality defects

Photos © Patrick Fournier, Pierre Gerbaud, Horta Gabon


Internal browning


Internal browning


*Thielaviopsis paradoxa*


*Thielaviopsis paradoxa* on a lateral blemish


Beginning of *Thielaviopsis paradoxa* on peduncle


Sunscald on 'Victoria'


Sunscald 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*


*Thielaviopsis paradoxa* external appearance


Beginning of *Thielaviopsis paradoxa* on a blemish


Pulp deterioration in '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 — Nutritional deficiency

| | Required amounts | Symptoms | Critical level and analysis |
|---|---|---|---|
| Nitrogen | High | • Pale colour. General yellowing of leaves.<br>• Older leaves show first symptoms.<br>• Reddish edges.<br>• Narrow leaves.<br>• Poor and stunted growth.<br>• Delayed fruiting. | Deficiency detected by visual observations.<br>**Critical level**: 0.10 % dry weight. Sample the centre portion of the D leaf for analysis. |
| Potassium | High | • In young plants leaves have dark green colour.<br>• In older plants leaves are yellow.<br>• Crown growth is excessive.<br>• Siamese crowns are produced.<br>• Slow growth of slips.<br>• Tips of old leaves die off. | **Critical level**: 0.3% dry weight. Sample the basal portion of the D leaf for chemical analysis. |
| Calcium | It is required in large amounts when used as an amendment to the soil, but not in direct foliar sprays to the plant except for planting material production. | • Growth is stunted.<br>• Corky leaves.<br>• Short leaves.<br>• Stems are malformed.<br>• Fruit is abnormal (Siamese, multiple, fasciated).<br>• Plant has yucca appearance. | **Critical level**: 0.010% fresh weight. Sample the basal portion of the D leaf for analysis because the colour of the leaves is not a key guide in determining deficiencies. Check pH of soil periodically. |
| Magnesium | Medium | • Older leaves have bright yellow colouring.<br>• There are less leaves per plant.<br>• Leaves are weak and necrotic.<br>• Plants have short stems.<br>• Appearance of leaves resembles sunburn.<br>• Poor root system.<br>• Poor fruit development. | **Critical level**: 0.025% fresh weight. Sample the basal portion of the D leaf. Visual symptoms are difficult to observe and laboratory analyses are necessary to assess deficiencies. |
| Iron | Small | • Leaves are yellowish with green mottling.<br>• Tips of leaves become necrotic.<br>• Fruit is small.<br>• Fruit has red skin and is hard.<br>• Crowns have yellowish colour.<br>• Fruit shows cracks. | **Critical level**: 3 ppm fresh tissue. Sample the middle portion of D leaf. Visual symptoms are used as a diagnosis for deficiencies and laboratory analysis is not always representative of the deficiency. |
| Phosphorus | Medium and small | • Poor root growth.<br>• Delayed growth.<br>• Older leaves have purple/red colouring.<br>• Leaves have yellow edges.<br>• Poor fruit development. | Visual symptoms are rarely observed with normal fertiliser practice. The symptoms can be noticed only when the deficiencies are severe. For this reason leaf tissue analysis is required for diagnosis.<br>**Critical level**: 0.020 % fresh weight. Sample: basal portion of the D leaf. Excess of phosphorus can reduce plant growth. |
| Zinc | Small | • Crooked neck on young plants.<br>• The heart leaf becomes hard and brittle.<br>• Blisters appear on the upper surface of leaves.<br>• The crowns are small and rosette.<br>• The plants become bunchy. | **Critical level**: Only the sampling of the tip of the stem will provide a reliable indication of the zinc content. Leaf analysis is not reliable. Look for visual symptoms. |
| Boron | Small | • Peel will develop corky tissue.<br>• Corky flesh develops on and in between eyes.<br>• Cracks develop on and between fruitlets. | **Critical level**: The symptoms are unknown. Deficient plants will not have any symptoms in leaves, stems or roots. Check fruit visually for symptoms of deficiency. |

Source: PIP