

An Economic Analysis of Maize Production - A Case Study of Belur Taluk

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Abstract: *Maize (Zea Mays L) maybe one of the oldest human-domesticated plants. Its origins are believed to date back to at least 10000 years ago when it was grown in the form of a wild grass called teosinte in Central Mexico. Maize is also known as corn, which is the name that has come into common usage primarily because it is used in the United States, the world's largest producer, consumer and exporter of maize. In India maize is the third most important food crops after rice and wheat, according to advance estimate it is cultivated in 8.7 m ha mainly during "Kharif season" which course 80% area, maize in India contributes nearly 9% in the national food basket and more than Rs 100 Billion to the agricultural GDP at current prices apart from the generating employment to over 100 million man days at the form and downstream agricultural and industrial sectors. This paper concentrated on "An economic analysis of maize production-A case study of Belur taluk Hassan district". The present study an attempt was estimate the cost of cultivation and identify the problems faced by the maize farmers in the study area.*

Keywords: Maize, Cultivation, Production, Food, Corn, Cost

1. Introduction

Maize is one of the most important cereal crop of the world and contributes to food security in most of the developing countries. In India maize is emerging as third most important crop after rice and wheat. Its importance lies in the fact that it is not only used for human food and animal feed but at the same time it is also widely used for corn starch industry. Corn oils production baby corn etc. Corn production has nearly doubled from around 12.0 million tonnes in the early 2017. This remarkable production growth has been largely driven by adoption of single cross hybrids in the late 1980s and continues demand in domestic and export market. The increasing use of maize as feed increasing nearest of the consumers in nutritionally enriched products and rising demand for maize seed are the core driving forces behind emerging importance of maize crop in India. Maize is grown in a wide range of production environment ranging from the temperate hill zones to the semi arid desert margins and in all three seasons. Kharif, Rabi and spring, Maize production of 855.72 million tonnes in 2015-16 during the past 5 years 2011-16 its production has registered an impressive annual growth 6.4%, the highest among all food crops in India. Traditionally, maize is a Kharif season crop but more than 60 percent of its

production in Andhra Pradesh and Bihar comes from Rabi (winter) crop. Karnataka, Rajasthan, Andhra Pradesh, Maharashtra and Uttar Pradesh are the major maize producing states, together contribute 60 per of area 70 percent of maize production in India. In India during the last decade maize has witnessed rapid production and productivity growth. This is mainly attributed to the emergence of commercial irrigated farming systems in certain regions of the country especially south India. Rain fed agriculture in India occupies 67% of the net sown area, contributing 44% of food grains and supporting 40% of the population. Recent trends 2016-17 in growth rate of area 2.6% production 6.4% and productivity 3.6%, of maize in India. It has been of high order and experienced highest growth rate among the food crops. In India the maize is used as human food 23%, poultry feed 51%, animal feed 12%, maize based products 12%, beverages and seed 2% each. The projected demand of maize 22.73 million tonne by the end of 12th Five year plan 2012-17. Maize is one of the most important cereal crop in the Karnataka. Maize has emerged as a crop of considerable commercial significance owing to its use in poultry, starch and food industry. Corn is converted in to a variety of foods such as popped snack food and staple cooked "Mexican" foods.

Table 1: Maize Statistic across the India during the year 2013 to 2019

S. No		2013-14	2014-15	2015-16	2016-17	2017-18 (F)	2018-19
1	Area harvested (Million Ha)	9.07	9.19	8.81	9.63	9.38	9.18
2	Yield (K G Per /HA)	2676	2632	2563	2689	3065	2965
3	Production (Million Tonns)	24.26	24.17	22.57	25.90	28.75	27.23
4	Domestic consumption (000T)	19600	22350	23550	24900	26700	
5	Exports (000T)	3873	1162	512	600	500	1125
6	Import (000T)	9	29	246	100	221	400

Source: Agricultural Statistics Report -2016

Table 2: Area, Production and Yield of Maize in Major districts of Karnataka (2016-17)

