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## A study on physical and economical post harvest losses of banana in Goalpara district of Assam

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### Abstract

The study entitled "A study on Physical and economical post harvest losses of Banana in Goalpara district of Assam" was conducted in Goalpara District of Assam in the Agricultural year 2021-22. An extended survey was conducted in Goalpara district to assess the Physical post harvest losses occurring in various stages of marketing of Banana and at various marketing channels. The Physical post harvest losses were assessed in Kg per quintals and the economic post harvest losses in Rupees per quintals. During the study it is found out that the total post harvest losses was around 18.61 kg/quintals for different marketing channels prevailed in the study area which valued around Rs 553.8 per quintals. The various reasons for the post harvest losses are due to small and immature fruits, sun burned, and harvesting injury at farm level. At Wholesaler level losses are due to two main reasons transit losses including physical damage to the banana, crushed and pressed fruits and the second is ripening losses which includes over ripening of fruits and rotten fruits. At the retailer level the losses were during transportation, storage etc. The highest losses were seen at the wholesale level which was around 12.38 kg/quintals for different marketing channels which valued at around Rs 371.4 per quintal.

**Keywords:** Physical post harvest losses, economical post harvest losses, wholesaler, retailer, transit losses

### Introduction

Banana (*Musa Spp.*) is one of the oldest fruit known to mankind which was said to be originated in Southeast Asia. Banana is a rich source of energy (104 cal/100 grams) and also highly nutritive and delicious in taste. In 2016, bananas were estimated to be grown in 130 nations, with a total population of 150 million tones. Banana production, exports, and imports, on the other hand, are concentrated in a few countries. India, China, the Philippines, Brazil, and Ecuador produced more than 60% of the bananas produced worldwide. India is the world's leading banana-growing country, accounting for 29.82 million tones of the total harvest per year. Maharashtra, Tamil Nadu, Andhra Pradesh, Kerala, Karnataka, Bihar, Gujarat, and Assam are the major banana-growing states. However, the country's current banana production is woefully inadequate. India's current annual per capita banana consumption is projected to be 50 kg, which is quite low when compared to other progressive banana-growing countries such as Jamaica, Congo, Ecuador, and Uganda.

From harvest to consumption, banana post-harvest losses have been estimated to be in the region of 15 quintals. Storage is necessary for extending the consumption time of fruits in general by controlling their supply to the market, as well as for long-distance transit (Oriorunda 2000). Green bananas can be stored for up to three weeks in an ethylene-free environment or for up to six weeks in a controlled environment at 14 degrees Celsius. In recent years, as a result of the negative effects of indiscriminate chemical use, a new trend of organic banana farming has emerged in the country. These have been given a new name, "Green Food." This refers to organically cultivated crops that have not been exposed to any chemicals from the time they are planted to the time they are handled and processed after harvest. It is based on the recycling of biological substances found in nature. Nutrient requirements are addressed in this system by the use of enriched composts, neem cakes, promotion of green manures, inter and cover crops, mulching, and other techniques, while pest and disease levels are kept below threshold levels through integrated crop management. Banana is a popular fruit crop in India's tropical and subtropical regions. It is grown on an area of 830.5 thousand hectares in India, with a total production of roughly 29780.0 (000'MT) and a productivity of 35.88 MT/hectare. (APEDA Portal is the source.) Maharashtra, Tamil Nadu, Gujarat, Andhra Pradesh, and Karnataka are the main banana-growing states.

**Research Methodology**

The present study pertains to the “A study on Physical and economical post harvest losses of Banana in Goalpara District of Assam”. This investigation was under taken to study the post harvest losses of Banana. Goalpara district is located on global map between 26.0876° North latitude and 90.5636° East longitude. The district occupies a total area of 1824 square kilometers. The rank of the district in comparison to other district of Assam in terms of area is 15<sup>th</sup>. Goalpara district is bounded by West and East Garo Hill districts of the state of Meghalaya on the south and Kamrup district in the East, Dhubri district on the West and mighty Brahmaputra all along the North.

**Post harvest losses Tools**

Post harvest losses occurring in Banana at various stages in marketing network were assessed by physical examination and assessment. Post harvest losses were assessed at-

- Physical Post harvest losses (Value of kg/quintals)
- Economical Post harvest losses (Value of Rs/quintals)

**Results and Discussion**

During the study three major marketing Channels were identified and losses were assessed based on these existing marketing channels. The three marketing channels were-

- Producer – Consumer
- Producer – Wholesaler – Retailer – Consumer
- Producer – Pre harvest Contractor – Wholesaler – Retailer – Consumer

**Table 1:** Physical Post Harvest losses of Banana in Channel I (Producer – Consumer) at Farm level

SL No.	Particulars	Losses in kg/Quintal
1.	Small/ Immature fruits	1.50
2.	Physiological (Sun burn)	0.75
3.	Cracks and Cankers	0.75
4.	Harvesting Injury	0.50
	Total losses at farm level	3.50

Table 1 show that the total post harvest loss in Channel 1 is 3.50 kg/quintals. As channel 1 involves direct sale from farmer to the Consumer so the post harvest loss was only at the farm level.

