

# MANGO PURÉE AND CONCENTRATE – A VERSATILE AND COMPLEX TROPICAL SUBMARKET

Ulrich M. von der Linden

## 0. INTRODUCTION

Without doubt – tropical juices and nectars are getting more and more popular on a global scale. A side effect of this increasing popularity is the suppliers' difficulty and sometimes even inability to cope with specific market requirements such as (1) availability of product during on- and off-crop times, (2) high and consistent quality of products guaranteed by the exporter, (3) excellent service (quick flow of information, on-time delivery, etc.) and last but not least (4) economical prices. Basically, these requirements are identical with the so-called Unique Selling Points (USPs), "a mix of different subjects which set the exporter apart from his competitors", as stated by CBI. In this paper, I would like to highlight the mango market as an important, interesting and versatile tropical submarket with its own complexity.

### 0.1. CHARACTERISTICS

Especially India, the world's largest Mango supplier, suffers from biennial "boom and gloom" crop cycles of its "Totapuri" and "Alphonso" varieties. Until recently, the customers had been using primarily standard (mainly "Totapuri") and premium ("Alphonso" and to a much smaller extent "Kesar") varieties from India, solely depending upon crop forecasts from this country.

Very often, these prognoses did not prove to be a reliable tool for importers. Pre-crop information and offers being sent well ahead of the main harvest time (April-July) were mostly irritating the market. Moreover, fluctuating prices on a year-on-year basis and even within the season did not encourage the buyers to increase their purchasing volume, either. Climatic circumstances, like an early or a late monsoon, sudden rainfalls or extreme heat waves have a dramatic



impact on Indian mango crops. Rarely, the Indian processors were able to report a "normal" situation.

Many European importers, being dissatisfied with the unpredictability of the Indian mango market, started to substitute "high risk" suppliers for those showing a lower risk profile. Today, processors from Mexico, Brazil, Colombia, Peru and Ecuador are in a position to offer suitable alternatives for "Totapuri", the most traded mango variety which has its major application in multi-vitamin blends/compounds.

Contrary to the "Totapuri", the "Alphonso", often being denominated as the "King of Mangoes", is a premium variety, which cannot be easily replaced. Having its own peculiarities, like a unique sensorical profile, it is mainly used for baby food and catering (fruit preparation for sherbets, ice cream, etc.). Whoever has the opportunity to visit India, should go to the "Crawford Market" in Mumbai (Bombay) and taste a fresh "Alphonso" – it is a real sensation! An Indian fruit variety which is often being used as a partial substitute for "Alphonso" is the "Kesar". Out of the Latin American varieties, the "Chato de Ica" from Peru, is perhaps the only one getting close to the "Alphonso" quality.

### 0.2. IMPORTANCE

According to FAO's Tropical Fruit Commodity Notes, provisional data for 2002 indicated a global tropical fruit production of 66,9 million metric tons (MT), out of which the mango production accounted for an estimated 38% or 25,42 million MT. Pineapple is ranking second with 21% of global output.

In 2003, the mango figure has been revised upwards to 26,48 million MT (see table in 1.1. production – fruit output including fresh and processed fruit in MT).

The area dedicated to mango production in India is estimated to be at 1,5 million ha, approx. 41 % of the world's total mango area harvested (see table in 1.2 areas harvested in ha).

