

Cost Benefit Analysis of wheat processing in District Morena of Madhya Pradesh

S.V.S CHAUHAN, BHOOPENDRA SINGH RAGHAV¹ AND P.P. SINGH

Rajmata Vijayaraje Scindia Krishi Vishwa Vidhyalaya, K. V. K., Morena-476001 (M.P.)

Abstract

Wheat is the major cereal crop of Madhya Pradesh State. Morena district has got an area of around 95.7million ha with the average productivity of 4000kg/ha with a production potential of 6000kg/ha. A lot of small and big flour mills are there in the district which consume not only the local wheat but also somewhat part of wheat produced in the nearby districts. Thus, there is vast potential for establishment of wheat processing industry both for additional income to producer as well as gainful employment to the local people. There is a potential of utilization of wheat bran a byproduct of wheat milling for feeding to livestock and poultry. Development of wheat roller flour indicates that flour milling and feed concentrates industry may go hand in hand simultaneously. The cost-Benefit ratio of 1:1.03 indicates that flour mills in Morena are economically viable. The study concludes that area under wheat cultivation has increased during first period (1966-67 to 1980-81) at a compound growth rate of 4.41%. The growth rate during second period (1980-81 to 1990-91) slightly increased at annual growth rate of 1.17%. But the compound growth rate of area of wheat increased further during third period (1990-91 to 2000-01) i.e. 2.55% and during fourth period (2000-01 to 2010-11) the compound annual growth rate of 0.72% was found. The growth rate of production of wheat during first period (1966-67 to 1980-81), second period (1980-81 to 1990-91), third period (1991-92 to 2000-01) and fourth period (2000-02 to 2010-11) was 6.71%,5.52%,4.16% and 2.9% respectively The growth rate of yield of wheat during first period (1966-67 to 1980-81), second period (1980-81 to 1990-91), third period (1991-92 to 2000-01) and fourth period (2000-02 to 2010-11) was 2.30%,4.14%,1.60% and 1.26% respectively. Further it was found that the investment for the wheat processing industries came out to be RS. 5892300. The total cost of processing was worked out to be Rs. 5548811. The processing cost per quintal of raw material was worked out to be Rs. 76. The total Gross return and total cost of main product processed worked out to be Rs. 111267840 and 108486051respectively. In this way the Net return per rupees of fixed investment came out to be Rs. 3.03 and benefit cost ratio came out to be 1.03.

Key Word: Wheat processing, flour mills, cost benefit analysis

Introduction

India is predominantly an agrarian country near about 75% population depends on agriculture and allied agricultural activities. The wheat is one of the most important food grain crop for human consumption. The establishment of agro-processing in rural areas appears to be necessary not only to meet the ever increasing demand for processed products but also to enhance the real farm income in future. The efforts in this direction will also generate required employment for

educated and uneducated rural labour force. These industries process agricultural raw material including field and tree crops as well as livestock, poultry, fisheries etc. to convert them into edible or usable, easily transportable forms having improved storage and shelf life along with utilization of by product generated. However, Most of the units are using the age old cottage and small-scale sector traditional methods of processing. In the last few years, a few units have come up with the state of the art technologies like vacuum concentration, aseptic packaging and freeze-drying etc. particularly in the processing of tomatoes,

¹Asst. Manager (After Sales)–Zee News Noida (U.P.)
E-Mail- chauhansukhvirsingh@gmail.com

Mushrooms tropical fruit juice and pulps and concentrates for livestock *Kamala and khote (1996)*.

Increase in agriculture production obviously needs increased processing and marketing facilities through establishment of agro based industries at strategic location. The agro industry provides the crucial farm industry linkages which helps to accelerate agriculture development by creating backward linkages (supply of credit input and other production enhancement service) and forward linkages (Processing and marketing) adding value to the farmer’s produce generating employment opportunities and increasing the farm’s net income. The growth in agro-industry generates new demand on the farm sector for more and different agriculture output which are most suitable for processing. The growth in agro-processing industries has a big potential to trigger development in other sectors of economy .Modern processing industries, helps in generating extra income and employment to the farmer (*Rao, 1994*). Food processing industry is a major sector which is growing rapidly in the post 1980’s in many developing nations including India Potential of agro-processing can be viewed commodity wise. Madhya Pradesh state is surplus producer of wheat. In The absence of development of wheat milling to desirable extent the state is denied of the benefit of forward linkage from the production of wheat therefore some ways have to be found to export at least a part of Madhya Pradesh wheat in the form of milled product to the rest of the states as well as in the international market. Besides the conventional bread making, possibility of introducing ready –made chapattis/mons needs to be investigated. The Bulbar Wheat prepared domestically in the wheat mills should be used for feeding programme for the school children rather than importing [*Khatkar (1996) and Manocha et al.(1989)*].

Materials and Methods

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 bulletins published by agro Industry Corporation and Madhya Pradesh state agriculture marketing board, Bhopal.

To analysis the cost benefit ratio of agro industry of wheat, a sample of 10 industries (small and medium industries) were taken from each part of the Madhya Pradesh. Primary data of wheat

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 respondent were ascertained through personal interview on the problem being faced by processor starting from establishment of processing plant till the marketing of the final product in addition to this suggestion from respondent were also obtained for improvement in working as well as development of agro industries in state.

