GROWTH RATE AND MARKETING CHANNEL IDENTIFICATION OF SEASONAL FRUITS: AN EMPIRICAL STUDY BASED ON CHITTAGONG HILL DISTRICTS OF BANGLADESH

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Abstract

The study was conducted in the three hill districts namely Bandarban, Rangamati and Khagrachari Hill district of Bangladesh to determine growth rate of selected seasonal fruits (mango, jackfruit and litchi), identifying marketing channel of fruits and problems affecting in those fruits marketing and production. For the analysis of growth rate of the area, production and yield of selected fruits, 14 years (from 2000-01 to 2013-14) respective secondary data were

collected from issues of BBS. For determining compound growth rate, semi-log trend equation were formed and analysis were done through SPSS. For identifying marketing channel and problems faced by farmers and market actors dealing with these fruits, primary data was collected and descriptive analysis were followed for analysis. The study revealed that the highest growth rate of the area for mango, jackfruit, and litchi was recorded in Khagrachari, while it was found to be negative in Bandarban and Rangamati. The growth rate of production for mango and jackfruit was found to be highest in Rangamati, while for litchi it was recorded as highest in Khagrachari. The highest yield for mango, jackfruit, and litchi was recorded in Rangamati area. Some hindrances like post-harvest activities of fruits, lack of market monitoring, storage problems etc. were found as the main barriers for the farmer and market actor in case of production and marketing of seasonal fruits.

Keywords: Chittagong Hill Tracts, Seasonal fruits, Growth rate, Marketing channel

INTRODUCTION

Bangladesh is a land of diversified seasonal fruits. The sub-tropical ambiance of Bangladesh follows to be a pride ground of extensive fruits. There are three most significant discernible fruits seasons of Bangladesh such as summer, rainy & winter seasons. Summer season is the prime season in terms of having several types of fruits. Fruits such as Mango, Jackfruit, Lychee, Berry, Pineapple, Water apple and Wood Melon are mostly noticeable. Every fruits carry ample vitamins & nutritional value. The Chittagong Hill Tracts consists of a land measure of 13,295 square kilometers in south-eastern Bangladesh, and bounding line of India and Myanmar (Burma). They constructed an individual district of Bangladesh until 1984, when they were partitioned into three separate districts, Khagrachari, Rangamati, and Bandarban. Topographically, the Chittagong Hill Tracts are the sole mountainous ground in Bangladesh (www.en.wikipedia.org/ChittagongHillTracts.htm). The area is becoming a focus of seasonal fruit hub with the plenty of possibility for the elevation of a food-processing sector. At least 20,000 farmers are flourishing the production of fruits which may bring them around Tk. 20 crores as suggested by the rate of selling (Dwaipayan Barua, 2015). Farmers attained a bumper yield of fruits due to the lenient weather while clay of the district is extremely fitting for fruit production. A total of 32,903 metric tons of mango; 1, 11,000 metric tons jackfruit, and 13,673 metric tons litchi were grown in the district last year. In the incoming years, we will need to produce more variegated food with the effectuation of higher shares of fruit production. The territory generates a million tons of fruits annually. That is why this territory is properly

considered to be a fruit store of Bangladesh. An exploration of inconstancy of fruit production, productivity apart from progression is of worth for the perception of the condition of fruit development in the area. The propagation of inconstancy depends on fruit production technology, its susceptibility to weather, economic milieu, suitability of inputs and many other attached factors. Besides, planned and schematic system of marketing can successfully allot the available stock of modern inputs and thereby keep up a faster rate of growth in the agricultural sector. The necessity for supplying bountiful incentives for enhanced production is, therefore, very, significant and this can be made feasible only by the proper streamlining of the marketing system.