## BASIC DATA

## 1.1. PRODUCTION – FRUIT OUTPUT INCL. FRESH AND PROCESSED FRUIT IN MT

Mangoes Production (Mt)	Year								
	1996	1997	1998	1999	2000	2001	2002	2003	GRRE
World	22,629,232	23,665,319	22,486,605	23,482,266	24,749,036	25,141,500	26,479,497	25,563,469	2.17
Brazil	593,423	508,350	468,593	456,465	538,301	782,308	842,349	845,000	8.30
China	2,074,206	2,409,787	2,561,522	3,126,919	3,210,692	3,272,875	3,513,366	3,413,366	7.58
Colombia	98,000	98,000	98,000	124,791	135,016	134,141	141,034	142,000	6.69
Cuba	79,400	72,915	79,683	237,571	217,191	211,845	207,770	232,900	20.43
Ecuador	54,163	2,953	68,693	94,802	63,763	88,924	100,911	73,000	27.07
Egypt	203,265	230,873	222,733	287,226	298,880	325,467	326,063	326,063	7.68
India	11,000,000	11,000,000	10,230,000	9,780,000	10,500,000	10,240,000	10,640,000	10,500,000	-0.50
Indonesia	782,937	1,087,692	600,059	826,842	876,027	923,294	1,402,906	731,240	2.59
Kenya	115,000	140,000	150,000	162,322	112,608	179,638	118,240	118,000	-0.58
Mexico	1,188,907	1,500,317	1,473,852	1,508,468	1,559,351	1,577,450	1,523,160	1,503,010	2.35
Nigeria	656,000	689,000	731,000	729,000	730,000	730,000	730,000	730,000	1.24
Pakistan	907,778	914,492	916,826	937,700	989,790	1,037,145	1,036,000	1,036,000	2.38
Peru	110,799	129,657	137,638	191,495	128,406	144,914	181,398	160,000	4.88
Philippines	897,700	1,004,700	945,160	866,188	848,328	881,700	955,900	890,000	-0.64
Thailand	1,180,961	1,198,427	1,087,776	1,461,773	1,633,479	1,700,000	1,750,000	1,750,000	7.53
Venezuela	137,584	143,403	136,257	132,460	130,262	74,982	73,558	75,495	-10.53
Vietnam	187,900	164,800	180,500	174,700	177,300	179,300	226,500	305,700	6.12

Source: Food and Agricultural Organization (FAO), [www.fao.org](http://www.fao.org)  
For more information on exponential growth please refer to [www.wikipedia.org](http://www.wikipedia.org)

In 2003 global mango production reached a total of 25,56 million MT. India had a share of 41 % resp. 10,5 million MT, China 13,3 % resp. 3,4 million MT, Thailand 6,8 % resp. 1,75 million MT, Mexico 5,9 % resp. 1,5 million MT and Pakistan 4,1 % resp. 1,036 million MT.

Looking at the large producing countries' (> 500.000 MT) exponential growth rate (GRRE), we notice that only Brazil, China and Thailand have increased their fruit output significantly (> 5 %) over the past 8 years, whereas the others report either a moderate growth of 2 – 3 % (Mexico, Pakistan, Indonesia) or even a stagnation with growth levels < 2 % (India, Nigeria, Philippines). However, we have to consider that the large processors (especially India) already start from a very high basis.

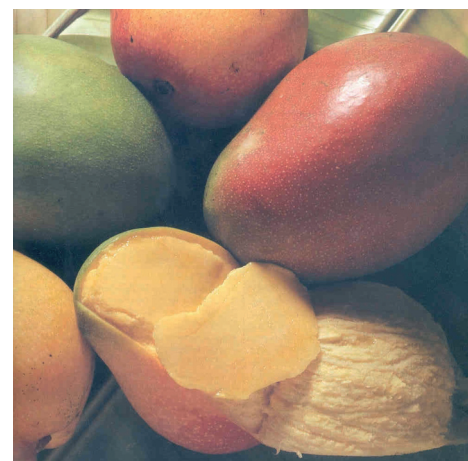
With a few exceptions (Kenya and Venezuela), smaller processors (< 500.000 MT) grow at a higher rate than large. Especially, Ecuador, Cuba, Colombia and Vietnam have to be mentioned.

However, this is just one part of the story. The above figures show the mango production in total, i.e. output

including fresh fruit for domestic and export market as well as fruit designed for industrial use.

