CHAPTER I

INTRODUCTION
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Agriculture is one of major sectors in developing countries. It plays a vital role in the economic development of a country by providing food for existing mankind and raw materials to industries. It is also a supplier of production factors such as capital and labour. In a developing economy agriculture is the most important sector in terms of contribution to gross national product, labour absorption and provision of livelihood to the population. Overall economic development of a country is possible only if agriculture is strengthened in possible ways at all levels.

India is an agricultural country. Nearly 65% of people depend on agriculture. It is in a situation to achieve self-sufficiency of food gains. All measures are taken to increase the food grains production during the green revaluation period. The natural genetic variability of food grains (Rice and Wheat) has been almost fully exploited and there does not seem to be much scope for further exploitation. While the food demand of the country is growing day by day, the total cultivated area is decreasing and an increase is not anticipated. In this situation there is a need of one ideal food crop which is widely adaptable, which gives high returns on investment, which is nutritionally superior, and also contribute effectively to national economy.

In this respect, perhaps potato is the only food crop in our country which fulfills almost all the criteria for a good food and offers a potential
for increasing food production and income to our country. This commercial vegetable crop helps to raise the income level of farmers, by dominating the vegetable market throughout the year.

Potato is an edible starchy tuber produced by certain plants of the Genus-solanum and Family-Solanaceae. The common white potato is a plant native of the Peru-Bolivian region in the highlands of South America, where it has been consumed for more than 8000 years. The archaeological evidence of potato cultivation is afforded by Ceramics from Northern coast of Peru belonging to 400 AD of Moche, Chimu and Inca cultures. Potato was navigated to Europe in the 16th century by Spanish explores as a botanical curiosity. During the 19th century it had spread throughout the European continents, providing cheap and abundant food for the workers of the Industrial Revolution.

The Portuguese introduced Potato in the early part of the 17th Century. The first mention of potato in India appears in Terry’s account of the banquet at Ajmer, given by Asph Chan to Sir Thomas Roe in 1615 AD. It is noticed that Potato was existing in India even during 10th century as mentioned by Pickering (1879) in “Chronological History of Plant”. Initially, it was cultivated in Surat on the west coast, later it spread to other places of the country with access to irrigation, chemical inputs such as fertilizers, continued expansion in post harvest infrastructure in the form of roads and cold storage facilities. Producers continue to find potatoes an extremely attractive crop to grow. Strong demand both in the
country side and in rapidly growing urban areas continues to stimulate increases in area planted.

Potato is generally regarded as poor man’s food and it is a quite cheap food providing wholesome diets. This crop plays an important role in the word’s food economy with ranking fourth after Wheat, Rice and Maize and contributing appropriately fifty percent of the total production of roots and tubers globally. Nearly one billion of people consume potatoes world wide and potatoes are a part of the diet of the half a billion people in the developing countries (Shekhawat-1998).

Potato has many agro-economic advantages. As a short duration crop it has a wide adoptability to soil and climatic conditions, and fits well in the existing crop rotation and thus increases the cropping intensity and thereby production per unit of area and time.

In food quality aspect also the tuber plays an important role in the world’s food basket, with containing important nutritive of carbohydrates (22.17%), proteins (1.6%), and vitamins, particularly Vitamin C and Vitamin B (100 mg per 100g) and, Hicotimic acid (1.2 mg per 100g).

Potato produces more of major food ingredients per unit of area than major cereals, that too in much shorter time. It produces more edible energy (216 mega joules per day) and protein (1.4 Kg per ha per day), when compared to Wheat and Rice, and the calories which it produces is 2 to 3 times higher than other important cereals. Potato balances the protein
and carbohydrate. It would help to improve the nutritional states of malnourished people.

