

Problems and Prospects of Mango Growers of Nadia District West Bengal

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Abstract—Mango is one of the most popular fruit crop in the tropics. It is universally considered as one of finest fruit in the world .Mango is called the king of fruits and it is also known as national fruit of India. India has about 1110 varieties and 20 varieties are now accepted as commercially well established. Mango is also an important fruit of west Bengal. In West Bengal mango occupies about 80.90 thousand hectares which is more than 41% of total area under fruits west Bengal is unique in having more than 200 varieties. Among the varieties Himsagar and Amrapali are commercially cultivated in the district of Nadia. Numerous number of mango orchards found in Nadia district nearly Fulia and Santipur area. A survey of the orchard owners and leaseholders was made in the year 2017-18 to identify the problems faced by them. It was observed that most of the big orchards are more than 40 years old and the owners sell their gardens on lease before or during appearance of fruit. The problems were ranked according to their importance. They were irregular bearing habit(rank 1) followed by non-availability of good quality saplings, drying of branches , disease infestations (anthracnose, powdery mildew, mango malformation), Insect attack (mango hopper, mealy bug, fruit fly etc), old orchard, poor harvesting and post harvesting technology respectively. The suggestion emanated from the discussion with farmers were planting of high-yielding, regular bearing improved varieties, regular application of nutrient as per recommendation, regular surveillance for control of pest and diseases, improvement of irrigation and drainage system, replacement of old plant with young one. A coordinated, integrated and strategic effort of all the stake holders must to solve the problems. Mango cultivation Industry of India has to undergo a radical shift to address all the above constraints and reap the enormous advantages/benefits/ profits which this sector is to offer.

Keywords: orchard, varieties, irregular bearing, mango grower, saplings.

Introduction

Mango (*Mangifera indica* L.) is one of the most important commercial fruit crops of the tropical and sub tropical regions of the world. It belongs to the botanically Anacardiaceous and native to Indo-Burma region (Mukherjee, 1958). It is considered as one of the best fruits in the world due to its excellent flavour, beautiful colour attractive fragrance and delicious test .Mango thrives well in both tropical and sub-tropical climate. It can be grown from sea level to an altitude of 1400 m above MSL. The favourable temperature range is 18⁰c to 35⁰c, though it can tolerate temperature as high as 48⁰c, provided that trees are given regular irrigation. Mango is grown well in areas receiving annual rainfall of 25 to 250 cm with high humidity. Rainfall and frost during flowering period are found to be harmful. India is endowed with agro climatic conditions, rich soil and plentiful water, making it suitable for growing of fruits. It is the largest producer of fruit in the world. Mango is the 'National Fruit' of India and popularly known as the 'King of the Fruits'.The area and production of fruits in India has been increasing year after year during the post-green revolution period and the country is heading towards another revolution in the form of "golden revolution". India is the largest mango producer; accounting for about 50 per cent of the global mango production Total mango production in India was more than 16 million tonnes.

Rationale behind the study

Ever increasing population of our country warrants more production of fruits to bridge the gap between per capita consumption and recommendation. This can be achieved by increasing the area under fruit crops and or by increasing the productivity per unit area. Even though India occupies the prime position in the production of mango fruits in the world, still mango cultivars of India are facing grave challenges including: very small land holding, Mango transportation and marketing problem, maximum orchards are 35-40 years old, providing low yield , Lack of proper training on fertilizer application, e irrigation, pest and dissesis management , non-availability of good quality saplings, drying of branches , Insect attack (mango hopper, mealy bug,

fruit fly etc.), disease infestations (anthracnose, powdery mildew, mango malformation), middle man menace, lack of harvesting and post harvesting technology etc.

Methodology

The details of different tools and techniques of research procedures such as site selection, sample size and sampling techniques, sources of information, method and techniques of data collection are presented here.

Locale of the study

The study was conducted in the year 2017-18 in Nadia district of West Bengal. Fifty five (55) Mango growers were selected randomly from a block namely Santipur. The selection of the District and the Block was purposive as the district is one of the major producers of the Mango and also the hometown of the researcher which made it convenient for meaningful data collection. Primary data on problems of the grower were collected through direct interview with farmers-producers with the help of structured schedules to collect data.