S. No	District	Area	Production	Yield
1	Bagalkot	178.48	708.00	41.39
2	Belgaum	104.54	258.81	26.06
3	Davangere	168.47	508.85	28.35
4	Haveri	120.61	324.85	28.47
5	Bellary	81.73	225.80	29.80
6	Shimoga	54.22	193.72	19.42
7	Chitradurga	64.72	119.72	19.47
8	Hassan	33.76	115.16	35.90
9	Dharwad	66.88	117.18	37.90
10	Chikballapur	32.30	106.96	34.90
11	Raichur	45.06	118.90	45.90
12	Bijapur	38.06	126.96	58.98
13	Chikmagalur	32.08	107.80	37.57
14	Bidar	36.47	91.00	25.08
15	Kolar	38.60	91.68	25.70
16	Hassan	30.03	88.97	26.00
17	Karnataka State	932.91	2632.44	29.70

Unit: Area in (000 Hectares), Production in Metric Tonnes, Yield in at /hectare

Source: www.indiastat.com

Table 3.2: Area Yield and Production trend in Year wise

Year	Area (hectares)	Production (tones)	Yield kg hectares
2007-08	94.3	11.7	124
2008-09	85.0	9.0	106
2009-10	8.8	10.7	126
2010-11	92.4	14.5	157
2011-12	91.6	15.2	166
2012-13	88.5	15	174
2013-14	95.6	16.7	175
2014-15	95.8	16.9	178
2015-16	97.6	17.5	186
2016-17	98.2	18.2	195

Source: Directorate of Economics and Statistics

Above all the tables shows the important maize statistics of India. This statistics depicts Harvested area was increased and decreased; Production of maize was increased except in the year 2015-16. Year wise Yield also increased and decreased or slightly fluctuated

2. Review of Literature

Sanjive Subedi (2017). His article entitled on "Socio Economic basement on maize production and adoption of improved varieties in India". According to him Maize must focus an adoption of open pollinated improved maize varieties among the farmer and substituting the local and developing the high yielding hybrid varieties to increase the maize productivity. Altogether, 100 samples were taken by simple random sampling from the major maize growing areas and relevant publications were reviewed. Focal Group Discussion and Key Informant Survey were also done. Descriptive statistics, unpaired t-test, probity regression and indexing were used for data analysis using statistical tools-SPSS, STATA and MS-Excel. Probit econometric model revealed that ethnicity (1% level), gender (5% level), area under open pollinated improved maize (1% level), seed source dummy (1% level) and number of visits by farmers to agro vet (5% level) significantly determined the adoption of open pollinated improved maize varieties. In addition,

unpaired t-test revealed that the productivity of open pollinated improved maize varieties was significantly higher (at 1% level) than local; also, the multinational companies' hybrids showed significantly higher productivity (at 1% level) when compared to open pollinated improved varieties. Furthermore, indexing identified- lack of availability of quality seeds and fertilizers ($I= 0.86$) as the major problem associated with the maize production. Giving aggressive subsidy on open pollinated improved seeds and dealership to registered agrovets for selling the subsidy seeds could enhance the adoption. Moreover, government organizations working in the areas of agricultural extension and research must focus on adoption of open pollinated improved maize varieties among the farmers, substituting the local and developing the high yielding hybrid varieties in Nepal to increase the maize productivity.

3. Methodology

This paper based on Primary and Secondary data. Secondary data were collected from various reports, books, journals and Agriculture department. Primary data collected through the selection of Hassan district Belur taluk. A multi-stage sampling method involving simple random sampling procedures was employed in drawing up the sample block, villages and farmers for collecting primary data. 30 Small farmers (below 2 ha) were selected through the direct interview at well structured questionnaires.

3.1 Objectives of the study

This Paper is to evaluate the present maize Production constraints and profitability development of the farmers, the following are the specific objectives of the study.

- To Study the cost of cultivation of maize production in study area
- To identify the Problems faced by the of Maize Farmers in the study area.

3.2 Analysis of the paper

Maize is one of the major agricultural crop in the Belur Taluk Hassan district of Karnataka. In this part of the paper discussed about the main objectives the cost of cultivation one acre maize in the study area. Below table below shows the Cost of Cultivation per hectare maize cultivation indifferent states in India.

Table 1: Cost of cultivation and Production of maize different States in India in the year 2011-17.

