

Marketing Problems of Banana: A Case Study in Goalpara District of Assam

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Introduction

India's age-old farming practices have taken a turn in recent years. The technological breakthrough has led a substantial increase in the production of farms and the largest marketable and marketed surplus. To maintain this tempo and pace of increased production through technological development, an assurance of remunerative prices to the farmers is a prerequisite, and this assurance can be given to the farmer by developing an efficient marketing system (Acharya and Agarwal, 2001). The marketing of horticultural products involves many practices and operations, sequentially; the major practices are harvesting and preliminary grading, removal of field and green heat, caring, storing, processing, shipping and selling the product (Senn and Halfacre, 1983). Market functionaries or institutions move the commodities from the producers to consumers through different marketing channels. Every function or service performed in various marketing channels involves cost. The intermediaries or middlemen make some profit to remain in the trade after meeting the cost of the function performed. In the marketing of agricultural commodities, the difference between the price paid by consumer and the price received by the producer for an equivalent quantity of farm produce is often known as price spread. Studies on marketing margins and costs are important, for they reveal many facets of marketing and price structure, as well as the efficiency of the system (Acharya and Agarwal, 2001). Absence of quick and reasonable sending facilities of banana to the selling centers in different parts of the country and abroad have caused depreciation of cultivators' share in consumers' price (Kulkarni, 1959). Exporting fresh fruits such as bananas is a challenge due to their perishable nature. Large scale exports of banana were duly made possible in the early 20th century with the development of steamships and refrigerated transportation. Historically, large scale banana exports have developed along with railway and sea transportation (Taylor, 2003). The perishable nature of banana requires a close control of the entire marketing chain at all stages from production to retail sale. This control enables marketing firms to generate a significant level of quality when the final produce reaches consumers (Pedro et al., 2003).

Absence of large scale storage and processing facilities results in loss in output, as also value addition leads to lower realization of output prices (Kumar, 2005). By performing the major functions of marketing, transport plays a dominant role in the exchange of wealth between the nations (Devi, 2002). Therefore, disposal of the produce is as important as the adoption of cultivation practices for improving its productivity (Singh, et al., 2005).

Expansion of banana cultivation depends on innovative cultivation practices and on its proper marketing facilities. The report of the **Royal Commission of Agriculture in India** rightly recommended that fruit grower must in the main look to large urban centers for market and he has to face the problem of transport and marketing ¹. Besides, the report stressed on the need of cold storage and improved packing for fruit items for their expansion. Hence, an efficient marketing system is utmost necessary for expansion of banana cultivation.

As environmental issues have been prominent since 1980s, researchers, policy makers and general public have been drawing attention for the ways banana is produced and traded. Banana production practices that aim at environmental protection and were disseminated in recent years include, inter-alia the treatment of waste waters, the removal of plastics from the field, compost technology from reject banana and other organic residues to recover the physical properties of soils, and more efficient systems of irrigation and fertilization that minimize downstream pollution (Pedro et al., 2003).

The above observations, clearly explain the theoretical reasoning that banana cultivation bears immense potentiality in the changing scenario, and it is solely dependent on implementation of modern cultivation practices and enhancement of efficient marketing facilities.

An efficient marketing system of an agricultural crop plays crucial roles to clear marketable surplus, provides incentives to farmers for further increase in production and also to the earnings of various market functionaries. An understanding of the market structure, conduct and performance facilitates to assess the competency of the marketing system of a crop. Development of market infrastructure for the perishable fruit like banana is very important to bring the anticipated growth of the sector. The developed marketing infrastructure can facilitate proper integration among farmers, intermediaries, processing units and the ultimate consumers- thereby enhance marketing efficiency. In this perspective, the present paper deals with assessment of marketing system in relation to marketing facilities available and marketing efficiency of banana in the study area.

Objectives of the Study

The study selects the following specific objectives

- Make an outline of banana cultivation and its marketing process
- Assess the marketable and marketed surplus, and
- Work out marketing costs and margins to assess marketing efficiency.

Data base and Methodology

The present study proposes to adopt descriptive and analytical approaches. For achieving most of the objectives the study requires both qualitative and numerical data of production and marketing of banana. Hence, the study has to depend on both secondary and primary information. Secondary data are collected from different publications of the governments, agencies, institutions and concerning experts. On the other hand, the study proposes to gather primary data through a case study in the selected area of study.

Sources of Secondary Data

Following are the main sources for gathering secondary data -

- I. Food and Agricultural Organization of United Nations, Rome.

- II. Publications of Directorate of Economics and Statistics, Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India.
- III. Publications of National Horticulture Board and NEDFi Databank.
- IV. Publications of the Directorate of Marketing and Inspection, Government of India.
- V. Publications of the Directorate of Economics and Statistics of the Respective States.
- VI. Department of Agriculture / Horticulture of the Respective States.
- VII. Published Reports and Database from different Organizations and Agencies.
- VIII. State Planning Boards of the Respective States.
- IX. District Regulated Marketing Boards of the Respective States.
- X. Concerning District and Community Development Blocks.
- XI. A host of Websites, etc.