Growth rates refer to the percentage change of a specific variable within a specific time period, given a certain context (http://www.investopedia.com/terms/g/growthrates.asp). The growth rate of the area, production, and yield of fruits could favor to simplify, the prognosticating on the future progress of fruits in the region. In the present study compound growth rates of area, production and yield for the selected fruits were estimated by fitting semi-log or exponential trend equation by using time series data. Therefore, the outcome of the study are of massive importance for researcher, horticulturist, extension workers, and policy makers for flourishing fruit production in the region. With the prior deliberations in mind, the current study has been formulated in light of three important seasonal fruits (mango, jackfruits, and litchi) with some appointed objectives.

REVIEW OF LITERATURE

There has been several studies on the growth performance of fruits, marketing channel identification, production and marketing system, market opportunities and output growth, which revealed the importance of conducting this studies.

Azim uddin (2014) conducted a sympozium on current fruit production and trends in Bangladesh. He tried to reveal information about fruits in market, present scenario of fruit production and consumption, annual distribution of fruits, area and production of major fruits in Bangladesh, export statistics of fresh fruits in Bangladesh, major quick growing fruits, some under utilized fruits in Bangladesh, peoples involved in fruits production and marketing, fruits variety developed by BARI, recent development and constraints of fruit production etc.

Bishaka Dewan (2015) conducted a study at Khagrachhari Sadar upazila, Panchari and Dighinala upazila under Khagrachhari Hill District, Bangladesh to determine growth rates of production of major fruits, identifying marketing channel of major fruits and critical problems affecting fruits marketing. For determining compound growth rate regression analysis and for identifying marketing channel of major fruits descriptive analysis was done. The highest growth

rate of production was recorded in mango which was 9.11 percent and negative growth rate was recorded in banana (-11.23%). There are four type of market intermediaries involve in fruits marketing; Bepari, Faria, wholesaler and retailer.

Kamruzzaman et al., (1998) studied the growth performance of oilseeds, pulses and potatoes and examined the factors influencing the yield growth of these crops for the period of 1972-73 to 1992-93. The exponential growth model and decomposition analysis was done for the estimation. The growth rates of acreage and production of the said crops were all significantly positive except the production of pegionpea and sweet potato. The annual increase of acreage, production and yield for mustard was 4.03, 5.21 and 1.10 percent respectively during the study period. The production of pulses, oilseeds and potatoes increased mainly due to the increase of area (above 97%).

Khalid Mahmood et al., (2007) conducted a study on "Marketing System of Fruits, Margins and Export Potential in Pakistan". Study was specifically designed to examine the trends in fruit production, consumption and trade; describe existing fruit marketing system; identify constraints in fruit marketing systems and promoting exports; and propose measures for improving and enhancing their international competitiveness. Resource poor farmers under-invest in farming inputs like pesticides and fertilizers that leads to lower yields and poor quality products. Advance sales are also a root cause of financial constraints amongst farmers. Scarcity in storage and transportation infrastructure resulted in 25-40 percent post-harvest losses that shrinks supply and put pressure on prices.

M. Jamal Uddin *et al.,* (2016) conducted a study on "Trend and Output growth analysis of major fruits in Chittagong region of Bangladesh". The study analyzed the trends, growth rates of area, production and yield of major fruits in Chittagong region and identified factors contributing to output growth during 1993/94-2009/10 using secondary data. The fruits under study were mango, jackfruit, litchi, guava, banana, papaya, ber, pomelo, pineapple, watermelon, lime and lemon. The study revealed that the area of all fruits increased over the period except banana, ber, pomelo and water melon. The highest percentage of output change was observed in Banana (149%) followed by pineapple (106%) and jackfruit (83%) between the periods. The lowest percentage of output change was found in guava (11.7%). The contribution of area was the highest in changing output for mango, jackfruit, litchi, guava, ber, pomelo, watermelon, lime and lemon.