Research framework

A research framework is a schematic representation of the research objective and includes the appropriate steps that need to achieve it. To have the direction and carrying out this study, a research design was developed to guide the research method through the different steps necessary for the successful completion of the research.

Fulia and Santipur being the area with the highest production of mango in the state and also the district, with the largest area dedicated to mango cultivation, was the most obvious choice for the study.

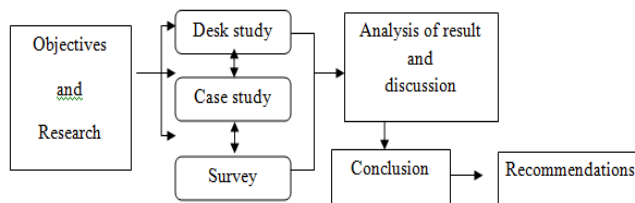


Figure 1

Research design adopted by verschuren and doorewaard(2005)

Sample size and sampling procedure

Sample plays an important role in research. Without a sound sampling plan and a suitable sample size, the data will be collected from neither proper respondents nor the appropriate number of them. The sample size determination and sampling procedure used in this study are discussed here under.

Selection of mango producer

Mango producer of the selected village were the target population for the study. Most of the farmers of these village grow mango thus were included in sampling frame for the study, list of mango growers in the district was not recorded formally by district agriculture/horticulture department but informal list of mango growers across the study site were prepared with the help of local key informants of respective site.

Method of data collection

Various sources and techniques were used for collection of necessary information. In this study, both the primary and secondary data were collected and analysed.

Sources of information:

Commercial and semi-commercial mango cultivators were the major sources of primary information. Beside these information obtained through observations, group discussion and key informant survey were also used in order to understand production and marketing system, marketing channels, marketing margin, value share, production and marketing problems.

The secondary data were obtained through the publications from the different organizations. They are District Agriculture/horticulture Department.

Technique of primary data collection

Interview

Interview schedule was used to collect the primary data. The information like production situation cost of production, marketing system, marketing channel, mode of selling, quality, grading and packaging, income from mango, price determination system, information sharing system, supporting organization, means of market information and production and marketing Problems related data were collected from the mango farmers using a structured schedule.

Interview schedule design

An interview schedule was designed for primary data collection. Three set of data collection instruments were prepared for collection of primary data. First set includes interview schedule, which was prepared to collect information from producer and second set was prepared for collector and third set was prepared for wholesalers and retailers.

Pre -testing

The interview schedule and checklists were pre-tested prior to administering to the actual respondents for checking reliability and validity of interview schedule. The pre-testing was done to 5 respondents near the study area. The suggestion given during the pre-testing was incorporated in the final interview schedule.

Field survey

The field survey was conducted in the month of May and June 2018. The respondents were interviewed by visiting their homes. The interview time was fixed as per the farmer's convenience. Regular checking and validation were done immediately after filling the interview schedule.

Result and discussion

The findings of the study that were achieved from the analysis of data are explained here. Its include explanation of landholding size, farmers experience, ownership of the orchard, varieties are cultivated, production problem, marketing problems of mango, suggestion for solving the problems etc.. The objectives of this research are the followings -

1. Identifying important problems of mango growers in Nadia district.
2. Analysing these problems and developed appropriate solution of the problem.
3. Generating awareness about the problems and its solution
4. Overall development of the mango grower in Nadia district.

Leased / owner's orchard

Case study on mango growers of Nadia, it is found that maximum cultivated area of the district under mango orchards, though banana orchards and vegetables cultivation practices also important in Nadia district. In Nadia a large number of farmers are related to mango production. Some of them have their own orchard but a major portion is leaseholder. They leased orchards for several year (mainly 3 year) by providing money to the orchard owner.

Table 1: Frequency of owned and leased orchard

Categories	frequency	Percentage
Leased holder	35	63.6
Orchards owners	20	36.4

From this table we found that among 55 growers 35 are leased holder and remaining 20 have their own orchard. The frequency of leased holder is 35 and orchards owner is 20. so the frequency of leased holder is higher than the frequency of orchards owners. Within 100, orchard owners contain 36.4% and leased holders contain 63.6%.