Selection of the Study Area

The present study was based on a cluster area comprising of four Community Development (CD) Blocks two each in Assam and Meghalaya. The two blocks of Assam are located in Goalpara district and two of Meghalaya are located in the East Garo Hills district. The selection of the four blocks as study area is justified because the area is among the major banana producing areas in the NER and most of the banana growers are concentrated in them.

Collection of Primary Data

For fulfilling the objectives, the study is based on primary data collected through a case study adopting a multi-stage random sampling comprising of two time phases-during September-November 2007 and July- November 2008. In the first stage preliminary information were collected from farmers and assemblers at Darrangiri and Dhupdhara to locate the area concentrated with banana growers. On the basis of personal interview and consultation with 100 farmers and market intermediaries, four Community Development Blocks (CD Blocks) were selected purposively. Kushdhowa and Rangjuli CD Blocks under Goalpara district of Assam and Kharkhutta and Resubelpara CD Blocks under East Garo Hills district of Meghalaya were selected for the case study. The buffer arrival of banana in the two market places mentioned earlier comes mostly from the far and near villages which are situated under these CD Blocks. It affirms the justification of the selection of the study region for primary data collection. In the second stage, from the selected CD blocks, 24 villages were selected randomly. Personal visits to the villages were conducted and official data were gathered from respective CD Blocks. Sub sample of 4, 6, 6 and 8 villages each from Kushdhowa, Rangjuli, Kharkhutta and Resubelpara blocks respectively were selected.

Households involved in banana cultivation are the units for collection of information for production analysis. The farmers in each of the sample villages were classified into two categories of small and large farmers on the basis of size of land holdings. This was followed by a random selection of sample farmers. From all the selected villages a sample size of 120 households comprising of 96 small farmers and 24 large farmers (excluding 4 villages) was randomly selected. This sample size is justified because it is about 5.46 per cent of the total 2197 households of the sample villages in the area.

Performance of market functionaries are assessed qualitatively as required, by organizing discussions and conversations with concerning persons and agencies including the market management committees. Such discussions were organized specially, with "Bikali Mouza Unnaayan Somittee" at Dhupdhara and "Darrangiri Anchalik Unnayan Somittee" at Darrangiri in the Goalpara district of Assam. For the qualitative appraisal of the marketing system of banana in the study area, the middlemen, assemblers and agents were interviewed randomly. The interview of these market intermediaries were also extended to newly grown banana assembling centers like Adokgiri, Damra and Mendipathar in the East Garo Hills district of Meghalaya.

For measuring marketing efficiency of banana, marketing costs and margins and price spread are calculated adopting conventional methods. For these measures the study follows a specific lot of 100 bunch of banana marketed in the area. Simple statistical tools like tables, averages, percentages, rates, ratios, etc. were used to grasp and analyze the problems.

Profile of Banana Cultivation and its Marketing

Among the different centers of banana production, Goalpara and East Garo Hills districts of Assam and Meghalaya are considered as major contributors to banana pool in North Eastern Region (NER). These two districts are located bordering the two states of Assam and Meghalaya. The proximity, socio-cultural affinity, topographic and climatic similarities cause the agricultural practices of both the districts merely the same.

The selected four CD Blocks of these two districts are adjacently located in a cluster in the Assam-Meghalaya border. Almost, all the households of these selected CD Blocks have common type of "Bari", backyard/homestead gardens where different horticultural crops are grown and banana finds an important place among all.

Growing of different varieties of banana among the households has certain traditions. Basically, banana is grown for home consumption (fruits & vegetables), festival needs (fruits, stems and leaf sheaths) and traditional processing of 'Kolakhar'- alkali. Besides, banana is planted to keep cool the garden, protect soil and shed other horticultural plants. The tradition of banana cultivation is regarded as a source for satisfying multipurpose objectives of the farmers besides cash earning.

Moreover, pseudo stems and banana leaves are used for preparing temporary sheds in different religious and cultural occasions. The hard leaves of pseudo stems and green leaves are used as dishes and certain type of tools for preparing Pitha (cake) in household level. The pseudo stems, sometimes are used to make raft for carrying different goods by waterways, specially, in summer. The main stem (underground roots) and other parts including outer cover of Athia Kol are, specially, used to prepare traditional Kolakhar. Bhimkol and Kachakol varieties are used for certain treatment of stomach disorder. The climate and soil conditions are at par with the potentiality to foster the banana cultivation as a lucrative source of earning in the era of its growing demand.

Mere investment in capital form other than employing self-human labour towards an intensive form of banana cultivation in the area is yet far away. Its large arrival in different markets, specially, at Darrangiri and Dhupdhara implies its prospect for development as a sub-sector of horticulture in the region.

Concept of Banana Marketing

The agricultural marketing system is a link between the farm and non-farm sectors. Therefore, agricultural marketing is regarded as a process which starts with a decision to produce a saleable farm commodity, and it involves all the aspects of market structure or system, both functional and institutional, based on technical and economic considerations and includes pre and post-harvest operations; assembling, grading, weighing, storage, transportation, processing and distribution. The concept of banana marketing is perceived as a process by which different varieties of banana move from the farmers to the consumers. Under this connotation, the marketing structure, conduct and performance associated with banana are considered to be the subject matters of banana marketing.