M.A. Matin *et al.*, (2008) carried out a study to identify the most efficient and suitable marketing channels of mango in some selected areas of Bangladesh by using primary data collected randomly from 90 farmers and 55 traders. Out of 55 traders, 15 were Bairals, 15 were Beparis. 9 Aratdar (local), 6 Aratdar (urban), 10 Retailers (both local and urban). According to

the volume of mango handled and longevity or participation of the intermediaries in the channel, five major channels were identified as dominant in the study areas. The channel Farmer Bairal-Bepari-Aratdar (Dhaka)-Retailer (Dhaka)-Consumer ranked first.

Siddiqui (2001) conducted a study on Litchi Production in Bangladesh. He found from the study that lychee was found to grow well in the Government horticulture centers of three hill districts namely: Rangamati, Khagrachari and Bandarban and also in Jamalpur, Rajbari, Meherpur, Chapainawabgonj and Comilla. Most of the growers as well as extension agents do not have the required knowledge and skill in lychee cultivation as a result of which interested farmers very often fail to establish new orchards. Total area under lychee cultivation is about 4,800 hectares and total annual production is about 12,800 MT was found from his study.

OBJECTIVES OF THE STUDY

1. To estimate the annual growth rate of seasonal fruits in the hill district over the period of 2000/01 to 2013/14.
2. To identify the marketing channel of seasonal fruits in Bandarban and Rangamati Hill District.
3. To identify the major barriers that affects the fruits production and marketing for farmers and market actors in the hill district.

METHODOLOGY

The study was carried out based on primary and secondary information covering the three hill districts namely Bandarban, Rangamati and Khagrachari Hill District, Bangladesh. For trend analysis, three major seasonal fruits in Bandarban, Khagrachari and Rangamati district were selected based on availability of time series data in the Bangladesh Bureau of Statistics (BBS). The selected fruits for the study were mango, jackfruit and litchi.

For the analysis of growth rate of area, production and yield of selected fruits, 14 years (from 2000-01 to 2013-14) respective secondary data were collected from several issues of Bangladesh Bureau of Statistics (BBS). Some disaggregated descriptive analysis were also carried out for the trend analysis of area, production and yield. In the present study, compound growth rates of area, production and yield for the selected fruits were estimated by fitting semi-log or exponential trend equation by using time series data. Using this time series data, reasonable changes were observed in the data of seasonal fruits for the period of 14 years and compared effectively for the area, production and yield of this selected seasonal fruits in this three hill districts of Bangladesh.

The compound growth rate (CGR) is usually estimated by fitting a semi-log trend equation of the form. The equation fitted to analyze the trend growth rate is semi log exponential form (Gujrati, 1988).

$Y = ae^{bti}$…………………. (I)

Or In Y = Ina+bti

Or InY = A+ bti (here A=Ina)

Where,

A = Intercept

Y = Quantity of major fruits production, area and yield

b = Growth rate in ratio scale and when multiplied by 100, it express % growth

i.e., annual growth rate

ti = time, i= 1, 2, 3,…………, 14 years

In = natural log of the variable

The slop coefficient 'b' measures the instantaneous rate of growth. The compound growth rate 'r' may be calculated as follow:

CGR (r) = (antilog of b -1) x 100.

The above mentioned equation has been estimated by applying OLS method. The standard error was applied to test the significance of 'b'. After fitting this equation, we tend to analyze the linear trend of data running through SPSS.

ANALYSIS AND DISCUSSION OF RESULTS

Average Growth rate of area of selected fruits in CHT

The average growth rates of area for mango were found to be positive only in Khagrachari but there was a decline in the area of Bandarban and Rangamati for mango production (Table 1). Same trend for area of the other two fruits were happened for the periods of 2000-01 to 2013-14. The average compound growth rate of area for jackfruit were found to be increased in Khagrachari district and it increased almost 87% at the significance level of 10%. The area for jackfruit production shows decreased pattern in Bandarban and Rangamati district (Table 2). The highest growth rate of area for litchi was found to be 29% in Khagrachari whereas in Bandarban and Rangamati, the area for litchi production had witnessed a decreased pattern (Table 3).

