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ANALYTICAL STUDY OF MANGO PRODUCTION IN INDIA WITH SPECIAL REFERENCE TO MAHAMANGO CO- OPERATIVE



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Abstract: In India the production of mango is taken in large extent. In world India is number one in mango production. Uttar Pradesh state the production of mango is large compared to the other states. Also Maharashtra has different varieties of mango production. Especially the Maharashtra State Agriculture Marketing Board (MSAMB) has promoted the organization of Mango growers in the name of Mahamango. In order to boost the export of Alphonso mangoes as well as for domestic marketing, "MAHAMANGO", a co-operative partnership society has been established on 8th March, 1991. Researchers aspire is to analyze the production of mango in India with the special reference to MAHAMANGO Cooperative. Also researcher wants to know the state wise varieties grown and overall production of mango in India and the world.

Keywords: Mango production, Alphonso, Mahamango.

1. INTRODUCTION OF MAHAMANGO COOPERATIVE

Mahamango is the cooperative society promoted by the MSAMB. The head office of Mahamango located at Kudal, Dist. Sindhudurg. The facilities are available in Mahamango are pre-cooling, cold-storage, pack house, grading packing line etc. the facility centre. For erection of this facility, the financial assistance was given by Agriculture Processed Food Products & Export Development Authority (APEDA), New Delhi and the Maharashtra State Agricultural Marketing Board (MSAMB), Pune. To motivate the activities of Mahamango, new body has been appointed on 13th February, 2002. In the Mango season - 2002, total 42 MTs Alphonso mangoes were processed by using this facility of Mahamango and supplied to the various exporters for export (Deemed Export). In the month of April 2004, the Chinese delegation had visited and inspected Mahamango Facility Centre and agreed to import Alphonso Mangoes to China, which is a unique pack house certified by the China delegation (AQSIQ department), the team has also visited the mango orchards in the Sindhudurg and Ratnagiri district.

So it helps to export huge quantity of Alphonso mangoes to China in the forthcoming Mango Season. This facility/pack house is also certified by APEDA, New Delhi for export purpose.

Similarly the pack house of Jaikisan Bhajipala Utpadak Sahakari Sanstha, Aurangabad is also getting permission for export of Kesar mangoes to China. This year MSAMB has exported 6.5 MTs Kesar mangoes to Hong Kong. The mangoes were treating with Hot Water Treatment

(48°C for 1Hr). The consignment was reached in good condition. Similarly MANGROW association has been formed for export of Kesar mangoes from Aurangabad district

2. HYPOTHESIS OF THE STUDY

The production of Mango in India is superior to other countries.

3. OBJECTIVE OF STUDY

1. To analyze the production of mango in India to International production.
2. To study the production of mangos in different states of India.
3. To study the different varieties grown in India.
4. Sampling techniques Used

4.1 Secondary Data:

Secondary data, on the other hand, are basically primary data collected by someone else. Researchers reuse and repurpose information as secondary data because it is easier. Here researcher is used for secondary data which is published in national horticulture board, Agri exchange portal of APEDA and Food & Agricultural Organization (FAO).

To analyze the data researcher used the Statistical Package for Social Science (SPSS) software and Microsoft Excel.

5. EXPORT PROMOTIONS

MSAMB has the program to promote exports of

fresh fruits, vegetables & flowers from Maharashtra to the various countries of the world with the help of farmers & their organizations. The main products handled are grapes, mangoes, pomegranate, mandarin, banana, rice, mango pulp, cashew nut, cut flowers (from the playhouse) etc. Regular guidance to the farmers and their cooperative societies is given in terms of pre-harvest, post-harvest, packaging, pre-cooling, cold storage and transportation. To boost the exports, MSAMB also provides infrastructure facilities viz. Air Cargo handling at Pune and Vapour Heat Treatment at Vashi, Navi Mumbai. MSAMB also establish a modern pack house including pre-cooling, cold storage and Ripening chamber facility for Alphonso Mangoes at Jamsande, Tal-Devgad (Sindhudurg), Ratnagiri and at Jalana for Kesar Mangoes while a modern onion export facility was created at Indapur (Dist-Pune) with the help of APEEDA, New Delhi. These facilities can be useful for farmers/growers and exporters in the state. Trial exports are being conducted for certain commodities by the MSAMB with the help of APEEDA, New Delhi.

Following products can be made available from the farmers' co-operative societies for export as well as for domestic marketing.

Table No. 1

Fruits	Vegetables	Processed Products	Flowers	Cereals and others
Mango, Grape, Pomegranate, Mandarin, Banana, Papaya, Custard	Okra, Small Gourd, Bittergourd, Fig, Beans, Onion	Chilli, Mango (Natural/Sweetened), Aseptic Packaging, Resins, Cashew nuts.	Pulp, Carnation, Gerbera, Roses, Liliium	Maize, Rice, Red Chilli, Dried Tamarind, Turmeric, Jaggery

Indian mangoes come in various shapes, sizes and colors with a wide variety of flavor, aroma and taste. The Indian mango is the special product that substantiates the high standards of quality and bountiful of nutrients packed in it. A single mango can provide up to 40 percent of the daily dietary fiber needs – a potent protector against heart disease, cancer and cholesterol build – up. In addition, this luscious fruit is a warehouse of potassium, beta- carotene and antioxidants. In India, mangoes are mainly grown in tropical and subtropical regions from sea level to an altitude of 1,500m. Mangoes grow best in temperatures around 27°C.