**Table 2:** Physical post harvest losses of Banana in Channel II (Producer- wholesale-Retailer-Consumer) At Farm level

SL No.	Particulars	Losses in kg/Quintal
1.	Small/ Immature fruits	2.25
2.	Physiological (Sun burn)	1.00
3.	Cracks and Cankers	0.50
4.	Harvesting Injury	1.25
	Total losses at farm level	5.00

At Wholesaler Level

SL No	Particulars	Losses in kg/ Quintal
1.	Transit losses	
a.	Physical damage	2.00
b.	Pressed	1.25
c.	Crushed	1.50
d.	Physiological weight loss(dryness)	2.00
	Total Transit losses	6.75
2.	Ripening losses	
a.	Over ripening fruits	3.50
b.	Rotten fruits	2.00
	Total ripening losses	5.50
	Total Losses at Wholesaler Level (in kg/ Quintal)	12.25

At Retailer Level

SL No	Particulars	Losses in Kg/Quintal
1.	Physically damaged fruits	1.25
2.	Rotten fruits	1.75
3.	Carriage to the shop (Transportation losses)	2.00
	Total losses at Retailer Level	5.00

Table 2 Shows the post harvest losses for Channel 2 where the total post harvest losses at farm level, at Wholesaler level, and at Retailer level were 5.00 kg/ quintal, 12.25 kg/quintal and 5.00 kg/ quintal respectively. The involvement of middlemen increases the total Post harvest losses from as compared to Channel 1.

**Table 3:** Physical post harvest losses of Banana in Channel III (Producer – pre harvest contractor – wholesaler – Retailer – consumer) At Farm level

SL No	Particulars	Losses in Kg/ Quintal
1.	Small and Immature fruits	2.50
2.	Physiological (Sun burn)	1.00
3.	Cracks and Cankers	0.60
4.	Harvesting Injury	1.50
	Total losses at Farm Level	5.60

At Pre harvest Contractor Level

SL No	Particulars	Losses in Kg/ Quintal
1.	Storage losses	0.75
2.	Crushed fruits	1.00
3.	Pressed fruits	1.25
4.	Rotten fruits	1.50
5.	Spoilage	1.50
	Total losses at Pre harvest contractor Level	6.00

At Wholesaler Level

SL No	Particulars	Losses in kg/ Quintal
<b>1.</b>	<b>Transit losses</b>	
a.	Physical damage	2.00
b.	Pressed	1.50
c.	Crushed	1.50
d.	Physiological weight loss (dryness)	2.00
	Total Transit losses	7.00
<b>2.</b>	<b>Ripening losses</b>	
a.	Over ripening fruits	3.50
b.	Rotten fruits	2.00
	Total ripening losses	5.50
	Total Losses at Wholesaler Level	12.50 kg/Quintal

At Retailer Level

SL No	Particulars	Losses in Kg/Quintal
1.	Physically damaged fruits	1.75
2.	Rotten fruits	3.00
3.	Carriage to the shop (Transportation losses)	1.25
	Total losses at Retailer Level	6.00 kg/Quintal

Table 3 shows the Post harvest losses for Channel 3 where the post harvest losses at farm level, at Pre harvest contractor level, at Wholesale level and at Retailer level were 5.60 kg/quintal, 6.00 kg/quintal, 12.50 kg/quintal and 6.00 kg/quintal respectively. The highest losses are at the Wholesale level and a highest loss was due to rotting of fruits at Retailer level which was 3.00 kg/quintal.

**Table 4:** Detail Post harvest losses in Banana at Physical and Economical terms in different Stages and for different Channels (Losses in Kg/Quintals)

SL No	Different stages	Channel I	Channel II	Channel III	Sample Average	Losses at economical terms (at Rs 30 per kg)
1.	Farm Level	3.50	5.00	5.60	4.70	Rs 141
2.	Post harvest Contractor level	-	-	6.00	6.00	Rs 180
3.	Wholesaler level	-	12.25	12.50	12.38	Rs 371.4
4.	Retailer level	-	5.00	6.00	5.50	Rs 165
	Total	3.50	22.25	30.1	18.61	Rs 558.3

Table 4 shows the total post harvest losses at various stages, where the highest losses in Channel 1 is at farm level with 3.50 kg/quintal, in Channel 2 the highest losses is at wholesale level with 12.25 kg/quintal followed by Retailer level with 5.00 kg/quintal. In Channel 3 the highest losses is again at wholesale level with 12.50 kg/quintal followed by Pre harvest contractor level with 6.00 kg/quintal and at retailer level with 6.00 kg/quintal. So the Sample average losses for Channel 1, Channel 2, and Channel 3 at farm level, Post harvest contractor level, Wholesaler level, and Retailer level were 4.70 kg/quintal, 6.00 kg/quintal, 12.38 kg/quintal and 5.50 kg/quintal respectively. The table also revealed that the sample average of post harvest losses at various stages for different channels was 18.61 kg/quintals which comes at around Rs 558.3 per kg/quintals in economic terms

### Conclusion

The study pertains to the post harvest losses of banana, in Goalpara district. The results shows the post harvest losses at various stages of marketing of Banana in the study area and the losses were assessed in both physical (kg/quintals) and Economical (in Rupees) terms. Total Post harvest losses in Goalpara district was very prominent in reducing yield and market quality of banana and primarily responsible for the losses that occur in Wholesale and Retailer level that is in shipment of fruits, post harvest losses in surface shipments and air shipments are not unusual. Losses due to diseases, depending on post harvest handling, transportation and packing. The diseases are of three general types: fruit surface rots, stem-end rots, and internal fruit infections.

### References

1. Davara PR, Patel NC. Assessment of post-harvest losses in banana grown in Gujarat. *Journal of Horticultural Science*. 2009;4(2):187-190.
2. District Agriculture office, Goalpara, Assam.
3. Gajanana TM, Murthy Sreenivasa D, Saxena AK, Rao Sudhakar DV, Sudha M, Dakshinamoorthy V. Economic analysis of postharvest loss and marketing efficiency in guava (*cv. Allahabad safeda*) in Karnataka. *Journal of Hort. Science*. 2015;10(1):70-73.
4. Gajanana TM. Marketing Practices and Post-Harvest Loss Assessment of Poovan Banana in Tamil Nadu. *Agricultural Economics Research Review*. 2002;15(1):56-65.