CHAPTER - VIII
Summary and Suggestion

Potato crop has two economic characteristics, viz., it is an expensive crop to grow and once grown, it requires efficient marketing systems for disposal. The marketing problems arise from fluctuating potato prices, seasonal and perishable nature of the crop and the limited cold storage facilities. These problems affect both the producers and the consumers in terms of low prices received by the producers and high prices paid by the consumers. The ultimate beneficiaries are the middlemen. Price is more sensitive to supply during harvesting season, than to demand during the remaining period of the year. This results in glut conditions and causes a crash in prices. This ultimately adversely affects the farmers income. This is because elements of costs and returns do not easily adjust themselves to the changing price levels. Because of this kind of price spread consumers also lose.

To protect the interest of the growers, consumers and traders, a thorough study of marketing of potato seems necessary. This necessity has assumed more importance as because cultivation of the crop and its consumption are steadily growing in the country as well as in the state of West Bengal. So a study of the situation prevailing in the state of West Bengal has been decided to make in the present paper. Hooghly district occupies the first position in both in terms of area and production volume.
of potato in West Bengal. The acreage under potato cultivation in the Hooghly district increased from 16 thousand hectares in 1970-71 to 49.7 thousand hectares in 1987-88 and potato production increased from 282.6 thousand tonnes to 1145.5 thousand tonnes during the same period. The potato prices in the region recorded a fluctuating trend after 1960-61. There is also a steady growth of Cold Stores, i.e., 44 in 1970-71 to 90 in 1987-88. The fluctuating fortune enjoyed by the traders also became a source of anxiety to remaining others. This was presumably due to over emphasis on production un-accompanied by due concern towards the problems of marketing and marketing facilities. In view of the above, Hooghly district in West Bengal has been selected as the area for study.

Objects and Methods of the Survey:

This study attempts to analyse the structure and functions of the existing potato market in the district of Hooghly in West Bengal, to compute the marketing costs and margins from the viewpoint of all parties involved and to assess the marketing needs. This study also attempts to suggest the measures to stabilise and strengthen the potato market in West Bengal.

While the secondary data for the study were collected from the concerned institutions and government offices, the primary data were collected by interviewing a random sample of
122 growers in four villages of Hooghly district viz., Jagannathpur, Chautara, Tajpur and Masinan. These villages were selected on the basis of the infrastructural facilities available in each sub-division in the district while the growers were selected on the basis of stratified random sampling method. Through a process of sampling, 152 Beparis and Farias, 42 Aratdars, 37 Commission Agents, 25 Speculators, 17 Wholesalers, 9 Merchants, 81 Retailers, 11 Cold Stores and 32 Markets were studied by observation. Separate structured schedules were used for collecting primary data from the growers and the traders. Data were tabulated with the aid of computer.

Potato Economy:

An overview of the Potato economy in India highlights the origin and history of potato cultivation the key role played by Potato in our economy. (In the main body of the study) we have attempted to analyse the potato development in India since first five year plan the state wise comparison of the potato development in this country and also to show the place that potato occupies in the economy of West Bengal.

Potato was already under cultivation in America at the time of the discovery of that continent. It is an important vegetable crop of the World. From America, it was later introduced in Europe. Potato was mentioned in the Indian history for the first time in 1615 A.D. Its cultivation has been
extended gradually to almost all parts of the country, although the main producing areas are still concentrated in the northern and eastern states.

During the period 1961-52 to 1987-88, the acreage under potato cultivation in India increases from 250 thousand hectares to 885 thousand hectares and potato production rose from 1712 thousand tonnes to 14,138 thousand tonnes. A large number of farmers spread out in more than 16 states are dependent on potato cultivation. One of the most important tasks facing the country is that of fighting malnutrition problem among the vulnerable sections of the society. One way of providing nutrition to provide protein at low cost and in acceptable form is through potatoes which have high nutritive value and superior quality of protein. Potato has the potential of forming a viable supplementary food crop in India and may remove the nutritional imbalances. A large number of people are also engaged in potato marketing and also potato processing industry in our country. Potato is also enlisted in our export item.

The infrastructural position of the district of Hooghly which has been selected for our field study, is predominantly an industrial district of West Bengal with numerous industries spread along the river Bhagirathi, it still retains its rural character with its rural population to the extent of 50 per cent depending on agriculture. Since all the cultivable land of the district has long been brought under cultivation, the
scope for further extension of agriculture has naturally been reduced to a considerable extent. The continuous increase in the pressure on land has resulted in the adoption of more intensive cultivation with the application of scientifically improved agricultural technology viz., fertiliser, selected seeds and pesticides etc. As a result the cropping intensity of the district at present is about 180 percent. Though Rice is the main crop of the district, the agricultural economy greatly depends on Potato, jute, vegetables and orchard etc. With its vicinity to Calcutta, its own agglomeration and industrial complex it has to bear a high density of population. Thus the massive population, assured irrigation and the available infrastructures have attracted the farmers of this district to go for highly remunerative crops like potato, vegetables, oilseeds, paddy and fruit crops.