Beside, it had a great economic importance. The net contribution to national economy is comparatively higher than cereal crops. The economic superiority of potato over other crops as the percent contribution to agriculture sub-sector is nearly three times of its share in cultivated area, where it is cultivated hardly 0.6 percent of the total cropped area. But its contribution to agriculture sub-sector was 1.95 percent (Rs 129015 Crores), during 1995-96 (Govt. of India). And the net return per hectare of potato was comparatively higher (Rs.7560) than other cereals, where it was (Rs.793) 9 times for Rice (Rs. 1252) and 6 times over wheat during 1995-96. This speaks it's significant contribution to national economy.

The per capital consumption of potato is 67.2 kgs in the world as a whole, where as it is only 15 kg in our country. Per capital availability and per capital consumption is the highest in European countries. The annual consumption of potato is the highest in Denmark (192.8 Kg) followed by Belgaum (146.6Kg), Poland (146.7 kg), Netherlands (126. Kg) and Germany (101.6 Kg). Thus a substantial gap exists between consumption level in developed countries (63%) and developing countries (18.9 Kg). Therefore it reveals the potential for future expansion of this crop in third world countries.
The world trade for potato is dominated by Europe, which accounts for 80% exports of fresh potatoes. India’s share in world potato export is miniscule at 0.5 percent, although its share in world potato production has been ranging between 3.6 percent in 1986 to 8.5 percent in 2000. India exported 7219 metric tonnes of potato in 1980-81 valued at Rs 1.18 crores, which was increased to 20157 metric tonnes in 2002-03. The major importing countries of Indian potato are Sri Lanka, Nepal, UAE, Mauritius, Singapore, Malaysia and Arabia. Sri Lanka alone accounted for the Lion’s share of 77.5 percent. The post WTO era offers countries like India immense opportunity to increase export of potatoes.

Globally potato shares about 1.35% of the total cultivated land resulting 3081.95 lakh MT of potato from 193.01 M hectares during 2001. China (20.8%), Russian Federation (11.2%), India (8.1%), Poland (6.6%), U.S.A (6.5%) are the leading potato producing countries in the world. India produces 22.5 MT of potato from 1.25 million hectare during 2001-02 thus being the third largest potato producer in the world.

Potato is among the main four crops which are responsible for the impressive increase in agriculture output of India after green revaluation. Rise in food value and other qualities make this crop an ideal subsidiary food to supplement India’s major food resource.

Realizing the importance of this crop the Government of India has set up Central Potato Research Institute (CPRI), in Patna in 1949. Later
the headquarters shifted to Shimla. Since then CPRI has been conducting and coordinating the research and also acting as a clearing house for information on all aspects of the crop in India. The technology developed by these institutions has proved to be of great help to the farmers.

Area production and productivity of potato in our country has shown an increasing trend over the years. During 1962 it had amounted for less than one percent of the world output from 1.48% of world acreage, but now it produces about 8.1% to world production from 6.9% in world average.

Uttar Pradesh, West Bengal, Bihar, Punjab, Karnataka are the major potato growing states in our country. These states together account 73.8% of area and 84% of production in our country. Karnataka also produces potato in a large amount. Hassan district is the leading producer in the state.

In view of the growing population of the country, Potato is one crop, which has potential to supplement the total supply of the cereals. Thus there is a need to appreciate the several advantages of this crop and find out ways and means to increase its profitability as well as its adoption in cropping system of the country.

During the last four decades there has been considerable increase in the output of many agricultural commodities in the country. Especially, the Green resolution has brought in a tremendous increase in the yield of many
crops. However, the productivity of most of the crops is lower than the other developed countries in addition to significant variations among its states. The growth and variability in crop production have attracted the attentions of the researchers as early as in the time of Adam Smith. All other classical economists were also interested in studying the growth and behaviour of agriculture for explaining the growth of the economy. But, systematic efforts were started with the advantage of the green revolution. In recent time, in India, the growth and instability of area, production and yield and the causes for change have been explained by many researchers. To mention a few, Hazel, 1984; Pal and Sirohi, 1988; Sharma, 1988; Prasher and Bahl, 1998; Joshi, et al, 2001. Their explanation rests on the hypothesis that growth is accompanied by increased instability, especially when growth is witnessed in the form of expansion of acreage, increased use of inputs rather than in the form improvement in skills. However, it still remains well, unexplained behaviour of potato production in most of the major production states in India, districts in Karnataka and also taluks in Hassan.