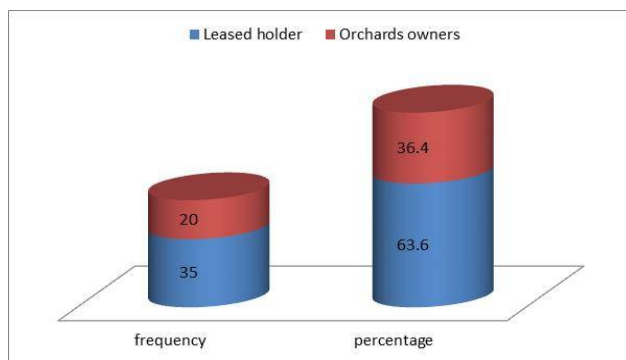


Fig. 2: Bar diagram on table 1

Major varieties-west Bengal is unique in having more than 200 varieties .Among the varieties Himsagar and Amrapali are commercially cultivated in the district of Nadia. Fewer amounts of Gulaabkhaas, sindoori, chatterjee, langra and some indigenous varieties are also cultivated in Nadia.

Table 2

Sl. no	Varieties	Percentage	Rank
1	Himsagar	68	i
2	Amrapali	12	ii
3	Sindoori	4	v
4	Chatterjee	3	vi
5	Gulaabkhaas	6	iii
6	W.B. langra	5	iv
7	Indigenous variety	2	Vii

Among the varieties we found that Himsagar is more popular and highly cultivated in Nadia district. With in 100, Himsagar occupies 68% of the total production, there are mainly two type of Himsagar are cultivated in nadia. one is 'kalahimsagar' another one 'sadahimsagar'. Sadahimsagar is more attractive for its fine outer look but kalahimsagar is more delicious than sadahimsagar. other varieties like Amrapali contain 12% of total mango production, Gulaabkhaas contain 6%, west Bengal langra occupies 5%, Sindoori take 4%, chatterjee varieties contain 3% and some indigenous variety locally known as ' ' take 2% of the total production. As per ranking according to their production Himsagar rank 1st, Amrapali rank 2nd, Gulaabkhaas rank 3rd, west Bengal langra rank 4th, sindoori rank 5th, Chatterjee variety rank 6th and Indigenous varieties rank 7th.

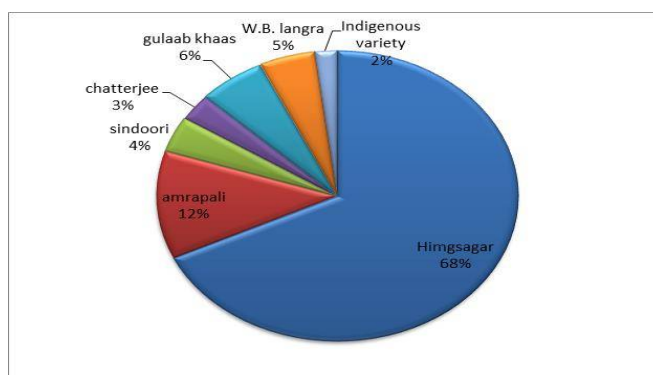


Fig. 3: Pie chart on table no-2

General problems of mango growers

The mango farmer are always beset with a lot of problems. The researcher has confined himself to ten problems, which he considers as the most prominent of all. Those ten problems have been ranked and listed in the following table.

Table 3: General problem of mango grower

Sl. No.	Problems	Frequency	Rank
1	Lack of skilled labour	55	i
2	Disease and insect attack	47	iii
3	Lack of water supply	41	vi
4	Natural calamities	36	vii
5	Wrong management of fertilizer and pesticide	53	ii
6	Poor soil condition	21	viii
7	Insufficient quality saplings	42	v
8	Weather problems (mist, smog, frost etc.)	44	iv

In this case study we found that storage problem is major problem because of mango is highly perishable in nature. all growers face this problem for this reason its rank 1st. Lack of proper training on fertilizer application and plant protection rank 2nd, aged orchard problem rank 3rd, high cost labour problem rank 4th, Lack of good qualities graft rank 5th, high labour cost problem rank 6th, pest and disease problem rank 7th, Irregular marketing demand rank 8th, long term return problem take rank 9th, lack of insurance problem rank 10th.

Production problems of mango growers

Different production problems were listed according to the farmers perception on the given problems and ranked according to the response of the farmers. According to the study insect insect problem got the highest rank followed by Lack of good quality saplings, hail storm and nor'wester, high price of input, lack of credit, disease problems and lack of irrigation facility. In the study area, hailstorm is a very serious problem of mango production. Hail storm at early flowering and early bearing stage cause severe damage of fruit.