Potato Cultivation and Cultivators:

The study based on stratified random survey of 122 farmers attempted to study (i) the socio-demographic features of the farm families, (ii) the profitability of potato cultivation vis-a-vis other competitive crops such as boro paddy and wheat during the same season and on the same land. (iii) The study also focuses upon certain problems concerning production and marketing of potato. The summary of the findings is set below.
i) Demographic Profile of Potato Cultivators

a) Age - Distribution of members of farm families according to age group reveals that maximum concentration is found in the 30 - 45 years for both male and female and minimum concentration in the age group of above 60 years.

b) Literacy - The literacy of the farmers in the area under study is more than the average literacy rate in West Bengal. It has been observed that in case of marginal farmers the literacy rate is very low. The small and medium farmers are relatively better, the big farmer's group showed the highest percentage of literacy.

c) Principal and Subsidiary Occupation -

Our study reports that the cultivation is the principal occupation of the farmers. The other principal occupations are agricultural labour, trade, service and crafts. It is also found that a majority of respondents did not have any subsidiary occupation. Next to cultivation, agricultural labour, crafts, service and trade are the principal as well as subsidiary occupations in the region. The small farmers take to the job of farm labourer as their second line of defence while the big farmers practice trade as
their secondary source of earnings. This phenomenon is explained by the fact of poorer investment capacity on the part of the small farmers and large investable capacity in the hands of big farmers.

ii) Profitability of Potato Vis-a-vis Other Crops:

a) Cropping Pattern

The region itself has a rich tradition for cash crop cultivation. Potato is the main cash crop in this region at present. The next popular crop is boro-paddy and wheat in the same season. Even among the respondents with a smaller size of holding, the same trend is evident. It is also observed that at present the movement of relative prices had in general been favourable towards potato than boro-paddy and wheat.

b) Cost of inputs Used per hectare in Cultivation of Potato, boro-paddy and Wheat

Among the three competing crops potato provides the highest opportunity of employment of maximum human labour which is a pre-dominant input in Indian agriculture followed by boro-paddy and wheat. Among the four size groups of farms, the maximum use of human labour is recorded by the bigger farms. It appears that the bigger farms can afford to be more intensive in cultivation than the smaller ones and
hence use relatively more human labour in their farms. Greater financial strength of the big farms enables them to draw more hired labour in comparison with the smaller farms and this makes total use of human labour per hectare higher in the bigger farms notwithstanding the variability in the degree of participation in farm activity by family labour from different size categorise. Per hectare cost analysis of the three crops shows that among the various inputs cost of manures, fertiliser and seeds command the major part in case of potato, human labour charges in case of boro-paddy and manures and fertilisers for wheat.

c) **Output and revenue from Potato, boro-paddy and Wheat**

Considering all the criteria for relative competitiveness of potato with other crops like boro-paddy and wheat it was observed that potato provides higher employment to the cultivators, higher net benefit, higher rate of return over cost of production and shows higher scope for investment than boro-paddy and wheat. So naturally the potato growers obtain remunerative prices for their produce and they opine in favour of worthwhileness of potato cultivation.
iii) Potato Production and Marketing Problems:

a) Credit Requirement

Credit is an essential input in agriculture. With the advent of new technology the cash requirements of the farmers to purchase modern inputs have risen considerably. But the flow of credit for different size group of farms is believed to be far from uniform. Proper assessment of credit requirements not only enables the farmer to carry on his production operations uninterruptedly but also helps him to obtain credit on easy terms from institutional sources at the right time. It has been found in our study that the availability of credit in case of bigger farms is easier than that of marginal and small farms from the financial institutions as well as from non-institutional agencies. Most of the financial institutions and non-institutional agencies allow credit with the mortgage of capital assets which is a scarce commodity with the marginal and small farmers. When the respondents were asked to state on what basis they determine their credit requirements, a large majority of them revealed that it was computed either on the basis of past experience or consultation with other farmers in the village or both. A small number of respondents relied on consultation with expert of the financial institution for the purpose.
In case of non-institutional credit, agricultural money lender, professional money lender, individual trader, individual merchant, landlord, and friend and relative play a crucial role in supplying rural credit to the farmer. A large number of farmers prefer them inspite of higher interest rate because they do not insist upon any tangible security and it is easy to avail credit because of procedural simpli­city and timely availability.