Table 1. Exponential trends of areas of Mango in three hill tracts for
the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	5.560	-0.344***	-34.4	-1.270	0.118
Khagrachari	5.739	0.217***	21.7	0.771	0.047
Rangamati	6.263	-0.485***	-48.5	-1.920	0.235

Note: ***=Significant at 10% level; **= Significant at 5% level;
* Significant at 1% level; and ns= Not significant

Table 2. Exponential trends of area of Jackfruit in three hill tracts for
the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	5.969	-0.613***	-61.3	-2.689	0.376
Khagrachari	6.827	0.865***	86.5	5.962	0.748
Rangamati	7.092	-0.833***	-83.3	-5.215	0.694

Note: ***=Significant at 10% level; **= Significant at 5% level;
* Significant at 1% level; and ns= Not significant

Table 3. Exponential trends of area of Litchi in three hill tracts for
the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	3.503	-0.065	-6.5	-0.226	0.004
Khagrachari	3.939	0.286***	28.6	1.032	0.082
Rangamati	4.515	-0.292	-29.2	-1.053	0.085

Note: ***=Significant at 10% level; **= Significant at 5% level;
* Significant at 1% level; and ns= Not significant.
Source: Bangladesh Bureau of Statistics (BBS)

Growth rate of production of selected fruits

Average growth rate of production was found to be positive for all three selected fruits in three hill district of Bangladesh. For mango, the highest growth rate of production was found to be 90% in Rangamati, whereas it was 67% and 36% for Bandarban and Khagrachari respectively (Table 4). This implies, despite the decrease in total area, the production of mango was higher in Rangamati than the other two areas. In case of jackfruit, the highest growth rate of production was found in Rangamati and it was 93% (Table 5). Though we witnessed the same pattern for

mango and jackfruit production. But, in case of litchi, the highest growth rate of production was found to be 96% in Khagrachari, Bandarban and Rangamati accounts for 92% and 68% in annual growth for litchi production (Table 6).

Table 4. Exponential trends of production of Mango in three hill tracts
for the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	7.110	0.668***	66.8	3.112	0.447
Khagrachari	7.335	0.364***	36.4	1.355	0.133
Rangamati	7.175	0.901***	90.1	7.204	0.812

Note: ***=Significant at 10% level; **= Significant at 5% level;

* Significant at 1% level; and ns= Not significant

Table 5. Exponential trends of production of Jackfruit in three hill tracts
for the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	8.244	0.561***	56.1	2.347	0.315
Khagrachari	9.615	0.440***	44.0	1.696	0.193
Rangamati	9.030	0.932***	93.2	8.896	0.868

Note: ***=Significant at 10% level; **= Significant at 5% level;

* Significant at 1% level; and ns= Not significant

Table 6. Exponential trends of production of Litchi in three hill tracts
for the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	4.612	0.681***	68.1	3.221	0.464
Khagrachari	4.838	0.962***	96.2	12.187	0.925
Rangamati	4.678	0.921***	92.1	8.177	0.848

Note: ***=Significant at 10% level; **= Significant at 5% level;

* Significant at 1% level; and ns= Not significant

Growth rate of yield of selected fruits

Average growth rate of yield was also found to be positive in all the three hilly areas for the selected three fruits. The highest yield of mango was found to be 72% in Rangamati followed by the yield in Bandarban (47%) and Khagrachari (19%) respectively (Table 7). In case of

jackfruit, Rangamati has the higher growth rate of yield (91%) followed by the yield in Bandarban (80%) and Khagrachari (34%) respectively (Table 8). In case of litchi, Rangamati has also the highest level of annual growth of yield (81%) followed by the yield in Khagrachari (58%) and Bandarban (52%) respectively (Table 9). In all three cases, it is apparent to interpret that Rangamati has the highest annual growth rate of yield for all three fruits (mango, jackfruit and litchi) respectively.