Analytical Tools and Techniques.

To draw meaningful inference 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

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

The linear trend equation 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 rate is calculated i.e. area 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) = $(\text{Antilog } b - 1) \times 100$

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. The Compound growth rate of area under wheat cultivation during 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) were 4.40%, 1.18%, 2.57% and 0.71% respectively.

Production Growth Rate

The table 2 indicates that compound growth rate of wheat production in the state for all four periods. The Compound growth rate of production of wheat during 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) were 6.70%, 5.52%, 4.16% and 2.9%. respectively (Anonymous, 2012; Manocha et.al, 1989).

Wheat yield Growth Rate

Compound Growth rate of wheat yield are presented in Table 3, it is clear from the table 3 that compound growth rate in wheat register positive in all four periods. The Compound growth rate of yield of wheat during 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) were 2.30%, 4.14%, 1.60% and 1.26% respectively.

Cost Benefit Ratio of Wheat Processing Industry in Madhya Pradesh:

Benefit cost Analysis of wheat industries in Madhya Pradesh is based on Primary data collected from Flour mill working in Madhya Pradesh and is shown in Table 4. Which revealed that average total investment per flour mill was estimated to be Rs. 5892300. In cost of wheat flour mill share of fixed cost and variable cost was estimated to Rs. 917610 and Rs. 4631200 respectively. The total processing cost per quintal of wheat was Rs. 76 and we can say processing cost of wheat Flour industry depends mainly on capacity utilization of wheat Flour mills. The total cost of main product processed by the processor was Rs. 102937240 and the gross income from the sale of main product was Rs. 33249960 and that of by-product Rs. 2781788 and the total gross return came out to be Rs. 111267840. The net profit worked out was Rs. 2781788 and profit per quintal of raw material processed (wheat) was Rs. 38.42 and by calculation

Table 1: compound growth rate (%) of area under different crops in Madhya Pradesh from 1966-67 to 2010-2011

Particular	1966-67 to 1980-81	1981-82 to 1990-91	1991-92 to 2001-02	2001-02 to 2010-11
Rice	6.20*	2.57*	6.10	1.87
Wheat	4.40*	1.18*	2.57	0.71
Gram	-1.56*	-6.39*	10.09	2.34
Cotton	3.16*	4.05*	0.95	0.98

Table 2: Compound growth rate (%) of production under different crops in Madhya Pradesh from 1966-67 to 2010-2011

Particular	1966-67 to 1980-81	1981-82 to 1990-91	1991-92 to 2001-02	2001-02 to 2010-11
Rice	11.60*	3.18**	4.57*	2.50*
Wheat	6.70*	5.52*	4.16*	2.9*
Gram	-1.91	2.22	-12.35*	2.14*
Cotton	4.27*	5.90*	-1.22	4.69*
Rapeseed and Mustard	2.37	17.37*	-2.46	6.12*

Table 3: Compound growth rate (%) of Yield under Different crops Madhya Pradesh from 1966-67 to 2010-11

Particular	1966-67 to 1980-81	1981-82 to 1990-91	1991-92 to 2001-02	2001-02 to 2010-11
Rice	5.38*	0.56	-1.55	1.92*
Wheat	2.30*	4.14*	1.60*	1.26*
Gram	-0.37	6.90**	-1.89	3.27
Cotton	-0.95	2.09	-11.83*	6.79
Rapeseed and Mustard	1.52	6.63*	1.96	3.87*

*Significant at 1 percent probability Level

**Significant at 10 percent probability Level

Table 4: Benefit Cost analysis of Wheat processing industries in Morena District (M.P.)

S. No.	Particulars	Figures (Rs)
A.	Total Investment	5892300
B.	Fixed Cost	917610
(i)	Depreciation	210534
(ii)	Interest on Fixed capital @ 12% annum	707075
C.	Variable cost	4631200
(i)	Labour Charges	1197000
(ii)	Electricity Charges/ Fuel Charges	1836000
(iii)	Oil and Greasing	1017000
(iv)	Repair And maintenance	85000
(v)	Interest on variable cost @12%	496200
D.	Total Cost of Processing (B+C)	5548810
E.	Quantity of raw material process (Quintal)	72438
F.	Fixed Cost Per Quintal (B/E)	63.93
G.	Processing Cost/Quintal of Material (D/E)	79
H.	Processing cost per quintal of material (D/E)	78
I.	Cost of Raw Material per quintal	1300
J.	Packing and miscellaneous charges/quintal	46
K.	Cost of raw material process (H+I+J)	1422
L.	Total cost raw material process (K x E)	102937240
M.	Total cost of main product process (D x L)	108486051
N.	Sale income of main product	33249960
O.	Income from the sale of by product	78017880
P.	Total gross return (N+O)	111267840
Q.	Net (P-M)	2781788
R.	Profit (Per quintal of raw material Processed) Q/E	38.42
S.	Net return per Rupees of fixed investment	3.05
T.	Benefit cost Ratio (P/M)	1.08

net return obtained per rupees of fixed investment was Rs. 3.03 .The benefit cost ratio in wheat flour milling industries was calculated to 1.03.

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