In case of institutional credit, co-operatives and commercial banks help the rural sector by direct financing to cultivators as term loan for various purposes and by indirect modes of finance through agencies involved in supply or marketing activities and also have shown anxiety in making their contribution to finance the large and expanding infrastruc­ture of agricultural marketing processing and storage. Despite the eagerness of the financial institution to provide credit potato farmers are not keen in the matter for reasons indicated above. Consequently the money lenders remain the only and major source of credit for majority of marginal and small farmers.

b) Time of Sale

Under the present marketing system the grower's particularly small and marginal group are prone to
dispose of their produces immediately after harvest. The poor financial background of the major number of farmers usually persuades them to sell their produce immediate after harvest because they do not have any other alternatives. In the case of marginal and small farmers a majority of them sell their produce within 15 days and a small number of above category sell within a period varying between 15 days and two months. The other two groups, the majority of medium and big farmers (i.e., 68.42 per cent and 50.00 percent respectively) also sell within two months. Pressure of creditors, poor financial strength, immediate need of money to meet their urgent domestic needs and inadequate cold storage facilities are the main reasons for immediate disposal of their produce at a throwaway price.

c) Mode of Payment

As can be assessed from the study, the shorter the period within which the sale is made, the larger the proportion of those who sell on credit. Out of 122 farmers, 87 and 82 farmers had sold on credit in the years 1986-87 and 1987-88 respectively. A larger number of cultivators who sold on credit belong to 0.01 to 2.0 hectares group. It has been also found
in our study that more than 45 per cent of the farmers in both the years who sold on credit were reported to have recovered the amount within a week, 40 per cent of 1986-87 and 35 per cent of 1987-88 recovered the money within 15 days and the balance within one month. It is interesting to note that almost all the medium and big farmers except a few number recovered the sale proceeds within 15 days in both the years but marginal and small farmers could not recover their amount within 15 days.

**Marketing Institutions:**

The first tier in the marketing structure is the village hat where the growers, Beparis and Farias are usually the parties buying and selling Potato. In this market retail sales also take place. Above the village hat in the marketing chain is the secondary market. There are about 159 primary markets, 13 wholesale markets, 43 retail markets and 3 regulated markets in the district though the role of the regulated markets in the potato trade is negligible. Most of the hats are held twice a week. Most of the potato comes to the market immediately after harvesting in February-March. The need for cash money immediately after harvesting by the poor farmer, demand for potato to other neighbouring states are the important causes of
this pattern. Most of the primary and secondary markets are privately owned. Market fees, commission, handling charges, charity, weighment and expenses under the miscellaneous heads are some of the important items of market charges but it varies from one market to another and even within the same market. Potato is assembled and transacted in the primary market in partly assorted form. Full sorting is mostly done at Aratdars end. In a primary market, the volume of assemblage per month is 100 quintals to 500 quintals and in a secondary wholesale markets, the assemblage is obviously of much greater volume, the figure is 4,850 quintal to 16,500 quintal per month. The methods of transaction in the markets are described below. Eye estimation of quality, bargaining on the price, and efforts on the part of the urban buyers to outwit the rural sellers are the most familiar characteristics. Although open bargaining encourages competition, the system of visual grade estimation and haggling makes the system time consuming, risky and therefore expensive.

The most important functions performed in the potato market are buying and selling. More than 80 per cent of the primary markets and 50 per cent of secondary markets have no storing arrangements. At the primary stage, business expectations are influenced more frequently by considerations of personal opportunities and inconveniences than by such trading consideration as demand and supply conditions. This could be
because most of these traders are new comers in the business and also because custom and tradition are probably more predominant than forces of competition (as well as because of the predominance of custom and tradition over competition).

a) Beparis and Farias

Amongst the intermediaries, Beparis and Farias comprise the most primary links in the marketing chain. Most of them are either sole proprietors or have a few partners and a few employees, which sets a limit to their volume of possible business. Beparis and Farias are generally seasonal traders in potato and in fact, have other occupations like farming, agricultural labour and trade in other agricultural commodities etc. Thus they can hardly be expected to be experts in such functions as quality determination. This is true also because the vast majority of them have less than ten years of experience in the potato trade. The volume of business of most of them is small i.e., not exceeding two thousand quintals annually.