6.VARIETIES OF MANGOS GROWN IN INDIA

India is the home of about 1,000 varieties. However, only a few varieties are commercially cultivated throughout India. Most of the Indian mango varieties have specific eco - geographical requirements for optimum growth and yield. The Northern/Eastern Indian varieties are usually late bearing compared to Southern and Western Indian varieties. Some of the local varieties of mango bear fruits throughout the year in extreme southern parts of India.

The important commercial varieties are as:

Table No. 2 Important commercial varieties

State	Important commercial varieties
Andhra Pradesh	Banganapalli, Suvarnarekha, Neelum and Totapuri
Bihar	Bombay Green, Chausa, Dashehari, Fazli, Gulabkhas, Kishen Bhog, Himsagar, Zardalu and Langra
Gujarat	Kesar, Alphonso, Rajapuri, Jamadar, Totapuri, Neelum, Dashehari and Langra
Haryana	Chausa, Dashehari, Langra and Fazli
Himachal Pradesh	Chausa, Dashehari and Langra
Karnataka	Alphonso, Totapuri, Banganapalli, Pairi, Neelum and Mulgoa
Madhya Pradesh	Alphonso, Bombay Green, Dashehari, Fazli, Langra and Neelum
Maharashtra	Alphonso, Kesar and Pairi
Punjab	Chausa, Dashehari and Malda
Rajasthan	Bombay Green, Chausa, Dashehari and Langra
Tamil Nadu	Alphonso, Totapuri, Banganapalli and Neelum
Uttar Pradesh	Bombay Green, Chausa, Dashehari and Langra
West Bengal	Fazli, Gulabkhas, Himsagar, Kishenbhog, Langra and Bombay Green

7.AREAS OF CULTIVATION

The major mango-growing states are Andhra Pradesh, Uttar Pradesh, West Bengal, Maharashtra, Gujarat and Karnataka. Andhra Pradesh ranks first in mango production with a share of 20% and higher productivity

Table No.3 shows concentrated pockets of Fresh Mangoes in Fresh Mangoes growing states

Sr. No.	State	Districts
1	Andhra Pradesh	Krishna, Vizianagaram, West Godavari, Visakhapatnam, East Godavari, Srikakam, Khammam, Nalgonda, Karimnagar, Warangal, Mahaboobnagar, Chittoor, Cuddapah, Nellore, Prakasam
2	Karnataka	Kolar, Bangalore, Tumkur, Chitradurga, Mysore, Hassan, Mandya, Chickmagalur
3	Gujarat	Valsad, Navsari, Surat, Vadodara, Bharuch, Junagadh, Amreli, Bhavnagar,
4	Uttar Pradesh	Lucknow, Sultanpur, Sitapur, Unnao, Hardoi, Barabanki, Faizabad, Saharanpur, Bulandshahar, Meerut, Muzaffarnagar, Bijnaur, Moradabad, Deoria, Basti, Arajanj, Kabir Nagar, Gorakhpur, Kushi Nagar
5	Maharashtra	Ratnagiri, Sindhudurg, Raigarh, Satara, Sangli, Kolhapur, Latur, Nasik, Beed, Akola, Jalna, Ahmednagar, Buldhana, Osmanabad
6	Tamil Nadu	Teni, Dharmapuri, Salem, Tirunelveli.

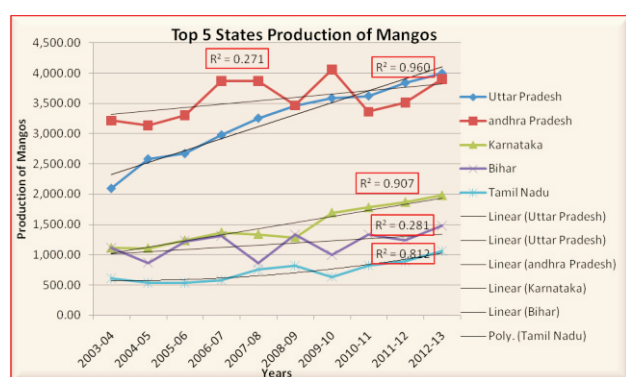
Table No. 4 Arrival pattern of Fresh Mangoes in top five states

Sr. No.	State	Season of availability	Important cultivars
1	Andhra Pradesh	Mid Feb. - mid July	Banganapalli, Totapuri, Suvarnarekha, Neelum
2	Gujarat	April - July	Alphonso, Kesar, Rajapuri
3	Karnataka	April – July	Banganapalli, Totapuri, Neelum, Alphonso, Pairi
4	Maharashtra	March – July	Alphonso, Kesar, Pairi
5	Uttar Pradesh	May - August	Bombay Green, Langra, Chausa, Amrapali, Dashehri