Table 4: Production problems of mango growers

Sl. No.	Problems	Frequency	Rank
1	Lack of proper training on fertilizer application and plant protection	51	ii
2	High labour cost	39	vi
3	Pest and disease infestation	38	vii
4	Wait a long period for return	30	ix
5	Poor storage facilities	55	i
6	35-40 years aged orchard	48	iii
7	Lack of good qualities graft	44	v
8	High marketing cost	45	iv
9	No insurance for mango trees	21	x
10	Irregular marketing demand	35	viii

Among all kind of production problem insufficient skilled labour problem rank 1st, excessive use of pesticide and fertilizer hamper export demand of mango its rank 2nd, disease and insect attack rank 3rd, weather problem l(mist, smog, frost etc.) rank 4th, , lack of saplings rank 5th, insufficient irrigation water rank 6th, various kind of natural calamities like heavy rain, storm, hailstorm, drought etc. hamper mango production rank 7th, poor soil condition ran

Marketing problems

Marketing plays important role for the easy disposal of the product from producer ultimately to the consumer. Due to perishability of agricultural products easy and safe disposal of the commodity after harvesting was of most importance.

According to the farmers' perception on the specified marketing problems, problem ranking was done. Lack of proper storage facilities, lack of market information, lack of knowledge regarding postharvest handling, lack of knowledge regarding market segmentation, low price offered by traders and high transportation cost were the main marketing problems of mangoes of Nadia district .

Table no 5: Marketing problems during direct selling

Sl. No.	Problems	Frequency	Rank
1	Price in fluctuation	46	iii
2	Non regular marketing	32	v
3	High transport cost	52	ii
4	Excessive wastage during low marketing demand	30	vi
5	Non availability of storage facilities	55	i
6	Credit sales	39	iv
7	Disturbance by local authorities	31	vii

From the above table it is understood that there are thirteen major marketing problems faced by the mango growers and they have been ranked according to their magnitude. Out of six problems arising out of direct selling by the farmers themselves, “non-availability of storage rank 1”, “high transport cost”, rank 2 “Price fluctuation“ rank 3, “Credit sales” rank 4. “Non regular marketing” rank5. “Excessive wastage during low market demand” rank 6 scores, “Disturbance by local authorities” rank7 It is thus understood that “price fluctuation” “Non-availability storage” and “high transport cost” are the major problems of the mango growers when they directly sale their mangoes in the market

Marketing problems while selling through market intermediaries

An attempt has been made to identify the various marketing problems encountered by the mango growers while in marketing their mangoes through market intermediaries. The researcher has identified, ten marketing problems such as, High commission charged, Lack of market information from intermediaries, Quoted very low price, Unauthorized deductions, High dominance of market intermediaries, Credit sales, Lack of consultation before price fixation, Demanding sample mangoes at free of cost, Bargaining method of sales and Demanding mangoes beyond actual weight. These problems are analysed and listed on the basis of their severity,

Table 6: Marketing problems while selling through market intermediaries

Sl. No.	Problems	Rank
1	High commission charged	ii
2	High dominance of market intermediaries	iii
3	Lack of consultation before price fixation	iv
4	Credit sales	i
5	Demanding sample mango at free of cost	vi
6	Bargaining method of sales	vii
7	Demand mangoes beyond actual weight	v
8	Quoted very low price	vii

As per the above table, there are ten problems identified as the most important ones which the mango farmers are facing while marketing their mangoes through market intermediaries. Among them “credit sales” stands first followed by “High commission charge” rank 2. “High dominance of market intermediaries” rank 3, “Lack of consultation before price fixation” rank4, “Demanding mangoes beyond actual weight” rank5“Demanding sample mangoes at free of cost”rank6, “Bargaining method of sales” rank 7, “Quoting very low price” rank 8 Of all these ten problems which the mango farmers have considered the most difficult to overcome are „credit sales“, “High commission charges” and “Lack of consultation before price fixation”.