b) Aratdars and Commission Agents

Aratdar and Commission Agents help in negotiating a transaction between growers or Beparis and secondary intermediaries. They work on commission. The Aratdar usually has a shop at the assembling centre and provides a hospitable environment for
sellers coming from a distance. The Commission Agent does not have a fixed centre and generally does not perform any function other than bringing the two parties together and negotiating a sale. Normally an Aratdar operates on a fixed commission but at times he does some financing to the sellers, provides some storage facilities and when he thinks fit he is known also to buy and sell on his own account and store potatoes in the cold stores for greater earnings in the lean season. The Aratdar would play dual functions as the link man between the Growers, Beparis and Farias and Wholesalers in the peak marketing season and in the lean season between the Wholesalers, Speculators and Retailers. Both Aratdar and Commission Agents are also not specialized in Potato trade exclusively, but as a class are more experienced in the trade than the Beparis and Farias.

c) Wholesalers and Merchants

Wholesalers and Merchants are the biggest marketing intermediaries in the trade. They know the local and distant market conditions and possess information regarding the crop prospects, stock position and the estimated quantities retained or held back by the growers and on the other, keep abreast of the day to day variations in prices and the position of demand and supply in the consuming markets. These intermediaries undertake buying, selling, assorting, storing of Potato into Cold stores and also exporting to other states. They are well experienced in the potato trade because most of them operate exclusively in the potato trade with larger volume for more than ten years.
d) Speculators and Cold Stores

Speculators are the marketing intermediary who take risk of Potato price fluctuations with a view to take advantage of the seasonal rise in the potato price. The speculator who has accepted this as secondary occupation is generally seasonal trader in Potato. The vast majority of them have less than 5 years of experience in the Potato trade. This is true because a few of them do business every year. Normally they do business when they speculate a particular year is profitable.

The rapid development of private cold stores in West Bengal especially in Hooghly district was possible because the owners simultaneously could function as store agents as well as wholesale traders thus creating a nexus between marketing and storage. They are earning more through trading operations than through storing (rent income). Therefore, the functions performed by the cold stores owners are similar to the functions of wholesalers in Potato trade.

e) Retailers

As much as 80% of the total retail sale of potatoes in the state is handled by shopkeepers, stall holders, hawkers and vendors. They have regular establishments in vegetable markets and the various residential localities. Like other intermediaries the Retailer also buys from various sources but he sells exclusively to consumers only. Most of them are independent traders and operate their trade entirely on their own having neither any
partner nor any employee. The majority of the rural Retailers combine potato trade along with other vegetables. A large number of them are new comers to the potato trade having less than 5 years experience and their volume of business is small. But the picture in city is different.

Our study reveals that a good number of Beparis and Farias adopt potato trade as a good subsidiary occupation when farming work is less. Other traders are in the trade because of the possibility of quick gain owing to wide price fluctuations and rapid turnover, the necessity for capital and market promotional activities are less compare to other trades. The traders are also conscious about the risk involved in trade arising out of price fluctuations, credit sales and rigid quality check.

Marketing Functions: Methods and Problems

Without comprehension of marketing methods it is difficult to understand the problems associated with Potato marketing. The marketing methods vary from function to function. The methods and the problems are discussed below under the various subsumptions.

a) Buying and Selling

At the lower stage of Beparis and Farias buy a major portion of Potato in the home of the growers and in the hat. Price is fixed by open bargaining and the quality assessed by examining the whole lot. A part of the purchase is made on
credit. In making purchase, Beparis and Farias are not very much prompted by clear business motives as is evident from the fact that ability to purchase/sell is a relatively unimportant consideration to them. This seems to be a weakness of the system but compared to the Beparis and Farias a much greater proportion of the Commission Agents and Aratdars appear to hold the view that their decision to purchase is dependent on the supply of Potato in the market. Considerations like the supply and demand situation and rising trend of prices appear to be more important to the Commission Agents and Aratdars than they are to the Beparis and Farias. Nowadays Beparis and Farias have very few fixed or previously determined suppliers. On the other hand a larger proportion of the Commission Agents and Aratdars have fixed suppliers. Most of the sales by the lower level of intermediaries take place either in the hat or in the premises of the higher intermediary. Although in the majority of cases, there is open bargaining on price when sales are effected. A few sales are made through secret price offers. Most of the sales are made on the basis of lot grading rather than on assortment grading. Sales are made on cash and on credit and both. To the Commission Agents and Aratdars, factors like the availability of supplies in the market and ability to sell are more important considerations than factors like personal inconveniences due to transport and financial difficulties which are more important for the
Beparis and Farias. Aratdars sell mainly on the basis of grades directly to the Wholesalers and Merchants or through the Agents of the Wholesalers or Merchant and some of them have fixed buyers. The market where these lower category of Intermediaries sell their wares suffer from (i) difference between estimated price and realised price and (ii) lack of market competition. The above intermediaries felt that market competition was being affected by the inadequate number of buyers in the market. By not paying prompt cash to the intermediaries the higher intermediaries force them to sell again and again to the same buyer. This in a way affects the market competition.

