

RESEARCH PAPER

Study on arrival pattern of mango in APMC and direction of trade from Srinivasapura taluka of Kolar district

■ H.S. SRIKANTH, T.N. VENKATA REDDY, P.S. PRASANNA KUMAR AND G. RANGANATH

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ABSTRACT

India is the world's largest mango producer, growing nearly 1000 varieties of mango and contributing over 52 per cent of the world's total mango production of approximately 23 million metric tons. Mango (*Mangifera indica* L.), is the most economically important fruit of India. The main mango producing states in India are Andhra Pradesh, Uttar Pradesh, Karnataka, Bihar, Gujarat and Maharashtra. The total area under Mango in Karnataka is 1,30,000 ha and mango season in the state is from April to July. The major mango growing belts in Karnataka are Kolar-Chikkaballapur, Ramanagara-Tumkur, Haveri-Dharwad, Belgum districts. The Kolar district has about 47 per cent of the acreage under mango in the state. Srinivasapura farmed for virtually total mango growing taluka with 22,325 ha under the fruit. Srinivasapura is one of the biggest mango markets in south India on an average the market absorbs nearly 6 lakhs quintals of mango every year and these arrivals influenced by various factors. Quantity arrivals in the APMC in the starting seasons are very less (April). The peak season is from May 15th to June 15th, less quantity arrivals observed in the end of the season (August). Total arrivals differ from year to year indicates mango is a biannual bearing tree, one year will be higher yield and subsequent yield will be less and this is reflected in the arrivals in APMC also. The actual arrivals and prices presiding in the market are not reflected in the official records of APMC. The maximum arrivals of mango to the APMC were observed during the month of June which accounted for 180667.60 quintals. The minimum arrivals of mango to the APMC were observed during the month of April which accounted for 60 quintals. The liner trend model shows that as the time increases by one year arrival of mango was increases by 3750 quintals and the 454582 was the constant over years the linear trend. Mango fruit from Srinivasapura taluka moves towards different parts of the country mostly towards north Indian states.

KEY WORDS : Mango, Arrivals, APMC, Direction of trade

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Mango (*Mangifera indica* L.) is the most important fruit of India and is known as king of fruits. In India mango fruit is cultivated in the largest area

and has the highest production, contributing nearly half of the total world production of mango. The main mango producing states in India are Andhra Pradesh, Uttar Pradesh, Karnataka, Bihar, Gujarat and Maharashtra. Mangos were exported to England after the English occupied India in 1800's. India exports mango to over 50 countries worldwide namely UAE, Saudi Arabia, Qatar, Bahrain, UK, Kuwait, Singapore, Malaysia and Bangladesh together account for 97 per cent of total exports of fresh mangoes from India.

Mango is grown in over an area of 4,369 thousand ha in the country producing 10.99 million tonnes. It accounts for 22.1 per cent of total area (5.57 million ha) and 22.9 per cent of total production of fruits (47.94 million tonnes) in the country. Though Uttar Pradesh has achieved largest area of 0.27 million

MEMBERS OF THE RESEARCH FORUM

Correspondence to:

H.S. SRIKANTH, Department of Agricultural Marketing, Co-operation and Business Management, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA
Email: srikanthuas@gmail.com

Authors' affiliations:

T.N. VENKATA REDDY, P.S. PRASANNA KUMAR AND G. RANGANATH, Department of Agricultural Marketing, Co-operation and Business Management, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

hectares under mango, Andhra Pradesh has the highest productivity of 12 tonnes per hectare. While, Andhra Pradesh produces 3.07 million tonnes of mango, U.P., Bihar and Karnataka produce 2.39, 1.79 and 0.92 million tonnes, respectively.

Today, India is the world's largest mango producer, growing nearly 1000 varieties of mango and contributing over 52.63 per cent of the world's total mango production of approximately 19 million tons. Hence, the Mango is the most economically important fruit.

Mango covers an area of 4,369 thousand ha and India occupies top position among mango growing countries of the world mango production. China and Thailand stand second and third among mango producing countries with a total tonnage of 3,676 and 1,800 thousand tons, respectively. Brazil, Egypt, Pakistan, Mexico and China have higher productivity/ha compared to India having an average productivity of 6.2 tons/ha.