As already explained in my article "The market for tropical juices in Europe", there is no consistent data on tropical fruit. Therefore, neither the volume of mango fruit used for the production of purées, concentrates, slices, dices, etc. nor the quantity of fresh fruit sold locally and/or being exported is known.

At least, the Indian Agricultural and Processed Food Products Export Development Authority APEDA ([www.apeda.com](http://www.apeda.com)) provides monthly and yearly data as well as a summary for the principal commodities, including mango pulp/purée within the category "Processed Fruits and Vegetables":



Processed Fruits & Vegetables in MT	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
DRIED AND PRESERVED VEGETABLES	88675.54	200262.70	145049.55	235637.74	286927.20	209157.78	216640.16
MANGO PULP	40302.22	45874.53	38133.73	72384.22	57303.53	76735.18	96107.31
PICKLE AND CHUTNEY	18390.31	24372.27	21138.05	26737.60	40703.54	38758.97	56384.37
OTHER PROCESSED FRUITS AND VEG	27884.42	28421.78	34322.16	39152.26	70821.97	61332.36	54792.77
<b>Total for Processed Fruits &amp; Vegetables</b>	<b>175252.49</b>	<b>298931.28</b>	<b>238643.49</b>	<b>373911.82</b>	<b>455756.24</b>	<b>385984.29</b>	<b>423924.61</b>

In 2003, mango purée accounted for 22,6 % of the total production of processed fruits and vegetables in India.

If we compare these numbers with the estimates for Ecuador (20.000 MT of fresh fruit or approx. 10.000 MT as purée) and Colombia (30.000 MT as fresh fruit or 7.500 MT as concentrate, equivalent to 15.000 MT as purée => estimated quantities for Nov 2003 – Jan 2004), we can see the huge dimension of the Indian mango output. But, on the other hand we notice that approx. 27 % of the Ecuadorian and 21 % of the Colombian total mango output is being processed as purée and concentrate, whereas in India this proportion is approx. 2 % (!) only.

These figures show the complexity of the mango market.

- (1) On the one hand, we learn that India, China, Thailand, Mexico and Pakistan are the countries with the highest fruit output in MT.
- (2) However, in terms of fruit processing (mango purée and concentrate), only India and Mexico play an important role in Europe. China has a huge domestic market and exports fresh and processed fruit to the ASEAN countries. Thailand is using a big part of their mangoes for canning. Pakistan has – as far as I know – an important local market and exports his "Chaunsa" mango purée variety mainly to the Middle East.

Moreover, the complexity of the market is always present, whenever the issue "current pricing" comes up. Due to the fact that a multitude of standard and premium varieties are being processed, each of them responding to

individual crop cycles and possessing its own sensorical profile, I will not go beyond the scope of this topic. Therefore, in this paper I will not deal with the price issue.

## 1.2. AREAS HARVESTED IN HECTARES (HA)

Looking at the areas harvested, we see that among the "smaller" producing countries, Ecuador, Vietnam, Egypt and Colombia have the highest exponential growth rate (GRRE). With exception of Egypt, which has a huge intra-Arab market for fresh and processed fruit, the other countries are expanding their sales of mango purée and concentrate to the European market.

Although Ecuador experienced a sharp decline in tonnage 2003 vs. 2002, processors estimate the 2004 production to have improved by an impressive 60 % vs. 2003. Local sources are expecting production to continue to increase over the coming years. New and more developed plantations will enter the crop scenario, factories are investing in technical equipment allowing them to increase their capacity. Ecuadorian processors say they are on target to multiply their output in the next 3 – 5 years. Many efforts have been undertaken to process a good quality (mainly "Haden", "Kent" and "Tommy Atkins") and slowly but surely the Ecuadorian quality will get known in the European market.

Both, Vietnam's mango cultivation and production are growing impressively – the figures shown in 1.1. and 1.2. are self-explanatory. I personally see a great potential for Vietnamese mango and tropical products in general.