Table 7. Exponential trends of yield of Mango in three hill tracts

for the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	1.553	0.472***	47.2	1.857	0.223
Khagrachari	1.599	0.188***	18.8	0.662	0.035
Rangamati	0.917	0.716***	71.6	3.553	0.513

Note: ***=Significant at 10% level; **= Significant at 5% level;

* Significant at 1% level; and ns= Not significant

Table 8. Exponential trends of yield of Jackfruit in three hill tracts

for the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	2.276	0.800***	80	4.616	0.640
Khagrachari	2.784	0.342***	34.2	1.261	0.117
Rangamati	1.940	0.909***	90.9	7.536	0.826

Note: ***=Significant at 10% level; **= Significant at 5% level;

* Significant at 1% level; and ns= Not significant

Table 9. Exponential trends of Yield of Litchi in three hill tracts

for the period of 2000-2001 to 2013-2014

Area	Constant	Growth Coefficient	Compound Growth Rate (%)	t-value	R^2
Bandarban	1.105	0.516***	51.6	2.087	0.266
Khagrachari	0.902	0.581***	58.1	2.475	0.338
Rangamati	0.161	0.811***	81.1	4.796	0.657

Note: ***=Significant at 10% level; **= Significant at 5% level;

* Significant at 1% level; and   ns= Not significant.

Source: Bangladesh Bureau of Statistics (BBS)

Marketing Channel identification of Seasonal fruits

In case of mango for Bandarban, the local markets where faria and bepari would bring and sell their product were bandarban sadar market, Balaghata bazar. The places where bepari would bring their products were in different parts of Chittagong city such as Satkania, keranihat, Dohazari, Cox's bazar, BRTC market etc. In Rangamati, demand for mango variety like amrapali was more as it had been producing more in number. There were other varieties of mango which were sold in the local market of Rangamati such as; Banarupa bazar, Ranirhat bazar, Rauzan market etc. Market actors like faria and bepari were more in Ghagra bazar for selling jackfruit and pineapple. The other suitable markets for seasonal fruits (Specially Jackfruit and pineapple) from Rangamati was sent through bepari in the market like Chittagong Amin market, Bohoddar hat bazar, Firingi bazar, BRTC market etc. Some market actors (Specially Bepari) both from Bandarban and Rangamati sold their fruits in Feni market as well as in the Dhaka market. The common channel of fruits identified from the surveyed area are:

Marketing Channel of Mango

Farmer ➡ Faria ➡ Consumer

Farmer ➡ faria ➡ Retailer ➡ Consumer

Farmer ➡ Bepari ➡ Aratdar (Chittagong market) ➡ Retailer ➡ Consumer

Farmer ➡ Bepari ➡ Wholesaler (feni market) ➡ Retailer ➡ Consumer

Farmer ➡ Bepari ➡ Consumer

Marketing Channel of Jackfruit

Farmer ➡ Bepari ➡ Consumer

Farmer ➡ Bepari ➡ Aratdar (Chittagong market) ➡ Consumer (Chittagong)