Wholesalers and Merchants purchase potato through their branch offices which are functioning at the Potato growing area. They announce their price in terms of grades but in case of lot purchase their is some bargaining. Their purchasing policy is to buy for immediate sale. A few among them admitted that they do speculative purchases particularly at the beginning of the season when prices are low. After purchasing they store it to cold storages for the prospect of getting high prices in the lean season. The Merchants and a few wholesalers export potato to other neighbouring states at the harvesting time through the Commission Agents. During the lean period they import potato from other potato growing states and sell in cash or sometimes on credit at the wholesale markets. A
majority of the Wholesalers and Merchants reported that they face difficulties owing to (i) non availability of short term storage facility, (ii) price fluctuations during the time of purchase and sale, (iii) changes in grade and (iv) shortage of C.A. type wagons etc. Consequently they suffer a loss owing to the incidence of spoilage involved in transporting potatoes by truck.

In the marketing of Potato, two types of retailers are there. One is Retailer at district or City market and other is Retailer at rural level. Retailers of the first type purchase potato from the wholesale market normally in cash but in some cases on credit also and sell in the retail vegetable market in cash. Retailers of the second type purchase from various sources but sell in cash in the vegetable market. In both the cases the retail price is fixed.

b) Grading

Presently, in India, rough sorting (lot grading) and grading of Potato in traditional methods is done by producers and other agencies handling potato. Size is the only consideration and the factors like variety, type, condition of the produce, presence of diseased or damaged tubers etc. are generally neglected. It is therefore essential that the producers and other intermediaries take up grading of the produce on the
basis of well defined grade standards.

The Government of India in the Directorate of Marketing and Inspection laid down the 'Agmark' grade specifications for table potato under the Agricultural Produce (Grading and Marketing), Act 1937, and accordingly, voluntary grading of potato was taken up under the Table potatoes Grading and Marketing Rules in 1950.

In spite of the existence of two legislations, passed as early as 1937 and 1950, the grading system in potato market is in a mess. Interestingly the grading done by producers belonging to marginal and small holding categories are less acceptable to the buyers than that made by medium and big holders. Over forty percent of the growers felt that they should be given some training to grade the produce to better the situation. Nearly 28 per cent felt that an independent and specialised agency should be set up for the purpose. Another more than 20 per cent suggested that the village Panchayat should take up the responsibility.

The primary intermediaries generally know the broad quality characteristics of Potato but can not describe the quality characteristics of each grade name accurately. The primary traders seem to acquire knowledge about grading only by their practical business experience and the buck of them are interested in knowing more about it. As the primary traders
are generally inexperienced in recognizing grades accurately and as the recognition of the grades of Potato is admittedly a matter largely of individual judgement, it seems that the main effect of their inadequate knowledge in this matter would be a general reduction of their offers made to the growers so as to cover their risks of wrong judgement in purchase. On the other hand a good number of Commission Agents, Aratdars, Wholesalers, Merchants and a few of Retailers were fully acquainted with grade names and could also specify the major characteristics of each grade.

d) Transportation

Transportation provides place utility to commodities. It is a vital link connecting the areas of supply and demand. At the primary stage the bulk of the potato is carried by bycycle and cycle van and rest by bullock cart all of which are slow and insecure. The higher intermediaries, on the other hand depend more on the trucks and railways. Cycle Van and bullock cart rates are unstandardised and when the transport is not owned by the intermediaries, freight rates are subject to negotiation and dependent on local conditions. The supplying area of a primary market often ranges from 1 to 5 km. in radius. For the secondary markets the supplying area is much larger and frequently it could be between 5 and 10 km. in radius.
The demand area for primary markets is between 5 and 40 km. in radius and the same for the secondary markets could be between 20 and 160 km. The freight rate per km. depends on the distance travelled and the volume of the goods carried. On the whole, transportation appears to be a very costly variable in the marketing of potato in West Bengal. The major difficulties to transport are (a) risk of theft, robbery and inclement weather on the way and (b) insufficient supply of air conditioned wagon for quick movement. An important reason for the prevalence of a very large number of primary intermediaries is possibly the inefficient system of transport which precludes the possibility of economy by handling potato in large volume.

e) Storage

Potato is a seasonal crop but its demand is spread over the whole year necessitating its storage to meet the off-season demand.