In most of the developing world, potato is a high input high output and high risk crop. The responsible factors for the crop inputs are, high quality seeds, fertilizer, pesticides and labour. Motivated farmers use inputs more heavily than for other crops. With high productivity per hectare and a short growing period. Potatoes generate higher returns per day than most other crops (Beukema and Van Derzaag, 1990). However,
input use efficiency is decreasing and as result farmers are compelled to use higher rates of inputs. Further more; the cost of production is increasing without a commensurate increase in returns. The inadequate utilization of resources also leads to greater decline in productivity. Consequently, greater consideration is being given towards the development of varieties more responsive to lower input conditions and the development of multiple cropping programs that make more efficient use of the residual inputs of the potato crop and thereby increasing the efficiency of the production system.

Even so, while it may be possible to significantly improve productivity per hectare, the profitability of the crop is largely determined by the costs of production, prices and marketable yield (after discounting, post-harvest losses). As both production and productivity per hectare have increased net returns to potato farmers have decreased. An analysis of post data suggests that an annual growth rate in production exceeding 8 percent will induce a glut in the market. Whereas the annual growth rate lower than 3 present will lead to a shortage. Several gluts have occurred in 1975, 1979, 1982, 1987 and most recently in 1997, when net returns to farmers decreased by 27 percent (Dahiya and Sharma 1999). While bumper production and inadequate storage facilities are primarily responsible for the heavy economic loss to farmers. It is also indicative of an inelastic demand. In a country like India where there is wide spread poverty and malnourishment, this must seem somewhat incongruous.
In general, the inadequacy of capital and other resource inputs combined with their inefficient use is being commonly reported to be the prime cause of low crop productivity under the set of ecological, managerial and technological condition at a particular point of time. Especially, the inefficiency in the use of various resources affects the productivity of crop and also its costs and returns structure and producer incentives as well. Various studies have revealed that some of the crucial inputs are either under utilized or over utilized in the crop production. In view of the urgency and importance of increasing the food grain production, the resources have to be utilized properly and efficiently of resource use in each crop, particularly potato. Appropriate allocation not only increases the productivity but also profitability on the farm.

Price permeates and exerts a controlling force on the entire economy. It also influences both the producer and the consumer. It is volatile in that it never remains constant. It keeps on moving through time. Prices of different groups of commodities never move in the same direction or with the same speed. Hence they affect the fortunes of individuals and groups and for that matter, the whole economy in several ways.

The net income from crop production not only depends on productivity, but also on the efficient marketing. If the producers identify the efficient market, then only they get good net benefit. These marketing studies also throw light on the margins in the consumer rupee.
NEED FOR THE PRESENT STUDY:

Hassan in the leading producer of potato in Karnataka. This district alone accounted 37.1 percent in area and 31.4 percent in production during 2002. The main crop season in this district is from July to September. Reoccurrence of aphid was found during February to March. This crop is commonly grown in rainfall condition, though farmers use irrigation because of scanty rainfalls in that period. Positive and significant growth was absorbed for area, production, and productivity of the crop in the district.

The area under potato was 4,952 ha during 1970-71 which was raised to 5,986 ha in 80-81, 7,393 hectares in 1990-91 and 14,230 he during 2001. Production was also increased nearly eight fold over the last three decades. It was 17898 tonnes during 70-71 which had arisen to 1,42,180 tonnes during 2001. Potato yield almost increased 4 times in the last three decades. Hosmani et al (2000) describes that potato cultivation in the transitional regions of Karnataka is not just remunerative; it also helps to maintain and improve soil fertility without any environmental repercussions.

