

Cost Benefit Analysis of Cotton Processing In Haryana

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Abstract

The study revealed that the production of cotton increased at compound growth rate of 4-5 % per annum in all the periods except 1990-91 to 2000-01. As regard to yield it shows negative growth rate during first and third period. This may be due to attributed to lower rainfall, non-stable verities and higher infestation of insect-pests in cotton crop. But it increased of compound rate of about 7% during fourth period 2001-02 to 2010-11. Further it was found that the investment for the cotton processing industries came out to be Rs. 4193200. The total cost of processing was worked out to be Rs. 6350451. The processing cost per quintal of raw material was worked out to be Rs. 173. The total Gross return and Total cost of main product processed worked out to be Rs. 175653120 and 169883211. In this way the Net return per Re. of fixed investment came out to be 7.69 and Benefit: Cost came out to be 1.03.

Key words : cotton, processing, benefit : cost ratio.

Introduction

In Haryana, the five major district mainly Sirsa, Fatehabad, Hisar, Jind & Bhiwani constituent more than 90% area of the cotton crop in the state^[1,2,4]. Cotton account for 40% of the total global fiber production and is the most important fiber in the world. India is a major player with world cotton market upterm of area and production. India is now the second largest cotton producer consumer and exporter in the

Material and Method

The present study is based on primary and secondary data. The secondary data on area, production and yield for the years 1980-81 to 2010-11 were collected from different issues of Statistical Abstract of Haryana, different bulletins published by Agro Industry Corporation and Haryana State Agricultural Marketing Board, Punchkula.

To analysis the cost benefit ratio of agro industry of cotton, a sample of 10 Industries (small and medium industries) were taken from each part of the Haryana. Primary data of cotton processing industry were collected through personal interview with selected processor by visiting industries. The benefit-cost ratio analysis was done by taking fixed cost (depreciation and interest on investment on land building and machine) and variable cost (raw material, labour, electricity, oil & grease and repair & maintenance. Opinions of the respondents were ascertained

world. Cotton covers around 7% of the total crop coverage and is second after rice in India. Cotton tenable is one of the largest industries in India^[5,6]. It proved livelihood for million people who depend on cotton cultivation, processing, trade and Textiles. Textile industry contributes 4% of G.D.P. 14% of total industrial product, 20% of total work force, 17% of country expert earning and employment to 30 million people.

through personal interview on the problem being faced by processor starting from establishment of the unit upto the marketing of product produced. Suggestions from respondent were also obtained for improvement in working as well development of Agro industries in state.

Analytical Tools and Techniques

To draw meaningful inferences from the collected information the analytical tools like percentage, average etc. were used. Further, to avoid the fluctuation in the data, triennium ending averages were calculated. The compound growth rates in relation to area, production and yield of various crops as well as market arrival, production and employment of agro-processing industries were computed by fitting exponential function.

$$Y = ab^t$$

In log linear form

$$\text{Log } Y = \text{log } a + t \text{ log } b$$

The linear trend equations were also fitted for production and employment of different agro-processing industries for the period 1980-81 to 2001-02 by fitting the linear equation

$$Y = a + bt$$

Where,

Y = Dependent Variable for which growth rate is calculated i.e. area,

Results And Discussion

Cropped Area Growth Rate

Compound growth rate of area for different crop in the State are given in Table 1 for four periods separately. First period (1966-67, 1980-81), Second period (1981-82 to 1990-91), third period (1990-91 to 2000-01) and fourth period (2001-02 to 2010-11). The growth rate of area of cotton showed moderate increase. It is evident that in first period (1966-67 to 1980-81) area of cotton increased at the annual growth rate of 3.17% which further increased in the next period that is increased at the annual growth rate of 4.02% during 1981-82 to 1990-91. After that in third period during 1990-91 to 2000-01 there was only slight increase in growth of cotton area (0.95%), but area decreased in fourth period

production and yield of various crops, market arrivals of agriculture produce, production and employment of agro-processing industries.

a = Constant

b = Regression coefficient,

t = Time period in years

CGR (Compound growth rate) = $(\text{Antilog } b-1) \times 100$

(2000-01 to 2010-11) is at the annual growth rate of -0.98%.

Production Growth Rate

The Table 2 indicates that there were increases in production of cotton at the annual growth rate of 4.27% during 1966-67 to 1980-81 and 5.89% during 1981-82 to 1990-91. But there was decline in production of cotton during third period from 1990-91 to 2001-02 at the annual growth rate of -1.20% because of serious infestation of insect-pests. But again there was increase in production of cotton at the annual growth rate of 4.69% in fourth period during 2000-01 to 2010-11 (Anonymous, 2012) because of introduction of GM- *bt* cotton.