State	Cost of Cultivation (₹/H)	Cost of production (₹/Qt)
Andhra Pradesh	40967.79	904.44
Bihar	24852.41	814.68
Chhattisgarh	17345.21	1149.8
Gujarat	32658.08	1621.82
Himachal Pradesh	22624.60	1291.57
Karnataka	33345.75	811.97
Madhya Pradesh	22070.77	880.3
Rajasthan	37493.73	1661.51
Tamil Nadu	55386.84	1069.08
Uttar Pradesh	27539.88	1229.15

Source: Ministry of agriculture Government of India

The Highest cost of cultivation first place goes to Tamil Nadu (₹55386.84) followed by Andhra Pradesh, Rajasthan, Karnataka, Gujarat and Uttar Pradesh Least cost of cultivation first place goes to Chhattisgarh (₹17345.21),

followed by Madhya Pradesh(₹22070.77) and Himachal Pradesh(₹22624.60).

This table two is truly based on respondents opinion about cost of cultivation of the Belur Taluk

Table 2: Average Cost of cultivation of maize in the study Area(₹ Per/hectare)

S. No	Items	Units	Quantity	Cost	Percentage
1	Seeds	Kg	5.8	630	2.40%
2	Irrigation cost	-	-	4000	26.76%
3	Fertilizer cost				
a	Nitrogen	Kg	50	635	2.42%
b	Phosphorous	Kg	50	540	2.06%
c	Potassium	Kg	50	350	1.33%
4	Labour				
a	Human Labour	Man day	20	4000	19.11%
b	Bullock Labour	Pair day	2	2000	9.55%
c	Machine Labour	Hour days	8	5000	36.32%
5	Marketing cost	Per Quintal	50	1500	
6	Total Cost			18655	100%
7	Market Price	Quintal	Per quintal	1800	
8	Total Yield	Quintal (per ha)	25		
9	Gross Returns=Total production x Per unit Price	GR=25 x1800=45000			
10	Net Returns=GR-TC	NR=45000-18655=26345			

Source: Filed Survey

Table 4.14: Returns Structures in Maize production in Study Area (Per Hectare)

S. No	Particulars	Value (₹ and Quintals)
1	Total Yield (Quintals)	30
2	Marketing Cost (₹/Quintal)	50
3	Market Price	1800
4	Gross Returns	45000
5	Total Cost	18665
6	Net Returns	26345

The above table shows the Average cost of cultivation of per hectare maize production in Belur taluk. Utilisation of seeds per ha was 5.8 kg and it cost ₹630. Irrigation cost was ₹4000, fertilizer cost was ₹1525, and labour cost was ₹12500, Marketing cost was ₹1500. Total cost of maize production in the study area was ₹ 18655. Gross Returns was ₹ 45000 and Net Returns was ₹26345.

Major problems faced by the Maize farmers in the study area as below

Tables 4.15: The Major Problems of Maize Production in study Area

S No	Particular problems	Responders Opinion	Percentage
1	Fluctuation in price	30	100
2	Lack of Irrigation	30	100
3	Climate change	30	100
4	Low Price Local market	23	86.66
5	High yielding Variety seeds are not available	11	36.66
6	Maize Harvesting is difficult	07	23.33
7	Un favorable Market Situation	13	43.33
8	Labour problem	30	100
9	Lack of Financial Assistance	14	46.66

Source: Filed Investigation

This Table depicts the Problems faced by the maize farmers in Belur Taluk. All most all the farmers faced major problem

is price fluctuation, climate change, irrigation and labour problems. 86.66 percent of the farmers faced low price problem in Local market, 43.66 farmers problem faced unfavourable Market situation.

4. Findings

The finding of the study describes the cost of cultivation and problem faced by the maize farmers in Belur taluk Hassan district

- The statistics depicts Harvested area was increased and decreased; Production of maize was increased except in the year 2015-16. Year wise Yield also increased and decreased or slightly fluctuated
- Total cost of per hectare maize cultivation was ₹ 18655
- Gross Returns was ₹ 45000 and Net Returns was ₹35345.
- All most all the farmers faced major problem is Price fluctuation, Climate Change, and Labour Problems.
- 86.66 percent of the farmers faced low price problem in Local market, 43.66 farmers problem faced unfavorable Market situation.
- The estimation of cost of cultivation indicated that irrigation and human labour and fertilizer variables responsible for increasing the productivity.

5. Suggestion and Conclusion

Maize is one of most important food crop in Hassan district as well as Belur taluk. The cost of cultivation should be reduced. To be increasing the irrigation facilities. Government policy and programmes reaching the small farmers. This Article I have identified the cost involved in one hectare maize cultivation income and problems. Therefore maize cultivation yielding good returns. Hence maize cultivation in the study area Suggestible.

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