Market structure refers to those characteristics of the market which affect the traders' behaviour and their performance (Tyagi, 1990). The concept of market structure is necessary to identify imperfections in the performance of market (Acharya and Agarwal, 2001). A dynamic market structure determines the market conduct and performance. The term market conduct refers to the pattern of behaviours of market functionaries in relation to pricing and practices, and market performance refers to economic results that flow from the marketing system. Expected economic benefits may come out from the efficiency of banana marketing because proper clearance of marketable surplus is encouraging for the farmers for further increase in output which is possible under efficient marketing system.

Efficient **banana marketing** is expected to ensure additional producers' surplus, provides remunerative prices and facilitates the farm product to reach the consumers with the greatest possible satisfaction at the least possible prices. Marketing efficiency of a farm product refers to the effectiveness or competence with which a market structure performs its designated functions (Jasdanwalla, 1966). Hence, the efficiency of banana marketing in this context is conceptualized as the marketing structure, conduct and performance by which excess over home consumption of banana is disposed of in a remunerative price. The excess over home consumption, i.e., the volume of marketable and marketed surplus depends on total output produced by the farmers. Increase in total output of a product is considered as the main objective of the farmers and is a source of emergence of a marketing system. Increased output provides expansion of **marketable and marketed surpluses** of farmersthereby provides further incentives to increase in output.

Marketable surplus of banana refers to the volume of production left after self-consumption and all types of kind payments by the farmers. **Marketed surplus** is the volume of banana which is actually sold in the market after losses arising during transportation to the selling centers.

In any developing economy, the producers' surplus of agricultural products plays a significant role for agricultural progress. This is the quantity which is actually made available to the non-farm population of the country (Acharya and Agarwal, 2001). Surplus production of agricultural food crops creates pressure on the marketing system. It has an influence on expansion of marketing facilities which again induce the farmers to raise the production because the rural farmers need cash earnings after meeting the family requirements by selling the surplus crops. This hypothetical aspect shows a relationship between the farmers' objective to raise marketable surplus and the emergence of marketing development. Marketing of banana

gets an added advantage in this respect due to its high value and bulkiness nature. The surplus production can influence economic progress provided the expansion of marketing facilities by which surplus product can be distributed efficiently to the processing units or to the ultimate consumers. The **marketable** and **marketed surpluses** of banana are therefore considered pre-conditions for emergence of the marketing system.

The volume of marketed surplus of banana is influenced by the production conditions discussed earlier. Disposal of marketable surplus of banana depends on marketing systems and it is associated with the prices, weather conditions, the losses during post harvest handling and transportation etc. Price of banana is one of the most important factors determining the volume of marketed surplus. **Acharya and Agarwall, (2001)** had referred to **V.M. Dandekar (1994)** and **Rajkrishana (1962)**, and put forward the positive relationship between prices and marketed surplus of food grains in India. It was found that the farmers are price conscious and tempted to sell more, retain less when price increases. However, marketed surplus of banana may perform differently, having no temptation to retain some portion when price decreases because of its seasonal and perishable nature. Then, the volume of marketed surplus would certainly depend on the marketing facilities like transportation, cold/conditioned storages and processing units (**Chand, 2005**). These factors are considered marketing infrastructure which can help enhancing marketing efficiency.

The above discussion clearly suggests that an enhanced growth of *marketedsurplus* of banana will depend on the extent of *marketing infrastructure* on which **marketing efficiency** depends. Efficiency in banana marketing would induce farmers to increase marketed surplus and also affirms the remunerative prices to the farmers. Marketing efficiency is constrained by the extent of *marketing imperfections* that gives rise to the higher *marketing costs and margins*. The higher *marketing costs and margins* results a higher *price spread*. Marketing imperfections are common in all agricultural products. The case of banana is similar where few traders are engaged in buying from a large number of sellers. Naturally, the role of middlemen becomes indispensable and has impact on determining the marketing conduct. Farm products are associated with marketing costs and margins that cause a wide difference between the actual price received by the farmers and the actual price paid by the consumers. The costs incurred in marketing conduct for market functionaries and margins received by different intermediaries in each step of movement of a product constitute the volume of price spread. Price spread is considered one of the important measures of **marketing efficiency** and depends on marketing facilities. The **lot consignment method** for estimating price spread followed by **Acharya and Agarwal in 2001** because of its simplicity and applicability to perishables has been adopted in our study.

Banana Marketing

For co-coordinating the marketing functions properly of any agricultural commodity, improved marketing facilities are considered important. Such improved facilities are more important for disposing the excess product over consumption and to encourage farmers for further increase in production. Marketing of perishable commodity like banana needs improved marketing facilities to dispose the product efficiently. For analyzing the performances of banana trading, the existing marketing facilities under different development schemes are discussed below.