However, the scarcity of resources, biotic and abiotic factors, the competitiveness in terms of cost effectiveness and efficiency of production, etc are some of the challenges that affect potato growers in the state. The economic performance of a crop is assessed based on the cost of
production and net returns obtained per unit area (as compared to those of other competing crops). Many factors viz., socio-agro-ecological factors, competition with other crops, suitability with farming systems, will influence on allocation of scare resources and also for cost-benefit ratio. This is more true when the farmers have come out of the ruts of subsistence farming. The profitability factors assume added emphasis for the cultivation of a commercial crop like potato which is capital and labour intensive. This is more so when the availability of inputs in right quantity and quality as well as at required time of reasonable rate continues to be a constraint. Still another dimension of this situation is the continuity of Indian agriculture being capital shy mainly on account scarcity of capital, low risk orientation and poor risk bearing ability of the farmers. In this perspective the importance of the studies on economics of crop cultivation, more so for a commercial crop like potato need not be overemphasized for the steady development of the farm enterprise. Hence present the study attempts to analyze the growth performance, instability, cost and returns, resource use efficiency, allocative efficiency, technical efficiency, price behaviour and trade direction of potato exports, marketing channel and price spread, country as a whole and Hassan district specific. This would help farmers, planners, policy makers etc. to take corrective measure to the likely causes and consequences as a result of instability of output and prices of potato
OBJECTIVES:

The specific objectives of the study were as follows:

1) To measure the growth in area, production and productivity and the sources of instability in potato production in India, Karnataka and Hassan District.

2) To study and analyze the costs and returns from potato cultivation with its competing crop in Hassan District.

3) To assess the resource productivity, allocative efficiency and technical efficiency of factors used in Potato.

4) To identify marketing channels and price spread in Hassan District.

5) To measure the growth in potato export and find out the trade direction of Indian potato export.

6) To analyze the price behaviour of potato in Hassan and Bangalore market.

HYPOTHESES:

The following hypotheses are formed and tested in the study.

1) Growth in area production and productivity of potato crop has increased significantly in Hassan district and also in Karnataka.

2) Potato crop is profitable in Hassan district.
3) Large farmers are more benefited as compared to small and medium farmers.

4) There is a long chain of middlemen in the marketing channel of potato.

5) Potato prices fluctuate very widely

LIMITATIONS:

The present study is beset with certain limitations, they are enumerated here.

1) Only eight villages were selected for the study. Hence, results are largely applicable to those areas where similar conditions prevail.

2) The interview method of data collection requires the respondents to recall from their memory about previous agricultural operations and crop results. Hence, the findings may be subject to errors.

3) Very few studies have been carried out and published on the economics of potato in Karnataka. Hence, the study has been done on the basis of data, collected from primary source alone.
SCHEME OF THE STUDY:

Chapter I: Present the theme and need of the present study. The objectives of the study and hypotheses to be tested are also specified. The limitations of the study are presented at the end.

Chapter II: Discusses the review of literature of trend and growth rates, instability cultivation aspects, marketing and prices spread, opinion survey of potato farmers, trade direction in potato export and behaviors of price are discussed.

Chapter III: Presented the methodology adopted for the study description of the study area, sampling design, collection of data, methods of analysis are discussed and analytical methods used in study is also specified.

Chapter IV: Discusses the results on general features of respondents, growth and instability, cost cultivation on irrigation and rainfed farmers among small, medium and large farmers is done. Resource productivity, allocation efficiency, technical efficiency, decomposition of output growth of resources in potato production, marketing margin and price spread, opinion survey of farmers, growth and trade direction of Indian potato exports, behaviour of prices and arrivals of potato in Hassan and Bangalore inferences are drawn and presented at the end.
Chapter V: Discusses the analysis of production of potato in the study area. Total production and productivity of the sample farmers and production of potato and ragi, in case of different size groups of farmers in study area are discussed. Further growth and direction of potato export and behaviour of arrivals and prices in Hassan and Bangalore markets.

Chapter VI: Presents the summary of the findings and conclusions.