Table 7: Problems from government side

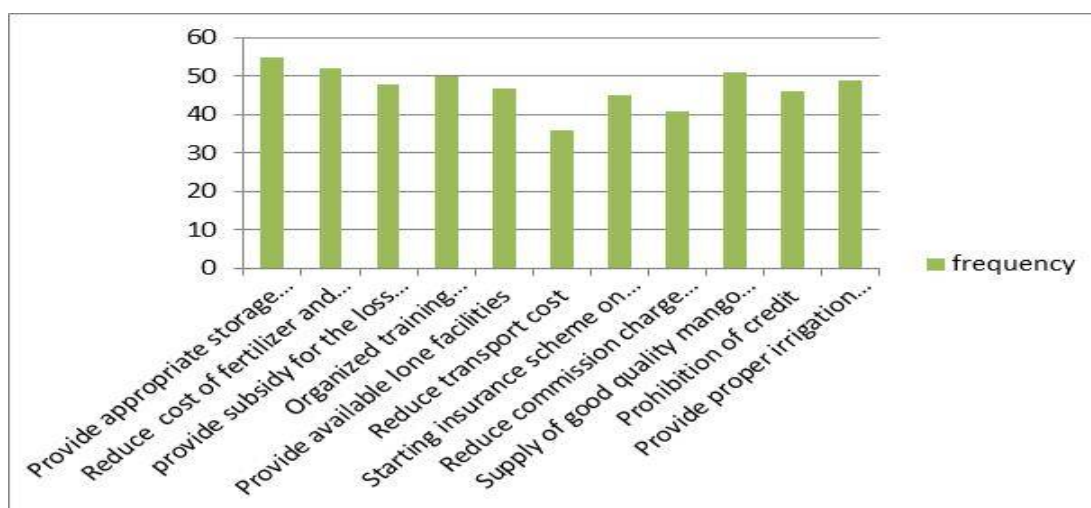
Sl. No.	Problems	Rank
1	Non availability of loan facility	ii
2	No research center near by	iii
3	No subsidy for the loss by natural calamities	iv
4	High cost of pesticides and fertilizers	i
5	Lack of government support	v

The table shows that there are five problems identified which the mango growers face from the Government side.. Out of five problems, the problems of “ high cost of fertilizer and pesticides “ rank 1 , ” non-availability of loan facilities” rank 2, “lack of facilities like research centre near by the locality” rank 3, no subsidy for the loss by natural calamities “ rank 4and lack of others government support” rank 5“.It is thus understood from this analysis that majority of the respondents are considering two problems as major problems which they have to face due to high cost of fertilizers and pesticides and they are no research centre nearby and non- availability of loans.

Table 8: Suggestions of mango growers to solve their problems

Sl. No.	Problems	Frequency	Rank
1	Provide appropriate storage facilities	55	I
2	Reduce cost of fertilizer and pesticide	52	Ii
3	Provide subsidy for the loss due to natural calamities	48	Vi
4	Organized training programme on mango cultivation	50	Iv
5	Provide available lone facilities	47	Vii
6	Reduce transport cost	36	Xi
7	Starting insurance scheme on mango trees	45	Ix
8	Reduce commission charge and marketing cost	41	X
9	Supply of good quality mango saplings	51	Iii
10	Prohibition of credit	46	viii
11	Provide proper irrigation facilities	49	v

to address all the problems of mango production farmers were asked for various suggestions to cope up with the problems. Among them all farmer gave suggestion to provide appropriate storage facilities, 52 farmers claim for advanced pest control measures, 51 farmer suggested good cultivation practices and supply of good quality mango saplings, 50 farmers suggest providing training on mango, 49 farmer suggested to provide proper irrigation facility. 48 farmers claim subsidy for the loss due to natural calamities, 46 farmers went for provision of credit, 45 farmers want govt. Start insurance scheme on mango trees 41 farmers clam to Reduce commission charge and marketing cost and 36 growers provide suggestion to reduce transportation cost.

**Fig – bar diagram on frequency of suggestion**

Conclusion

As agriculture plays a vital role in Indian economy, it is our duty to analyse the agricultural production and marketing system properly and try to resolve its problems. From the above discussion it can be seen that the mango grower of Nadia district as well as whole India is facing some problems. From the study we have come to know that the mango growers are not getting proper government support and extension management regarding production and marketing of the product. For solving these problems firstly we must identify the major problems, how it affect their production and profit and asked them for providing suggestion to solve these problems. Government should take initiative to solve these problems otherwise it badly affects our economics.

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