Development Schemes and Marketing Facilities

Assam has been initiating different schemes for marketing development in the state since 1976 under the provision of "Assam Agricultural Produce Market Act 1972". Recently, the **Assam State Marketing Board** has initiated "**Banana Market development Program**" for development of marketing infrastructure at Darrangiri. The program includes marketing infrastructure like road connectivity, auction sheds, cold carriages, cold storages and processing units including places for accommodation of stakeholders. Since a couple of years the state **Agricultural Marketing Board** has emphasized marketing development at Darrangiri because of its location in Assam Meghalaya border. Therefore, emphasis has been given to develop its infrastructural facilities to improve banana marketing and cordial relation with the neighbouring state of Meghalaya.

Under the "**Banana Market Development Program**", a cold storage is being constructed recently. In respect to road connectivity to the villages of banana farmers, the scheme has no provision for road construction. What exist as of today are three NEC roads connecting Adokgiri, Kharkhutta and Mendipathar in East Garo Hills - the three assembling points with the wholesale trading centers (NH 37). Ten new roads ranging from 7 to 15 km each connecting different villages of the area to the NH 37 from either side within a sixty km radius are under construction under "**Prime Minister Gram Sadak Yojana**". But most of the banana producing villages is still found lacking in road connectivity.

In regards to the facilities prevalent in the marketing places, ten ordinary market sheds are constructed by the **District Agricultural Marketing Board** of Goalpara and the **Directorate of Rural Development Agency (DRDA)** in the wholesale trading centers. However, a private cold storage at the district head quarter of Goalpara has been constructed which is about 50 km away from Darrangiri. But banana marketed in the area has not been channelized through this cold storage so far.

Market Arrival

Under the above marketing facilities, market arrival of banana in the area has to move from farmers to consumers. As a seasonal crop and bulkiness nature, its market arrival needs well equipped marketing facilities. The arrival of banana in the market places has been found disposed in different seasons of the year. The seasonal arrival of banana in the two wholesale markets is shown in the following table.

Table - 1
Monthly Arrival of All varieties of Banana (2006-07)

	(1)	(2)	(3)
Sl. No.	Months	Quantity (tonnes)	Percentage Arrival
1.	July	199	1.18
2.	August	1146	6.8
3.	September	4026	23.91
4.	October	6129	36.4
5.	November	5125	30.43
6.	December to June	215	1.28
	Total	16840	100

Source: Goalpara District Regulated Marketing Board.

The table above reveals that the arrival of banana in the market is not uniform throughout the year. It starts increasing from the month of August and continues till it reaches the peak in the month of October. The arrival is very nominal from December to July. The seasonality in the arrival of banana indicates utmost need to develop destinations conveniently. The seasonal variation in market arrival is accounted for the dependency of the cultivation on nature. However, development of marketing infrastructure can facilitate in storing the product or to process it when its arrival is high.

Marketing Channels and Marketing System of Banana

Marketing channels are routes through which agricultural products move from producers to consumers. The chain of intermediaries through whom the various food grains pass from producers to consumers constitutes their marketing channels (Moore et al., 1973). The banana arrival in the sample area has been found to move from farmers to consumers through the following channels.

Channel-1: Farmers → Village Assemblers → Agents → Wholesalers → Retailers → Consumers.

Channel-2: Farmers → Agents → Wholesalers → Retailers → Consumers.

Channel-3: Farmers → Agents → Local retailers → Consumers.

Channel-4: Farmers → Local retailers → Consumers.

In **Channel 1**, the village assemblers after collecting the crop from the farmers carry it to the assembling points. In these assembling points the crops are sold to agents and the agents carry the crops to the wholesale markets. In the process, the price is determined by the agents or wholesalers observing the physical appearance of the whole-naked bunch, where, farmer's role is inactive. Finally, the wholesalers send the purchased banana in the respective direction to distribute them among the retailers in different places of the country.

In **Channel 2**, farmers carry the crop to the wholesale markets and sell them to the wholesalers through agents in the market places. Agents play an important role as facilitators between farmer and wholesaler for disposing the crop. The wholesalers then send the purchased banana to different destinations. This channel is shorter than channel 1 due to the absence of village assemblers.

In **Channel 3**, farmers sell their produce to the agents or to the local retailers directly. Absence of assemblers and wholesalers make this channel shorter than both Channel 1 and Channel 2. From the local retailers ripe bananas reach the final consumers which are sold in weekly and daily markets in the area.

In **Channel 4**, absence of market functionaries like assemblers, agents and wholesalers make it the shortest of all channels. The local retailers are involved as important market functionary in selling ripe banana in different local markets. Local retailers purchase raw bananas from farmers, and to hasten the ripening they use calcium carbide. However, the wholesalers to avoid decaying of banana during transportation avoid using calcium carbide.

The disposal of banana is performed under three types of sale. In the *first type*, the outside traders coming from Bihar, Jharkhand, West Bengal and Uttar Pradesh purchase banana through the agents and send them to different destinations. The outside wholesalers in association with the agents play dominating role in determining price of the product by observing the size of whole bunch. The disposal of banana under this type takes place thrice a week at Darrangiri and once a week at Dhupdhara.

In the *second type* of sale, traders hail from Guwahati and they purchase, mainly *Malbhog*, *Jahaji* and *kachkol* through the agents or directly from the farmers in the wholesale market. This type of sale takes place on a single week day in both the trading centers.