Table No.5 State wise production of Mangos

2012-13(First Advance Estimate)			
Sr No.	State	Production	Share (%)
1	Uttar Pradesh	3,996.00	22.82
2	andhra Pradesh	3,901.38	22.28
3	Karnataka	1,980.40	11.31
4	Bihar	1,478.00	8.44
5	Tamil Nadu	1,058.68	6.05

Source: National Horticulture Board (NHB)



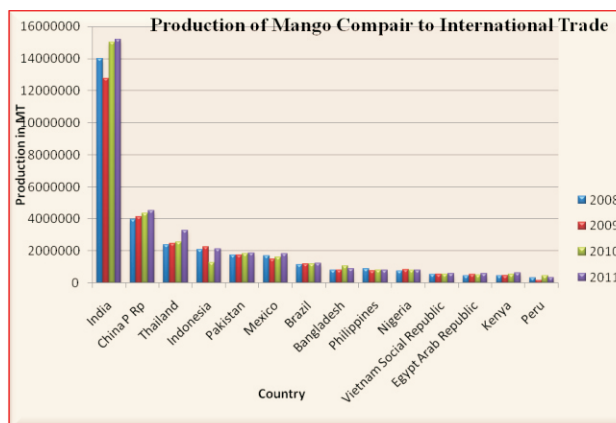
INTERPRETATION

Above Trend line graph researcher sees that the production of mango shows the different trends and also see that the R2 value of each trend line. This chart shows that the relation in the past and recent year's trends for production of mango in India. If the R2 is greater than or equal to 0.80 then it gives us better estimates. Above graph production of mango in Uttar Pradesh gives us the best estimates. The linear trend is present in a production of mango in Uttar Pradesh and best R2 is 0.96. Also Karnataka and Tamilnadu show the better estimates of R2 i.e. 0.907 & 0.812 and the trend is Linear and Polynomial respectively. The highest production of mango is present in Uttar Pradesh and Andhra Pradesh.

Table No.6 International Production of Mango

Production in MT					
Sr.No.	Country	2008	2009	2010	2011
1	India	13997000	12750000	15026700	15188000
2	China P RP	3976716	4140290	4351293	4519380
3	Thailand	2374170	2469810	2550600	3277250
4	Indonesia	2105090	2243440	1287290	2131140
5	Pakistan	1753690	1727900	1845500	1888450
6	Mexico	1716540	1509270	1632650	1827310
7	Brazil	1154650	1197690	1188910	1249520
8	Bangladesh	802750	828161	1047850	889176
9	Philippines	884011	771441	825676	800551
10	Nigeria	750000	831489	790200	795000
11	Vietnam Social Republic	541600	554000	574000	595800
12	Egypt Arab Republic	466436	534434	505741	598084
13	Kenya	448631	474608	553710	636585
14	Peru	322721	170609	457774	355431

Source: Food & Agricultural Organisation (FAO)



INTERPRETATION

Above bar diagram researcher observes that in the world the production of mango is highest till the year of 2011. The production of mango is an increasing trend in the year 2009 to 2011. The second number is China in production of mango. Thailand is the third number in production of mango. Pakistan has a steady production rate of Mango. Here production of mango over world the India is superior to other countries. In above graph some countries show the positive trend of mango production is increasing.

Table No.7 Descriptive Statistics on Mango Production

	Country Name	Mango Production in 2008	Mango Production in 2009	Mango Production in 2010	Mango Production in 2011
N	Valid	15	15	15	15
	Missing	0	0	0	0
Mean		2086400.87	2013676.73	2175993.60	2316912.53
Median		884011.00	831489.00	1047850.00	889176.00
Std. Deviation		3450281.471	3156979.992	3711607.208	3757235.056
Variance		1.190E13	9.967E12	1.378E13	1.412E13
Skewness		3.336	3.188	3.378	3.259
Std. Error of Skewness		.580	.580	.580	.580
Kurtosis		11.890	11.008	12.071	11.425
Std. Error of Kurtosis		1.121	1.121	1.121	1.121
Range		13994992	12747991	15024690	15185989
Maximum		13997000	12750000	15026700	15188000
Percentiles	25	466436.00	534434.00	553710.00	598084.00
	50	884011.00	831489.00	1047850.00	889176.00
	75	2105090.00	2243440.00	1845500.00	2131140.00

INTERPRETATION

Above descriptive statistics of mango production table researcher observes that the average mango production in the world is increasing in year 2008 to 2010. The standard deviation is very large in production of mango. The skewness is very peak in above table and maximum production of mango is concentrated in few countries like India, China and Thailand.

CONCLUSION:

Referring above research researcher say that the trends of Mahamango are changes in recent years

Analytical Study Of Mango Production In India With.....

comparable to the past trend of Mahamango and Also the overall production of mango in various states are also steadily increasing in the recent years. The overall production of mango India is superior to other countries. In India the Uttar Pradesh, Andhra Pradesh, Karnataka, Bihar and Tamil Nadu are the top five states where production of mango is higher than other states.

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