Table 1 Compound growth rate (Per cent) of area under different crops in Haryana from 1966-67 to 2004-2005

Particulars	1966-67 To 1980-81	1981-82 to 1990-91	1991-92 to 2001-02	2001-02 to 2010-11
Rice	6.21*	2.56*	6.09	1.86
Wheat	4.41*	1.17*	2.55	0.72
Gram	-1.55*	-6.40*	10.09	2.33
Cotton	3.17*	4.02*	0.95	0.98
Rapseed and mustrad	0.90	11.58*	-3.78	-0.32

* Significant at 1 per cent probability level

Table 2 Compound growth rate (Per cent) of production under different crops in Haryana from 1966-67 to 2004-2005

Particulars	1966-67 to 1980-81	1981-82 to 1990-91	1991-92 To 2000-01	2001-02 to 2010-11
Rice	11.59*	3.17**	4.57*	2.50*
Wheat	6.71*	5.50*	4.16*	2.6*
Gram	-1.92	2.23	-12.36*	2.14*
Cotton	4.27*	5.89*	-1.20	4.69*
Rapseed	2.37	17.37*	-2.46	6.12*
and mustred				

* Significant at 1 per cent probability level

** Significant at 10 per cent probability level

Yield Growth Rate

It is appreciably clear from the table 3 that compound growth rate in cotton registered negative in first period during 1966-67 to 1980-81(at the annual growth rate of -9.5%) and attain positive growth rate of yield in second period during 1990-91 to 2000-01 that was 2.07% and

again gone down (-11.88%) due to high infestation of insect & pests during third period 1990-91 to 2000-01. But after introduction of GM- *Bt* cotton yield increased again during 2001-02 to 2010-11 (Anonymous, 2012) at the annual growth rate of 6.77%.

Table 3 Compound growth rate (Per cent) of yield under different crops in Haryana from 1966-67 to 2004-2005

Particulars	1966-67 to 1980-81	1981-82 to 1990-91	1991-92 to 2000-01	2001-02 to 2010-11
Rice	5.38*	0.54	-1.55	1.92*
Wheat	2.30*	4.14*	1.60*	1.23*
Gram	-0.37	6.90**	-1.89	3.27
Cotton	-0.95	2.07	-11.82*	6.77
Rapeseed and Mustred	1.52	6.63*	1.96	3.87*

* Significant at 1 per cent probability level

** Significant at 10 per cent probability level

Benefit : Cost Ratio of Cotton Processing Industry in Haryana

Benefit: cost analysis of cotton industries in Haryana^[3] is based on primary data collected from cotton mill working in Haryana and is shown in Table 4 which revealed that average total investment per cotton mill was estimated to be Rs. 4193200. In cost of cotton ginning industries composition of fixed cost and variable cost was estimated to Rs. 750451 and Rs. 5600000 respectively. It is observed that distribution of fixed cost per quintal raw material processed Rs. 21 and variable cost per quintal is Rs. 152. The total processing cost per quintal of cotton was Rs.

173 because processing cost of cotton industry depends on capacity utilization of cotton ginning mills. The net cost of main product to the processor was Rs.169883211 and the income from the sale of main product was Rs. 123782400 and that of bye-product Rs. 58707200 and the gross income came out to be Rs. 175653120. The net profit to worked out to be Rs. 5769909 and profit per quintal of raw material processed (cotton) is Rs. 157 and by calculation net return per of fixed investment is Rs. 7.69. The benefit cost ratio in cotton industries was calculated to 1.03.

Table 4 Benefit Cost analysis of cotton processing industries in Fatehabad District

Sr. No.	Particulars	Figures (Rs)
A.	Total Investment	4193200
B.	Fixed Cost	750451
(i)	Depreciation	297267
(ii)	Interest on fixed capital @ 12% per annum	503184
C.	Variable cost	5600000
(i)	Labour charges	1300000
(ii)	Electricity charges/fuel charges	2850000
(iii)	Oil and greasing	300000
(iv)	Repair and maintenance	50000
(v)	Interest on variable cost @ 12%	600000
D.	Total cost of processing (B+C)	6350451
E.	Quantity of raw material processed (Quintal)	36840
F.	Fixed cost per quintal (B/E)	21
G.	Variable cost per quintal (C/E)	152

H.	Processing cost per quintal of raw material (D/E)	173
I.	Cost of raw material per Quintal	4200
J.	Packing and miscellaneous Charges per quintal	66
K.	Cost of raw material processed per quintal (H+I+J)	4439
L.	Total cost of raw material processed (KxE)	163532760
M.	Total cost of main product processed (D+L)	169883211
N.	Sale income of main product	123782400
O.	Income from the sale of By-Product	58707200
P.	Total gross return (N+O)	175653120
Q.	Net profit (P-M)	5769909
R.	Profit (per quintal of raw material processed)Q/E	157
S.	Net Return per Re. of fixed investment (Q/B)	7.69
T.	Benefit Cost ratio (P/M)	1.0339

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