In the *third type* of marketing, local traders are involved in the purchase from farmers directly or through the agents and sell in the retail market. This type of marketing includes the varieties - *Athia*, *Manohar*, *Kachkol*, *Bharatmani* besides *Malbhog* *Chenichompa* and *Jahaji*. Retailers sell them in different daily and weekly markets as well as in roadside market places.

The entire marketing activity of the marketed surplus of banana lies in the hands of private traders and agents. The two wholesale markets for banana have emerged at **Darrangiri** (Kushdhowa block) and **Dhupdhara** (Rangjuli block) where weekly markets take place for general merchandise. Both of the wholesale markets of banana are located in Goalpara district of Assam and there is no wholesale trading center in the blocks of East Garo Hills of Meghalaya. Banana produced in all the blocks of Assam and Meghalaya arrive in these wholesale markets. Due to the proximity of the wholesale markets, the farmers of Goalpara district of Assam are in an advantageous position of marketing their produce in the wholesale markets without much intervention of the middlemen.

In Meghalaya, three *assembling points* have emerged where the crop is gathered once or twice a week. These points are simply open places in the vicinity of the concentrated villages of banana farmers. Two of them, Adokgiri and Damra are located in Kharkhutta and another is located at Mendipathar in Resubelpara block in East Garo Hills of Meghalaya. Adokgiri is situated at a distance about 14 km from Dhupdhara, whereas, Damra and Mendipathar are about 8 km and 30 km away respectively from Darrangiri wholesale market. A part of the produce is assembled by the farmers in these points to deliver to the agents. The agents purchase the product to deliver to the wholesalers either at Darrangiri or at Dhupdhara. From the wholesale markets bananas are distributed mainly in two directions, viz. national and local. The movement of banana from farmers to consumers takes place in two ways: (1) either banana is collected by agents from households or from the assembling points and carried to wholesalers, and (2) farmers directly sell to the wholesalers in the wholesale markets.

In a study conducted by NEDFi it was estimated that about 1777000 number of bunches, worth of Rs.150 million of bananas were marketed through this wholesale market to different parts of India during 2003-04. This figure was about 92 per cent of the total market arrival of banana and the remaining part was marketed in the locality. Under the existing marketing system no practices such as weighing, grading and packing are found to perform.

Marketable and Marketed Surplus

An estimation of **marketable surplus** and **marketed surplus** of banana is necessary for understanding the marketing performance. The **marketable surplus** of banana of the sample households in Goalpara and East Garo Hills have been worked out as $MS = P - R$, where **MS** is the **Marketable Surplus**, **P** is the total production in number of bunches, and **R** is the requirements at household level including kind payments to labour and others. For estimating **marketed surplus** MS_1 , the study applies $MS_1 = MS - L$, where MS_1 is the **Marketed Surplus** and **L** is the Losses during the transportation to the selling centers.

Chasing a *lot* of 100 whole-bunches, the estimated volume of marketed surplus through the selected channels is highlighted in the following Tables- 2 and 3 for the sample blocks in Assam and in Meghalaya respectively.

The results of the estimation are shown in Table 2 for the two blocks - Kushdhowa and Rangjuli block in Goalpara district.

Table - 2
Marketable and Marketed Surplus of Banana in the Sample Blocks of Goalpara
(No. of bunches)

Sl. No.	Particulars	Kushdhowa			Rangjuli		
		Small Farm (No. of bunches)	Large farm (No. of bunches)	Total (No. of bunches)	Small Farm (No. of bunches)	Large farm (No. of bunches)	Total (No. of bunches)
1	Total production (P)	5986 (100)	3472 (100)	9458 (100)	8635 (100)	5700 (100)	14335 (100)
2	Self-consumption and kind payments to labour and relatives (R)	103 (1.72)	80 (2.3)	183 (1.93)	205 (2.37)	140 (2.46)	345 (2.4)
3	Marketable surplus (MS=1-2)	5883	3392	9275	8430	5560	13990
4	Losses in post- harvest & transporting to	152 (2.54)	75 (2.16)	227 (2.4)	157 (1.82)	125 (2.19)	282 (1.97)

Source:Field Survey

Notes:The figures in the brackets represent percentages to total production.

The table reveals that more than 95 percent of the produce comprises marketed surplus in case of both small and large farmers in Kushdhowa and Rangjuli blocks. The small difference of marketed surplus between farm sizes in both the blocks of Goalpara indicates that as a cash crop, only a small part of the total production of banana is kept for self-consumption and for payments in kind to labours and relatives, However, losses in post-harvest and transporting are found amounting to 2.4 per cent and 1.97 per cent in Kushdhowa and Rangjuli blocks respectively. It has been found that due to the proximity to the wholesale markets from the villages of Ranguli block the losses and transportation costs are smaller.

Table 3 depicts the marketable and marketed surplus of banana of the sample households of Kharkhutta and Resubelpara in East Garo Hills district of Meghalaya.