The cost of storage and the expected premium in prices after the storage are the important factors which determine whether or not it is worthwhile to store potato. The total cost of storage varies greatly and depends upon the methods, skill and personal labour of the cultivators or the intermediaries storing potato.
Before the development of Cold Stores Industry, the method of storage followed by the Growers and Intermediaries were by and large, crude and unsatisfactory, resulting in losses. The extent of overall loss in storage depends upon the atmospheric temperature and humidity, freedom of tubers from disease, injury, soil and moisture, height in the storage room etc. The recommended temperature for storing potatoes is in the range of 1.1° to 3.3°C. The losses in storage under indigenous methods at producers level are ranging between negligible 5 per cent to as high as 50 per cent.

At present the majority of marginal and small farmer use their own residence for storing potato. A few growers of the above category reported that they store potato in the Cold Storage or their own godown. On the other hand, the majority of medium and big farmers prefer cold stores to own residence or godown.

Beparis and Farias do not require storage facilities because they sell potato immediately after purchase. But for the short period they maintain storage in their own residence or godown. A few of them also use cold stores. The other higher intermediaries prefer cold stores for storing. They suffer difficulties due to the non-availability of short term storage at required temperature.
f) Financing

The Beparis and Farias are mostly financed by themselves including relatives, neighbours and friends. Some of them buy on credit or receive advance from their buyers. It appears that bank loans hardly play any part in financing the Beparis and Farias. Possibly the dependence of Beparis and Farias exclusively on their own resources has been one of the factors in making their volume of business small and the average earning of a Bepari is relatively low.

Commission Agents, Aratdars, Speculators and Retailers operate their business mostly with their own or partner's money. Some of them are forced to take loan from other than Bank at high interest rate. A few of them (except speculator) are able to take bank loans also.

At the level of Wholesalers and Merchants Bank loan play a vital role to meet the working capital by the nationalised banks. The two methods followed by the Bank. (i) Loans and advances may be made against mortgage of immovable or movable properties other than stock. (ii) Loans may be provided against stocks of potato. The inconvenience reported by our subjects is that small and new Wholesalers and Merchants who had relatively less credit worthiness did not get enough accommodation from the bank's which might have reduced competition among the Wholesalers and Merchants.
g) Market Information

The marginal and small farmers obtain market information from lower intermediaries and other farmers and higher intermediaries where as the medium and big farmers and small intermediaries rely on higher intermediaries radio, newspaper and telephone. At the primary stage intermediaries infer market information from the offers made by the buyers, transactions made in the market and from fellow intermediaries. First hand sources like radio, newspapers and telegrams are not yet popular at this stage. At the higher levels, letters, telegrams, radio and compilations of businessmen's associations for disseminating market information.

Cold Storage

Over the last three decades production of potato and availability of refrigerated space for storing potatoes have increased steadily to the present position. Although the first ever cold storage in the whole country was set up as far back as 1892 in Calcutta, progress in setting up cold storages till the end of second world war had rather been tardy. Since the second world war appreciation of potato as an item of food increased steadily and the urgency of setting up cold storages for storing potatoes to make the stock available in the lean
monsoon season also increased. In earlier days potatoes used to be imported from the hills state for meeting the off season demands.

The progress of this industry in the state was very slow upto 1955-56 when there were only 26 cold stores with an installed capacity of 0.37 lakh tonnes. With the launching of 'Grow More Food' campaign in the First Five Year Plan (1951-52 to 1956-57) and simultaneous increase in production of potato attracted the attention of the entrepreneurs towards setting up of cold stores. The number of cold stores steadily, albeit slowly, increased to 62 by the end of the year 1960-61 with an installed capacity of 0.90 lakh tonnes. Realising that the growth was not fast enough, the Government of India provided a number of incentives to the cold storage Industry during the Third Five Year Plan (1961-62 to 1966-67). As a result, the number of Cold Stores increased to 135 with an installed capacity of 3.93 lakh tonnes by the end of the year 1970-71. By this process at the end of 1987-88 the number of Cold Stores increased to 275 with an installed capacity of 14.98 lakh tonnes. It can be said from the above facts that increase in Cold Storages and spurt in potato production each phenomenon received significant support from the other during the last two decades. The current level of production of potato in the year 1987-88 was 37.87 lakh tonnes but the storage capacity in cold stores in the same year was 14.98 lakh tonnes.
i.e., 39.56 per cent of total production. The present storage capacity in Cold Stores in West Bengal is not enough to maintain the total demand of potato throughout the year. To keep the market fed with supplies West Bengal imports potato from north Indian states at the end of the crop year, mainly in the months of November and December each year.