Mangoes Area Harv (Ha)	Year								
	1996	1997	1998	1999	2000	2001	2002	2003	GRRE
World	2,818,904	2,805,997	3,065,810	3,154,429	3,313,292	3,396,254	3,489,421	3,462,727	3.50
Brazil	62,146	64,726	66,838	61,213	67,590	67,226	66,676	67,000	0.95
China	219,485	213,100	248,939	268,700	278,941	288,564	293,700	298,700	5.18
Colombia	8,100	8,100	8,100	10,871	11,908	12,707	13,611	13,000	9.14
Cuba	32,047	28,452	37,140	31,453	39,341	37,384	36,137	40,504	3.73
Ecuador	4,905	300	8,960	9,064	10,449	10,007	10,709	10,500	32.56
Egypt	21,760	23,232	25,438	36,123	38,854	43,005	44,296	44,296	12.44
India	1,300,000	1,200,000	1,400,000	1,400,000	1,480,000	1,520,000	1,560,000	1,500,000	3.16
Indonesia	148,820	190,000	140,000	165,000	165,000	160,000	162,000	162,000	0.24
Kenya	12,000	13,500	14,500	15,647	15,027	16,542	15,780	16,000	3.82
Mexico	138,598	149,455	153,896	155,252	154,304	162,304	161,899	173,837	2.58
Nigeria	110,000	115,000	122,000	122,000	125,000	125,000	125,000	125,000	1.69
Pakistan	89,509	90,424	92,800	94,100	96,995	98,967	99,000	99,000	1.66
Peru	10,098	11,340	10,515	10,881	11,493	11,809	13,404	11,500	2.59
Philippines	87,744	92,900	115,066	132,232	133,815	136,917	138,000	138,000	7.00
Thailand	197,872	221,927	227,293	244,747	269,909	280,000	290,000	290,000	5.80
Venezuela	9,171	9,329	9,125	8,890	8,508	5,093	5,095	5,096	-10.09
Vietnam	26,200	31,200	37,100	43,100	46,700	47,100	58,700	68,000	13.49

Source: Food and Agricultural Organization (FAO), [www.fao.org](http://www.fao.org)  
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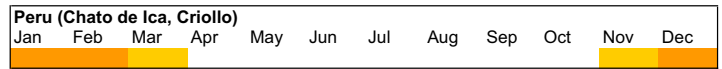
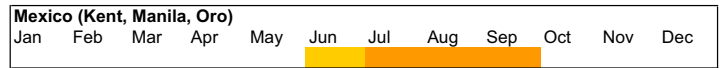
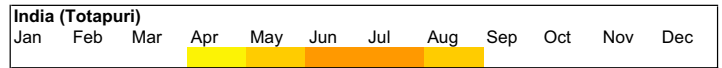
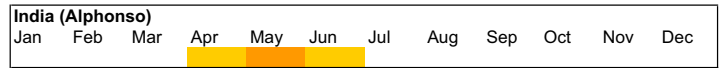
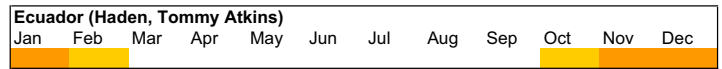
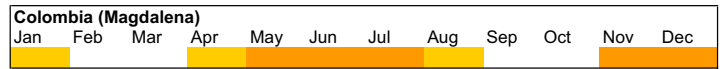
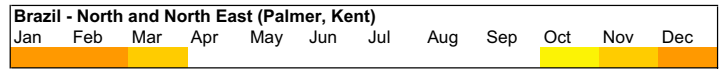
According to FOODNEWS, production in Colombia "is predicted to take off over the next few years as growers have heavily expanded the eating varieties and the plantations are still very young so yields will increase as the tree mature."

## 2. CROPS

The following crop chart is based on data given by various well-known and established companies. Of course, unusual weather conditions may change the pattern. Therefore, I kindly ask the reader to use this information as a merely tentative and not as a definite tool.