Mangoes account for approximately half of all tropical fruits produced worldwide. The Food and Agriculture Organization of the United Nations estimates worldwide production at more than 33,000,000 in 2007. The aggregate production of the top 10 countries accounts for roughly 80 per cent of production.

Alphonso, Benishaan or Benisha (Banganapalli in Telugu and Tamil) and Kesar mango varieties are considered among the best mangoes in India's southern states, while Dussehri and Langda varieties are most popular in the northern states.

Production status in Karnataka :

The total area under Mango in Karnataka is 1,30,000 ha, prime fruit yielding area is about 80,000 ha, in non-fruit yielding areas *i.e.*, too young plantations is 30,000 ha and senile plantations is 20,000 ha. In Karnataka the mango season is from April to July and important cultivar are Banganpalli, Totapuri, Neelum, Alphonso, Pairi. The major mango growing belts in Karnataka are Kolar-Chikkaballapur, Ramanagara-Tumkur, Haveri-Dharwad – Belgaum districts.

The Kolar district has about 47 per cent of the acreage under mango in the state (1,30,000 ha). Srinivasapura farmed for virtually total mango growing taluka with 22,325 ha under the fruit.

Economic importance :

The fruit is very popular with the masses due to its wide range of adaptability, high nutritive value, richness in variety, delicious taste and excellent flavour. It is a rich source of vitamin A and C. The fruit is consumed raw or ripe. Good mango varieties contain 20 per cent of total soluble sugars. The acid content of ripe desert fruit varies from 0.2 to 0.5 per cent and protein content is about 1 per cent.

Raw fruits of local varieties of mango are used for

preparing various traditional products like raw slices in brine, amchur, pickle, murabba, chutney, panhe (sharabat) etc. Presently, the raw fruit of local varieties of mango are used for preparing pickle and Alphonso variety is used for squash in coastal western zone.

The wood is used as timber, and dried twigs are used for religious purposes. The mango kernel also contains about 8-10 per cent good quality fat which can be used for saponification. Its starch is used in confectionery industry. Mango also has medicinal uses. The ripe fruit has fattening, diuretic and laxative properties. It helps to increase digestive capacity.

Arrival pattern of mangoes in major mango producing states:

Availability of mango varies from state to state. In Andhra Pradesh Season of availability of mango is in between mid February to mid July and important cultivars are Banganpalli, Totapuri, Suvarnrekha, Neelum, in Gujarat mango season is between April to July and important cultivars are Alphonso, Kesar, Rajapuri, in Karnataka mango season is between April to July and important cultivars are Banganpalli, Totapuri, Neelum, Alphonso, Pairi, in Maharashtra mango season is between March – July and important cultivars are Alphonso, Kesar, Pairi, in Uttar Pradesh mango season is between May to August and important cultivars are Bombay Green, Dashehri, Langra, Chausa, Amrapali.

The fluctuations in the arrivals and prices of mango are varying from season to season. The reason for these fluctuations can be attributed to various factors. An attempt has been made in these study to study fluctuations in arrivals in the APMC yard. An attempt is made to study the arrival pattern of mango in Srinivasapura APMC of Kolar district.

METHODOLOGY

Kolar is one of the leading districts in mango cultivation and production. It ranked first with respect to area under mango in Karnataka. The highest area in mango production and familiarity of researcher to the study area is one of the factors to choose Kolar district for the study. Secondary data pertaining to the arrivals and prices of mango was collected from the office of the APMC Srinivasapura.

The time series data on monthly and yearly arrivals and price of mango required for the study were collected from the registers maintained in APMC. The market maintains data on daily, monthly and yearly arrivals and prices of agricultural commodities. The price data on mango was maintained variety wise. The quantity arrivals data is also maintained in the office. The data were analyzed using various analytical techniques *viz.*, descriptive statistics and trend analysis.

ANALYSIS AND DISCUSSION

The overall objective of the study was to study the arrival

pattern of mango in the APMC yard and direction of trade in from Srinivasapura. The results of the study are presented under the following heads.

Arrival pattern of mango in the APMC yard.

The direction of mango trade from Srinivasapura APMC.