It is revealed from our study that about 65 per cent of the marketed surplus comes from the farmers who belong to 0.01 - 2.0 hectares group. It goes without saying that these units lack in holding power. Thus the post harvest 'glut' remains the major problem in the marketing of potato. The extent of losses both for the producers as well as the consumers can be summarised from the wide variation in potato prices between post harvest and lean season. Most of the farmers are, therefore, deprived of the price benefits accruing from sales in later months. The very considerable surplus accruing from sale of potatoes in leaner months is being enjoyed by the limited number of owners of Cold stores, traders and financiers connected with these stores and rich farmers having sufficient holding power.

The quick development of private cold stores in West Bengal was possible because the owners of the stores simultaneously could function as store owners as well as wholesale traders thus creating a nexus between marketing and storage.
The existing market situation and the rate of earning by the cold stores owners both from storing charges and also from wholesale trade provided enough incentive for investment in setting up cold storages. Therefore, now a large part of the potatoes are being purchased by the private Cold Store owners and traders. The traders can continue their trade smoothly only with the willing co-operation of the store owners. Thus the private cold store owners by virtue of their command over very large stock of stored potatoes are wielding decisive control over the market mechanism.

Cost of Marketing:

Cost of marketing is considered as the sum total of all expenses incurred at the various stages in the flow of produce from the farm to the consumer's hand and includes cost of such direct market services as assembling, storage, transportation, handling, financing, risk bearing, and the margins of the intermediaries. Since direct estimation of real marketing costs is a complex statistical exercise because of the difficulty in identifying and quantifying the various elements of such costs, total marketing costs are often estimated indirectly, via price spread or marketing margins. Marketing margin is the spread or difference between the price paid for a commodity by the ultimate consumer and that received for it by the producer. This kind of price spread or margin is often indicative of the
magnitude of the total marketing costs. The most commonly adopted methods for calculating marketing margins involves calculation of the actual spread or difference between the price prevailing at any successive stages of marketing. The margins of various market functionaries are then obtained by deducting the actual ascertainable costs of assembling and distribution from the gross margin.

Five marketing channels are found to exist in the present marketing system of potato in Hooghly district. The present study is confined to only two potato seasons, viz., 1986-87 and 1987-88 because lack of availability of accurate data regarding potato prices prevented the extension of the study to the earlier years. It is found that there is great seasonal fluctuation in prices of potato. During the off season the price of potato rises favourably but its benefit cannot be reaped by the marginal and small cultivators due to the immediate need of money.

The study shows that there is a substantial difference between the price paid by the Consumers and the price received by the producers. A major part of it is appropriated by the middlemen operating in the potato trade.

Our study reveals that producers and the intermediaries have been able to earn more profit when they take risk of price fluctuations in the lean season. They do this by storing
potato into cold stores at the harvesting time and sell it in the lean season when the price of potato is generally high. A majority of medium and big farmers, who are economically strong are able to take such risk. On the other hand the marginal and small farmers are forced to sell their produce after harvest at low price owing to their financial constraints. The higher intermediaries exploit this opportunity and collect potato from the marginal and small farmers at a low price during harvesting period through the lower level of intermediaries and store it to cold stores for the intention of getting high price during lean season.

Our study also shows that if the marginal and small farmers who have in capacity to hold the stock of potato after the harvest of crop, can sell at the lean time through Channel - D must have realised a higher price than that of other farmers. Among farm sizes, it is observed that the benefit of shift from Channel - B to Channel - D is comparatively high is small and marginal farmers than medium and big farmers. Even though the transition from Channel - B to Channel - D has resulted positive relationship with farm income, most of the marginal and small farmers were inclined for village sales only i.e., through Channel - A and Channel - B.
The reasons expressed by the farmers are given below:

i) Forced sales due to indebtedness, domestic needs etc.

ii) Lack of proper storage facilities with required temperature owing to the semi-perishable nature of the crop.

iii) Difficulty in getting Cold Storage bond.

iv) Extra cost of storing, transportation, market charges etc. are unbearable to the marginal and small farmers.

v) Lack of mental make-up for taking risk of price fluctuation in the lean season.

vi) Socio-demographic features of the Indian society are not helpful to the Indian farmers generally to know how to cultivate well as well as how to sell the produce in time for earning more.
Suggestions

From the foregoing findings of the study the following suggestions emerge to render Potato cultivation a lucrative business proposition by toning up its marketing operations. The suggestions laid emphasis on a fair and remunerative return for the growers and stability in their earnings. They also sought to protect the genuine interests of the traders.