Table - 3
Marketable and Marketed Surplus of Banana in selected Blocks of East Garo Hills
(No. of Bunches)

Sl. No.	Particulars	Kharkhutta			Resubelpara		
		Small Farm (No. of bunches)	Large farm (No. of bunches)	Total (No. of bunches)	Small Farm (No. of bunches)	Large farm (No. of bunches)	Total (No. of bunches)
1	Total production (P)	7692 (100)	5515 (100)	13207 (100)	11298 (100)	7848 (100)	19146 (100)
2	Self- consumption and kind payments to labour and relatives (R)	158 (2.05)	130 (2.36)	288 (2.18)	223 (1.97)	186 (2.37)	409 (2.14)
3	Marketable surplus (MS=1- 2)	7534	5385	12919	11075	7662	18737
4	Losses in post- harvest & transporting to market (L)	225 (2.93)	170 (3.08)	395 (2.99)	340 (3.01)	238 (3.03)	578 (3.02)
5	Marketed surplus [MS ₁ = (M-L)]	7309 (95.02)	5215 (94.56)	12524 (94.83)	10735 (95.02)	7424 (94.6)	18159 (94.84)

Source:Field survey data.

Notes:The figures in the parentheses represent percentages to total production.

Table above shows that in both the blocks of East Garo Hills the marketed surplus of small farmers at 95.02 percent is slightly higher than that of the large farmers. This is due to the post-harvesting and transportation losses of the large farmers being higher than that of the small farmers.

Aggregated percentage share of disposal of the total marketed surplus in the marketing system of banana through selected channels is shown in Table 4.

Table 4
Percentage Share of Disposal of Marketed Surplus through Selected Channels

Sl. No.	Channels	Percentages of banana disposed
1	Channel 1	44
2	Channel 2	48
3	Channel 3	03
4	Channel 4	05
	Total	100

Source: Field survey.

Table above shows the percentage share of disposal of marketed surplus of banana through the selected marketing channels. Channel 1 and Channel 2 are found to predominate in the disposal of marketed surplus because the crops are channelized to the larger markets for national sale, whereas, Channel 3 and Channel 4 are involved in local sale.

Comparing the district wise difference in marketed surplus it has been found that farmers in Assam have a higher marketed surplus. The lower marketed surplus of farmers in Meghalaya is because the two main wholesale markets are situated in Assam at Darrangiri (Kushdhowa block) and Dhupdhara (Rangjuli block). Of the two blocks in Meghalaya growing banana one is located at a distance of 8 km and other at 30 km from the wholesale markets.

Estimation of Marketing Efficiency

An analysis of market performance of a commodity is necessary for understanding the marketing efficiency. Marketing efficiency is the ratio of market output (satisfaction) to marketing input (cost of resources), (Kohls and Uhl, 1980). The satisfaction of the consumer at the lowest possible cost must go hand in hand with the maintenance of a high volume of farm output, (Acharya and Agarwal, 2001). Estimation of marketing costs and margins that constitute the price spread are considered significant tools to assess efficiency of banana marketing.

Banana moves from farmers to the consumers through the marketing functions such as picking, assembling, carrying to wholesale markets and transportation to different destinations through the channels mentioned earlier. Under the prevailing marketing system **marketing costs and margins** and **price spread** are estimated in the following sections.

Marketing Costs and Margins

Marketing costs and margins are measured for the selected marketing channels. Conceptually, efficiency of any process is defined as the ratio of output to input. Conveniently, if O and I respectively, are output and input of the marketing system and E is the index of marketing efficiency then, $E = O/I \times 100$ is the estimate of efficiency. A higher value of E denotes a higher level of efficiency and vice versa. When it is applied to marketing of a farm product, output is the "value added" by the marketing system and input is real cost of marketing. Shepherd (1965) has suggested that the ratio of the total value of goods marketed to the

marketing costs may be used as a measure of efficiency. In this method the higher the ratio, the higher will be the efficiency and vice versa. The measurement of value added is complicated for perishable fruit like banana, where the time lag between the crop entering the marketing system and the time of final consumption is very small. Therefore, this method has limitations and it provides dubious results as shown by **Raju and Venkateswarlu (1989)**. To overcome this problem, the "modified measure" is suggested by **Acharya and Agarwal (2001)** for efficiency measure of banana marketing. The **Modified Estimates of Marketing Efficiency** is $MME = FP/(MC+MM)$; where MME is the Modified Measure of Marketing Efficiency, FP is the price received by the farmers, MC and MM are marketing costs and marketing margins respectively.

A lot of 100 whole bunches of marketed surplus is chased to calculate the marketing costs and marketing margins in the four selected marketing channels. The method has been considered appropriate for banana marketing as suggested by **Acharya and Agarwal (2001)**. The results from the measure for the selected channels are given in Table 5.