Farmer ➡ faria ➡ Retailer ➡ Consumer

Farmer ➡ Faria ➡ Consumer

Marketing Channel of Litchi

Farmer ➡ Faria ➡ Consumer

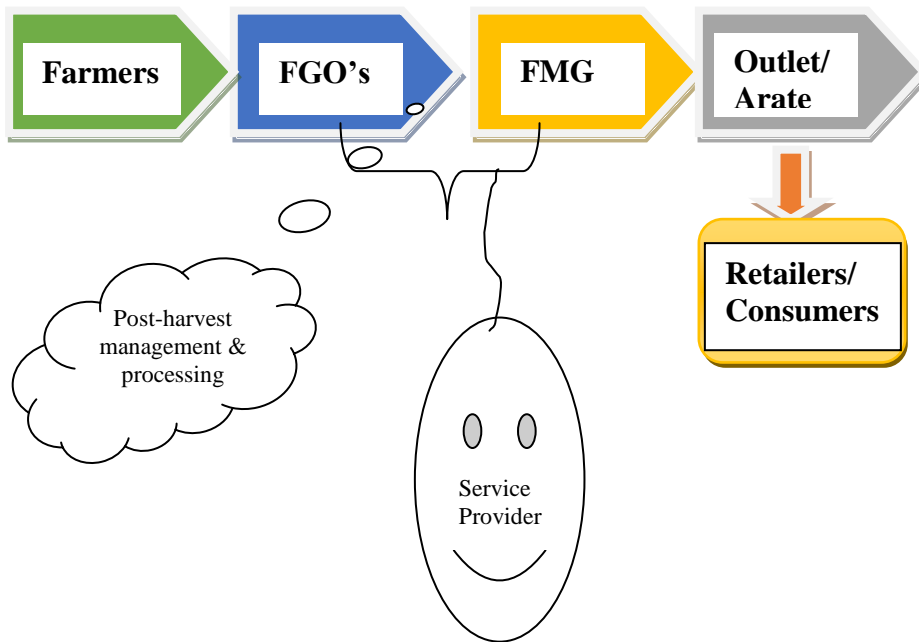Farmer ➡ faria ➡ Retailer ➡ Consumer

Farmer ➡ Bepari ➡ Consumer

Farmer ➡ Bepari ➡ Aratdar (Chittagong) ➡ Retailer (Chittagong) ➡ Consumer

Farmer ➡ Bepari ➡ Aratdar (Chittagong) ➡ Consumer

The upgrading marketing channel which was adopted in the study area is shown below:

Figure 1. The upgrading supply chain so called value chain

FMG- Farmers Marketing Group
FGO- Fruits Growers' Organization

Problem faced by the farmers for fruits marketing

In the study area, fruit growers faced some problem during marketing their products, such as: lower number of buyer, damages, low price, heavy rainfall, high transaction cost, high production cost, money problem, poor communication and most of the product remain unsold in the market. Among these problems 81% respondent mentioned the problem of getting low price of their product as the major problem (Table 10). The next highest problems ranked by respondent were high production cost which was 73%. The next preceding problems mentioned by respondent were heavy rainfall (63%), damages of product (61%), money problems (60%), low number of buyers (51%), the portion of product that remain unsold (49%) and poor communication (37%) respectively (Table 10).

Table 10. Problems faced by the fruit grower for marketing of seasonal fruits

| Problems | Bandarban | | | | | Rangamati | | | Total |
	Laymipara	Farukpara	Getsimani Para	Ramripara	Paglachora para	Munlay para	Mohajon para	Manikchori	
Low no. of buyer	In % of respondents								
	42	55	33	50	58	50	58	58	51
Damages	50	55	58	58	67	67	67	67	61
Low price of Product	75	73	67	83	83	83	92	92	81
Heavy rainfall	67	55	75	58	58	58	58	75	63
Transection cost high	42	27	50	33	33	50	58	33	41
Production cost high	83	73	75	75	75	67	67	67	73
Money problem	58	55	67	67	67	42	75	50	60
Poor communication	25	36	42	50	33	42	33	33	37
Most of product remain unsold in the market	58	55	42	42	50	67	42	42	49

Problems faced by the market actors

Among the mentioned problems, post-harvest loss was ranked as main problems for all the market actors combined. Lack of market monitoring ranked as second major problems for the market actors. If we consider the cases separately for the market actors, then we see 86% faria cited post-harvest loss as the major problem for fruits. Same problem also happens in major portion for bepari and their ratio was 80%. Among wholesaler, 62% mentioned post-harvest loss and lack of market monitoring as the major problem for marketing of fruits, 66% retailer also cited lack of market monitoring as their major problem. Same type of problem was ranked high for the aratdar and their ratio was 70%. So, the most apparent problems faced by the intermediaries were post-harvest loss, lack of market monitoring and storage problems respectively (Table 11).