Arrival pattern of mango in the APMC yard :

The data pertain to the mango yearly arrivals, prices and value (Rs.) from 2001-02 to 2010-11 is presented in the Table 1. Arrivals of the mango were maximum during the year 2008-09 which accounted for 922862 quintals. This is because of on-season period, increased acreage under mango over the years and excess production of mango in the study area which may be due to favourable agro climatic conditions and less on farm or pre-harvest sales by respondents. Arrivals of the mango were minimum during the year 2007-08 which accounted for 226112 quintals, it is due to of off-season period which has led to less production of mango.

Quantity arrivals in the APMC in the starting seasons are very less (April). The peak season is from May 15th to June 15th, less quantity arrivals observed in the end of the season (August). Total arrivals differ from year to year indicates mango is a biannual bearing tree, one year will be higher yield and subsequent yield will be less and this is reflected in the arrivals in APMC also. The actual arrivals and prices presiding in the market are not reflected in the official records of APMC.

The prices of the mango in the APMC is less during the

starting of the season and fag den of the season this phenomenon may be attributed to the presence of less number of buyer in the market during this period compare to peak season. The model price for quintal of mango was maximum during the year 2009-10 which accounted for Rs. 800. This is because of less arrivals of mango to the APMC which led to the increase in the prices of mango. Demand for mango was more than supply of mango, therefore the prices were increased for mango.

The model price for quintal of mango was minimum during the year 2006-07 which accounted for Rs.300 per quintal followed by 2005-06 (Rs. 350) and 2008-09 (Rs. 380). This is because of more arrivals of mango to the APMC which led to the reduction in the prices of mango. It may be due to supply of mango was more than the demand for mango and also favourable agro-climatic conditions.

Monthly arrivals and prices of mango in 2009-10 were presented in the Table 2. The maximum arrivals of mango to the APMC were observed during the month of June which accounted for 180667.60 quintals. The minimum arrivals of mango to the APMC were observed during the month of April which accounted for 60 quintals. It is due to peak season for arrivals of mango were May, June and July, respectively. The lean season for arrivals for mango was April and August, respectively.

Model prices of mango in the APMC was maximum during the month of June which recorded rupees 1000 per quintal

Table 1 : Mango yearly arrivals, prices and value (Rs.) from 2001-02 to 2009-10

Year	Arrivals (Qtls)	Prices (Rs.)			Value (Rs.)
		Minimum	Maximum	Model	
2000-01	626830	-	-	-	-
2001-02	288056	-	-	-	-
2002-03	648350	300	550	500	187866200
2003-04	330786	400	600	500	132311120
2004-05	430278	400	600	500	172111200
2005-06	285996	200	700	350	125038240
2006-07	645169	200	500	300	193550900
2007-08	226112	300	800	500	113056000
2008-09	922862	200	800	380	350687600
2009-10	347670	400	1100	800	264169200

- Data not available

Table 2 : Mango monthly arrivals, prices and value (Rs.) in 2009-10

Month	Arrivals (Qtls)	Prices (Rs.)			Value (Rs.)
		Minimum	Maximum	Model	
April	60	400	600	500	30000
May	20738	400	600	500	10369000
June	180667.60	500	1500	1000	180667600
July	141965.20	300	1500	500	70982600
August	4240	300	1500	500	2120000
	347670	400	1100	800	264169200

which may be due to heavy competition in purchasing of mango by traders and processors from different parts of country. Since mango season starts early in southern Karnataka, this led to rush of buyers the APMC yard. Model prices of mango in the APMC was minimum during the months of April, May, July and August which recorded rupees 500 per quintal which may be due to less competition in purchasing of mango by traders. It is due the peak season in the study area.

Trends in arrivals of mango in Srinivasapura APMC :

In order to have a better understanding about the behaviour of arrivals trend equations were fitted. The trend an equation was fitted its better fit to assess the trends in arrivals. To assess the trends in arrivals of mango in the selected market, the data over the period from 2000-01 to 2009-10 was considered. Linear function was fitted for the arrivals data of selected market.

Linear trend model is fitted below :

$$Y_t = 454582 + 3751t$$

It could be seen from the Table 1 and Fig. 1 that in the initial and final years of the study period the arrivals of mangoes to the Srinivasapura APMC were increasing significantly. The liner trend model shows that as the time increases by one year arrival of mango was increases by 3750 quintals and the 454582 was the constant over years the linear trend. Area under mango in Srinivasapura taluka is expanding

every year, this area under expansion results in increase in arrivals of mango in the APMC over a period of time.