As you can see, Colombia is the only country blessed with two mango crops, one usually starting in April and lasting till August and another one commencing November and ending January. Colombia is enjoying this rare privilege thanks to its unique geographic and climatic situation, having both an Atlantic and Pacific coastline and and taking the advantage of extremely fertile valleys between the "Cordilleras".

Contrary to their Indian competitors, the Colombian industry offers product at quite stable prices on a year-on-year basis.



Brazil is mainly exporting "Palmer" and "Kent". However, due to the heavy duty disadvantage vs. Peru, Colombia and Ecuador, the volumes of mango purée/conc. exported to the EU are rather limited.

Mexican processors still maintain their clear focus on the US market, where they enjoy duty free access thanks to the NAFTA agreements. They offer a premium variety ("Oro") as well as standard qualities ("Kent", "Manila").

Peruvian producers offer both premium ("Chato de Ica") and standard products, like "Criollo" an expression which just means "local/domestic". Both varieties have their own niche in Europe.

### 3. TRENDS IN THE EUROPEAN MARKET

The data provided by FAO in combination with information I gathered from different European customers and Latin American & Indian suppliers, show the following trends:

- Both, customers and suppliers are continuously navigating in uncharted waters, always confronted with risks of over-supply on one and limited supply on the other side. Producers of multivitamin blends/nectars, especially those situated at the "budget or discount" end of the market are demanding good, easily available and economical alternatives. "Totapuri" purée and concentrate is no longer the unchallenged mango variety. During times of scarcity, it will be gradually replaced by Colombian "Magdalena", Ecuadorian "Haden" and "Tommy Atkins", Brazilian "Palmer", Mexican "Manila", etc. However, in times of abundance, the world market will be flooded with "Totapuri" mango and prices will be unbeatable. In this environment, this type of customers behave opportunistically, switching from "Totapuri" to other varieties and back again - the price issue being the decisive factor.
- Customers based in the premium segment are looking for specific varieties with a clearly recognizable sensorial profile. Take for example the
  - (1) deep orange Indian "Kesar" (Hindi name for saffron),
  - (2) "peach-like" taste and flavour you will find in the Colombian "Magdalena" variety,
  - (3) unique taste and flavour which is typical for an Indian "Alphonso" and Peruvian "Chato de Ica"
  - (4) relatively high viscosity of a Mexican "Oro"
- Indian exporters/processors of "Alphonso" mango purée are focussing on the selection of good fruit available in the growing areas of Ratnagiri and Valsad.
- As a general trend - at least in Europe -, canned products will gradually lose their share in the market. Cans, e.g. the standard format (6 x A 10), being sterilized in vacuum (hot-filled) and packed in cartons are at the disadvantage compared with aseptic drums:
  - (1) Possible existence of dented and/or rusty cans, deformed and/or humid cartons
  - (2) Safety risk: Opening of cans is usually being done automatically. However, if cans are deformed, they

can only be opened by hand and very often workers hurt themselves


- (3) Quality risk: Depending on the quality of cans, the Mango Purée could interchange with the can, leading to a high tin content. Also, the quality of the lacquer used - as an inner coating - is important, because if it is not applied accurately, it could splinter off and spoil the product.
- (4) Preparation of goods prior to shipment/handling is more time-wasting and expensive. Cans have to be put into cartons, cartons are shrink-wrapped on pallets - loose drums are easier to handle.
- (5) Higher storage fees in EUR/MT gross and net

### 4. ACKNOWLEDGEMENTS

I would like to thank APEDA, FAO, FOODNEWS®, FRUIT PROCESSING / FLÜSSIGES OBST and many helpful customers and processors for having provided me with useful information.

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In the November/December issue of  another versatile and complex tropical submarket will be highlighted: Pineapple Purée and Concentrate.

#### AUTHOR:



Ulrich M. von der Linden

Carrière GmbH – Committed To Taste  
D-20097 Hamburg/Germany  
[www.carriere.de](http://www.carriere.de)

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