Table 5
Marketing Costs and Margins (Rs. per 100 bunches)

Sl No	Particulars	Channel 1	Channel 2	Channel 3	Channel 4
1	Farmer's costs	0	0	0	0
2	Assembler's costs	50	0	0	0
3	Assembler's margins	150	0	0	0
4	Agent's costs	450	450	650	0
5	Agent's margins	1400	1400	1400	0
6	Wholesaler's costs	1050	1050	0	0
7	Wholesaler's margins	1800	1800	0	0
8	Retailer's costs	800	800	1300	1300
9	Retailer's margins	1400	1400	1500	1500
10	Total costs and margins (MC+MM)	7100	6900	4850	2800
11	Retailer's sale price or Consumer's purchase price	11100	11100	8850	8850
12	Net price received by the farmers $FP = 11 - 10$	4000	4000	4000	4000
13	$MME = 12 / 10$	0.56	0.57	0.82	1.43

Source: Field survey.

Efficiency measures revealed in table shows that channels 1 and 2 involved in national sale are less efficient than channels 3 and 4 meant for local sale. Presence of larger number of market functionaries has increased the marketing costs and margins that resulted in lesser efficiency in comparison. This is also reflected in the difference in the MME values. Table 4 however, shows that in terms of disposal of marketed surplus Channel 3 and Channel 4 together dispose 8 percent of the marketed surplus, whereas, Channel 1 and 2 contributed 92 percent of the total marketed surplus disposed.

The findings above indicate that inefficiency occurs due to the presence of larger number of market functionaries for which marketing costs and margins become larger. But it has been evidenced that the presence of the larger numbers of market functionaries such as village assemblers, agents, wholesalers and retailers have efficiently disposed the marketed surplus of banana. However, the findings give answer to a key question that there is a large volume of marketing costs and margins in banana marketing due to the presence of larger market functionaries.

Price Spread of Banana

Marketing costs and margins in the marketing process cause a difference between the net price received by the farmers and the price paid by the consumers as earlier. This difference is termed as price spread. There is a theoretical consensus that smaller the price spread greater is the marketing efficiency of any product. As because the smaller price spread enables the farmers to receive larger shares from the consumers' price. Price spread of banana is estimated adding up the four channels mentioned earlier into two prominent marketing channels - N for national sale and L for local sale. The movement of marketed banana through the two channels is given below.

Channel N: Farmers → Assemblers/Agents → Wholesalers → Retailers → Consumers.

Channel L: Farmers → Agents → Local Retailers → Consumers.

A lot of 100 whole bunches is chased during the marketing from the farmers to consumers through the selected channels. Marketing costs and margins charged at different steps were estimated and 'values added' to work out the price spread. The results of the estimated price spread are given below in table 6.

Table 6
Price Spread of Banana (per 100 bunches)

Sl. No.	Particulars	Channel N		Channel L	
		Costs & Margins (Rs.)	% share of consumer's price	Costs & Margins (Rs.)	% share of consumer's price
1.	Net price received by the farmers	4000	36.04	4000	45.2
2.	charges borne by assemblers/agents				
	Labour	150	1.35	150	1.69
	Transport	300	2.7	300	3.39
	Market fee	100	0.9	100	0.9
	Spoilage	300	2.7	300	3.39
	Margins to assemblers/agents	1200	10.82	1200	13.56
	Sub-total	2050	18.47	2050	23.16
3	Charges borne by wholesalers				
	Labour	100	0.9	0	0
	Transport	1000	9.01	0	0
	Fee/charity	100	0.9	0	0
	Storage	50	0.45	0	0
	Spoilage	500	4.5	0	0
	Wholesaler's margins	1100	9.91	0	0
	Sub-total	2850	25.67	0	0
4	Retailer's purchase price	8900	80.18	6050	68.36
5	Charges borne by retailers				
	Labour	50	0.45	50	0.56
	Transport	50	0.45	50	0.56
	Storage	150	1.35	200	2.26
	Spoilage	950	8.56	1000	11.31
	Retailer's margins	1000	9.01	1500	16.95
	Sub-total	2200	19.82	2800	31.64
6	Retailer's sale price or consumer's purchase price	11100	100	8850	100
7	Price Spread	7100	63.96	4850	54.8

Source:Field survey.

The result indicates that there is a large price spread in banana marketing. The price spread at 63.96 percent of the consumer's price in national sale, is higher than that in the local sale. With a higher percentage of price spread in the national sale the farmer's share in

consumer's price is 36.04 per cent whereas in local sale it is 54.8 per cent. The presence of larger number of market functionaries is accounted for the large price spread of marketed banana. Under the available market facilities, the presence of market functionaries is indispensable to clear the marketed surplus, specially, in channels for national sale which disposed about 92 per cent of the marketed surplus. Findings show that neither the national market nor the local market provide the farmers even fifty percent of the actual price paid by the consumers. However, as seen in table 4.3 and table 4.8 the total production amounting to 56146 number of bunches is produced at a cost of Rs. 434200. Thereby, the average cost is estimated at Rs. 7.73 per bunch and the farmers get Rs. 40 per bunch. This indicates that farmers receive a price that gives a benefit of Rs.32.27 per bunch in excess to its cost of production.

The percentage share of marketing functionaries in consumers' price in channel N and Channel L are classified according to the various categories in table 7.