The direction of mango trade from srinivasapura APMC :

The new world economic order is dominated by trade between the countries in a liberalized atmosphere. The trade between the countries and trade between the states within the county and between countries is increasing in recent past. By looking at the direction of trade of mango from Srinivasapura it can be inferred that the movements of mango from Srinivasapura is throughout the country and also to foreign destinations. Even the purpose for which mangoes purchased is also undergoing a change in the growth and development of mango pulp industry is resulted in the increased demand for mango from the pulping industry from both domestic and international market.

Pre-harvest contractors purchased mango from growers in orchards generally at lower prices and they sold in the APMC at relatively higher prices than the purchase price. Smaller quantities of mango were sold by the traders/ commission agents to the local consumers.

Results revealed that the Srinivasapur mango is being transported to various parts of the country because traders, processing plants, retailers, wholesalers and exporters will get the mango at low prices compared to other states and there is a good demand for mango in the mango season all

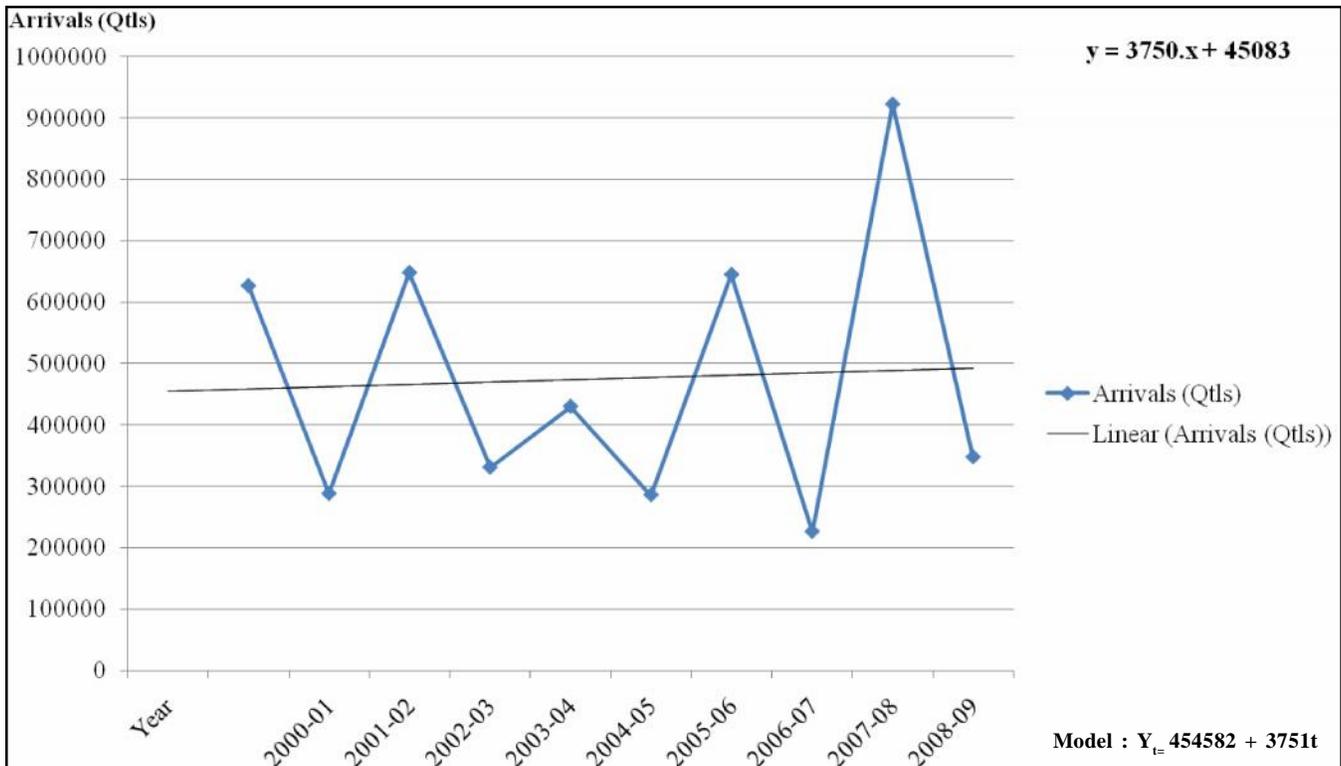
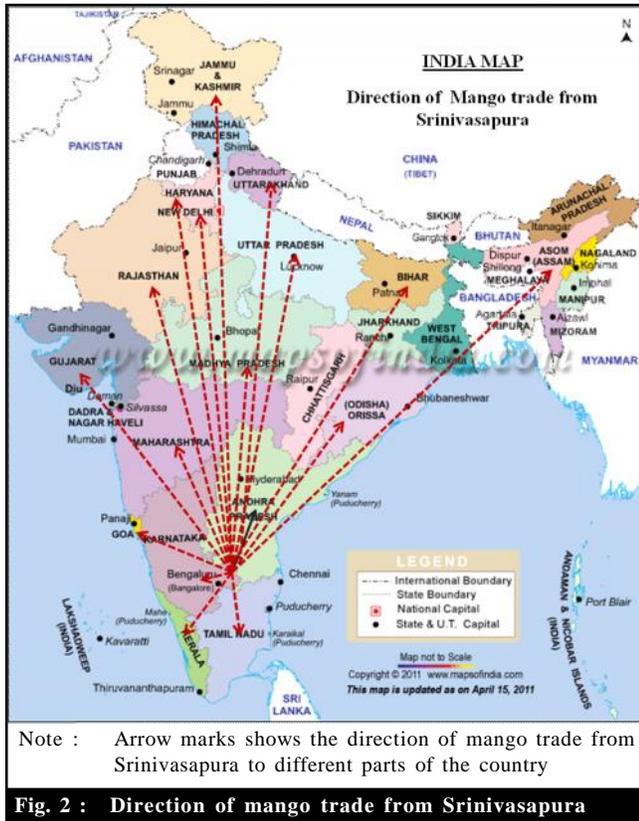