Table 11. Problems faced by the market intermediaries for
developing market linkage of selected fruits

| Sl. No | Problems | Percent of respondents | | | | | Rank |
		Market Intermediaries					
Marketing related problem		Faria	Bepari	Wholesaler	Retailer	Aratdar	
1	Post-harvest loss	85.72	80	61.54	55.56	20	**1**
2	Transport problem	28.57	46.67	53.85	44.45	30	**5**

3	Storage problem	57.14	26.67	30.77	27.78	70	**3**
4	lack of processing center	14.29	26.67	38.46	50	60	**6**
5	lack of improved communication	42.86	33.34	15.38	33.34	30	**8**
6	High market toll	42.86	53.34	38.46	33.34	40	**4**
7	High labor cost	42.86	20	30.77	11.12	20	**9**
8	less no of purchaser/Consumer	28.57	33.34	38.46	27.78	40	**7**
9	lack of market monitoring	14.28	33.34	61.54	66.67	70	**2**

Table 11...

CONCLUSION

It may be concluded that the average annual growth rate of area was found to be positive for mango across the Khagrachari region while growth rate of area was found to be negative for Jackfruit and Litchi in Bandarban and Rangamati region. But the magnitude of the growth rate was varied significantly among the fruits. The average growth rate of production and yield was found to be positive for all the three selected fruits in three hill districts. The growth rate of production of mango and jackfruit was highest in Rangamati while for litchi production, Khagrachari area was found to be highest. Average annual growth rate of yield was found to be highest in Rangamati zone for the three selected fruits. The frequent and common fruits variety for mango that was sent to different market was Rangui variety as the productions of other variety was not more to supply. It was also observed that other fruits like jackfruit and litchi was sold more in the local market than supplying it to the distant market. The fruit growers and various intermediaries have been losing their attention in the production and marketing of seasonal fruits because of low price, high production cost, post-harvest loss, lack of market monitoring, lack of storage facilities etc.

LIMITATIONS OF CURRENT STUDY

In case of primary data collection, it was very arduous to find out the thorough information about the marketing channel of the fruits as most of the market actors were busy with the trading of fruits at that season and there were also some sorts of information gap among the market actors and local concerning bodies about the accurate estimate of fruits that grows highly in that region. While collecting the secondary data, researcher had to arrange all the data separately from the several issues of BBS (Bangladesh Bureau of Statistics) as the list of information of fruits were in haphazard form in those sources.

So, further studies would be of greater importance in overcoming this limitations and would be of greater help for the policy makers to predict the growth rate and enhance the proper policy so as to benefit all the stakeholders dealing with seasonal fruits in that hilly region.

RECOMMENDATIONS

Keeping in view above cited conclusion, the following recommendation can be perceived in better implementation of the policies.

As compound growth rate for the area of all three seasonal fruits (mango, jackfruit and litchi) were found to be negative in Bandarban and Rangamati. So, protecting the land by the authority should be of priority concern for sustaining the area. As growth rate of production of three selected fruits are positive and production growth rate was highest in Rangamati for mango and jackfruit except litchi production in Khagrachari. This increasing trend should be continued for all fruits in this three selected hill area. Growth rate for yield was observed to be positive and highest in Rangamati for all three fruits. Since, some varieties are found to be dominant (i.e. for mango; Amrapali in Rangamati area, Rangui in Bandarban area) in some areas. So, Government and local body should take initiatives to encourage farmer to adopt some varieties which were not so prevalent in some areas. Low price, high production cost, post-harvest loss, lack of market monitoring, lack of storage facilities etc. creates hindrances for both of farmer and market actor. Marketing bodies may ensure effective policy for the market intermediaries and also ensure fair prices for the consumer and better price for producer.

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