Table 7
Percentage Share of Market Functionaries in Consumers' Price

Sl. No.	Name of the Market Functionary	Percentage share in Consumer's Price	
		Channel N	Channel L
1	Farmer's Share	36.04	45.2
2	Labours' Share	2.7	2.25
3	Share of Transport	12.16	3.95
4	Margins to Assemblers, Agents, Wholesalers and Retailers	29.74	30.51
5	Storage	1.8	2.26
6	Spoilage/Losses in Trade level	15.76	14.7
7	Miscellaneous	1.8	1.13
8	Total	100	100

Source: Table 6

Leaving aside the farmer's share which has already been mentioned above, a major part of the price spread is due to the margins to assemblers, agents, wholesalers and retailers which constitute nearly 30 per cent in both the national market and local market. Spoilage has been found to be higher in channel N than in Channel L. The national market does not differ much in terms of various market functionaries from local market except in the share of transportation. The advantage of lower share of transportation in the local market goes to the farmers as increased shares.

The price spread in national market is higher than that of local market. Price spread is found influenced by market intermediaries and spoilages. The influence of the market intermediaries along with spoilages do not vary with marketing channels. Margins to market

intermediaries constitute nearly 30 per cent of the price spread. This margin is same both for national as well as local market. Losses in trade due to spoilage constitute nearly 15 per cent of the price spread which is not same for both the markets. In local market the share of spoilage is slightly lower at 14.7 per cent compared to 15.76 percent in national market. This is explained by the increased share of storage cost at 2.26 per cent for the local market compared to only 1.8 per cent spent in the national market. The findings reveal that price spread is constituted by margins to the intermediaries, costs incurred for losses/spoilages and storages.

In the perspective of the above analysis, it is imperative to look into the factors associated with the marketing problems that caused large price spread. The factors responsible for a high price spread and a smaller share of farmers in the consumer's price are highlighted below.

Post-Harvest Practices

Banana marketing process starts from the post-harvest operations in farm level, then the crop moves through different steps in various marketing channels to reach the consumers or processing units. As a perishable commodity, a number of requirements in the form of cold carriages, cold storages, processing unit, etc. are necessary for proper marketing of banana. Among them road connectivity, and transport facilities are considered prominent. The facilities availed by the sample farmers in the post-harvest operations are highlighted in Table 8.

Table 8
Number of Sample Farmers using Marketing Facilities (Total Farmers 120)

Sl. No.	Name of the Facility	Number of farmers using the Facility
1	Road Connectivity	
	All weather Motorable Road	37
	Non-motorable Road	83
2	Storage Facility	
	Ordinary Sheds	120
	Conditioned Godowns	Nil
3	Transportation Facility	
	Bicycle	79
	Hand carts	39
	Mini-auto van	2
	Trucks	Nil
	Conditioned Carriages	Nil

Source: Field survey.

As seen from the table above, the area under study lacks proper storage facilities because of which all the farmers have to store their produce in ordinary sheds, thereby the spoilage is very high, nearly 15 percent. Absence of transportation facilities which is again due to poor road connectivity has compelled majority of the farmers to use bicycle and hand cart. Only 2 farmers are found using Mini-auto vans. Majority of the farmers face the hardship of plying by the non-motorable road.

The Market Places

The assembling points in the cluster villages were simply open places without any house buildings. The main trading centers of banana at Darrangiri and Dhupdhara are merely open places except for a few ordinary sheds. The transaction takes place in open space specified for the purpose by the marketing committees. Traders do not have cold carriages for transportation to distant places. Lack of proper marketing facilities accounted for nearly 15.00 per cent loss in consumer's price (refer table 7).

There are no processing units for value addition to raw banana and the post-harvest residues go wasted. During the field survey it was found an NGO named "*PragatiSomiti*", started processing raw banana into "**Banana Chips**". But that was closed due to the managerial and financial constraints. Only one private small scale unit was found preparing 'Banana Chips' at house hold level by employing family labour without any sophisticated machinery. This processing unit is very insignificant.

Finance for marketing development

Except for the construction of ten ordinary market sheds and one proposed cold storage for improvement of banana marketing in the area, no notable flow of finance for marketing development have been reported. There are centrally sponsored budgetary provisions under NHB for development of marketing infrastructure for horticultural crops. The Board has adopted five year planning to bring about scientific, advanced and futuristic reform in the agricultural marketing scheme. The five year plan of the Board has laid emphasis on the development of the infrastructure of the marketing and spent nearly Rs. 20 crores in the recent past 4.

Conclusion

The location of the two wholesale markets- Darrangiri and Dhupdhara in Goalpara district in Assam has two implications:

1. The marketed surplus of farmers of Assam is higher than those of Meghalaya.
2. The price spread is relatively small of farmers of Goalpara district.

The Modified Estimates of Marketing Efficiency reveals that channel 1 and channel 2 disposes 92 per cent of the total marketed surplus in other words, the entire marketing activity lies in the hands of private traders and agents.

Absence of proper marketing facilities in the post harvest operations from the farmers to the consumers are found responsible for the wide price spread. The analysis above shows that the major components contributing to the price spread are margins to market functionaries and transportation costs. Besides, some exogenous factors are found fuelling to widen the price spread of banana. The high price spread has been found to reduce in producers' share in the consumers' price.

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