Fig. 1: Trend in arrivals of mango in APMC Srinivasapura (2000-2010)



over the country since it is a seasonal fruit and the fruit has the largest consumers.

Mango is being purchased by primary processors (pulp extractors) and secondary processors (juice preparation) it is due to again it is a seasonal fruit and the processors will not get the mango fruit throughout the year so they purchase sufficient quantities of mango in the season and they extract pulp and store it for non season period. We can also observed from results that trades, retailers and whole sellers from North India purchase mango from the study area at APMC because the harvesting period and arrivals of the mango varies from region and state to state so there will be demand in other states since traders from different states come and purchase in the study area.

Summary and policy implications :

The important findings of the study are summarized and suitable policy implication is drawn and presented below.

Findings of the study :

Arrivals of the mango were maximum during the year 2008-09 which accounted for 922862 quintals. This is because of on-season period, increased acreage under mango over the years. Arrivals of the mango were minimum during the year 2007-08 which accounted for 226112 quintals. The modal

price per quintal of mango was maximum during the year 2009-10 which accounted for Rs. 800. The minimum arrivals of mango to the APMC were observed during the month of April. Peak season for arrivals of mango were May, June and July. In August arrivals slowly deceased as the fag end of the season. The liner trend model showed that as the time increased by one year arrival of mango was increased by 3750 quintals. The minimum arrivals of mango to the APMC were observed during the month of April. Peak season for arrivals of mango were May, June and July. In August arrivals slowly deceased as the fag end of the season. The liner trend model showed that as the time increased by one year arrival of mango was increased by 3750 quintals. Mango produced in Srinivasapura taluka was being transported to different states of the country mainly North Indian states. Suppliers, traders, processors, whole sale traders of different states were found in Srinivasapura and purchased for the various purpose like primary processing (pulp extraction), secondary processing (juice preparation) and for table purpose.

Policy implications :

Srinivasapura taluka stands first in mango area (22,325 ha) and production (81,100 tonnes). Nearly 67 per cent of farmers selling in the APMC and Still 30 per cent of the farmers were selling to pre-harvest contractors. The APMC may initiate extension activity to encourage more arrivals of mango in APMC yard by motivating farmers.

The direct sales of mango by famers to retail chain stores in Bangalore, Chennai and Hyderabad may be encouraged by Department of Horticulture and State Agricultural Marketing Board.

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