1. The defence forces require larger and larger quantities of canned potato. So, also, there is an increase in the use of Potato Wafer etc. in the cities. On the other hand utilisation of potato by the canning industry is negligible. In order to phase the supplies and stabilise prices particularly in areas of abundant supplies, it is necessary that large quantities of potato should be utilised by the processing Industry. This may be achieved either by starting additional processing units in the areas of production or by increasing the production capacity of the existing units. Processing units may be established as small scale industry in the producing areas to achieve economy on costs on storage and transportation. Studies need to be made to evaluate the benefits of using potato as raw material in preference to the other alternative sources of raw material for use in the manufacture of industrial products.
2. Given the excessive width of the price spread a large crop can well depress the prices received by the producer in the peak marketing period to un-economic levels and yet fail to protect the consumer from having to pay an unduly high price later in the season. When prices threaten to fall to un-economic levels, they do call for measures of support but even when they do not, the producer receives a truncated share of the final price paid by the consumer. Thus irrespective of the occasion for the need for price support the interest of the producer and the consumer alike call for a narrowing of the price spread to limits justified by the cost of carrying the commodity over time. Given the special problems of storage in respect of a semi-perishable commodity like potato, however, a formal scheme of support with the commitment on the part of the government to purchase whatever quantity is offered at the guaranteed price or even a plan for open market purchases at a pre-determined price can obviate difficulties.

3. The export trade of India in potato is not yet of much significance. The export markets have not been uniform except Nepal where Indian potato is being exported regularly. It is, therefore, necessary to augment our exports to these countries and explore new foreign markets for Indian potato to increase our foreign exchange earnings.
4. It is noted that presently the cold stores are mostly in the producing areas. By a rational location pattern of cold storages in the consuming markets, it may be possible to bring down the prices to some extent. Potato does not keep up the quality for long after being taken out from Cold Stores. As such, if the Cold Stores are available in the consuming markets, it will help supply of quality potato to the consumers and also will help to reduce the spoilage which in turn will lower the price.

5. Presently the bulk of Cold Stores is owned and operated by private owners; the numbers of Co-operative and public sector stores are negligible. As the government control over the private owners is limited undue price rise and speculative business are natural consequences. It is suggested that government should take measures to establish more numbers of co-operative and public sector stores so as to create and maintain competition with the private stores. The competition will help to eradicate the ills of collusion among the private stores.

6. One of the greatest ills in potato marketing is forced sell by the marginal and small farmers immediately after harvest. This they do to meet their immediate cash needs. It is suggested that government should lay down rules to make the
Cold Stores pay advance to the farmers who put their potato in the stores or alternatively the stores issue a negotiable instrument on the basis of which the farmers can get advances from the banks. The maximum limit of the advance will be one third value of the stores produce.

7. Due to inadequate facilities like storage, auction platforms, etc. potato is rarely traded in regulated markets. The regulated markets can attract growers and traders only when they have the requisite facilities. Besides improving them, the bargaining power of the growers also should be strengthened because the benefits of market regulation would accrue to the growers only when they have a good bargaining strength.

8. It is also necessary to devise ways and means of reducing the number of middlemen between producers and consumers and bring them closer, so that price paid by consumer would be largely available to producers with reasonable marketing cost. Producer's co-operative and other types of marketing co-operatives can play a crucial role in reducing the number of middlemen and escalation of marketing costs can be minimised.
9. To avoid the existing confusion in the potato trade due to lack of standardisation and grading, it is essential that the producers and the traders of potato should be induced to adopt grading of potato under Agmark.

Potato grading at producer's level has been found to be yielding encouraging results. This not only benefits the producer by increasing his net return but also facilities marketing at all stages.

10. The absence of proper and adequate infrastructural facilities in the region is glaring. Mostly the produce is sold in the village itself. This is mainly because of the poor condition of the roads and inadequacy of transport facilities. The need for improving the condition of the roads as well as transportation facilities can not be exaggerated.

11. It was observed that the growers were relying mostly on traders for market information. It may not serve the best interests of the growers but they complained that they did not have a better alternative. This points to the need for augmenting the facilities for providing accurate and reliable market information at the right time through news media and extension agencies.
12. Potato crop is susceptible to both weather condition and diseases and is highly costly to cultivate. The failure of the crop due to either of the two reasons brings irreparable loss to the farmers. Facility for crop insurance is suggested to face this problem. Nationalised General Insurance Corporation is big enough to provide this facility to the potato growers.