*Study No. 100*

# Impact of Emerging Marketing Channels in Agriculture Marketing: Benefit to Producers-Sellers and Marketing Cost and Margins of Major Agricultural Commodities

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# PREFACE

*The present study entitled* **"Impact of Emerging Marketing Channels in Agriculture Marketing–Benefit to Producers-Sellers and Marketing Cost and Margins of Major Agricultural Commodities"** *has been assigned by the Directorate of Economics and Statistics, Ministry of Agriculture Government of India to this centre along with AERCs' Allahabad (U.P.) Bhagalpur (Bihar & Jharkhand), Chennai ( Tamil nadu & Kerala), Jabalpur (M.P. & CG), Jorhat ( Assam), Ludhiana (Punjab), Pune (Maharastra), Simla ( H.P.) , Shantiniketan ( West Bangal) and Waltair ( A.P.) and Banglore (Karnataka) under the close coordination of Institute of Economic Growth, Delhi.*

*The study was conducted in Sehore districts of M.P. as in this district the first e-soya choupal was established in the year 2004. The study comprised the information which was colleted from the100 soybean growers for the year 2010, out of which 50 were related to the emerging market channel (e-Soya-choupal) and 50 were related to the traditional market channel ( Regulated Market).*

*The present study was conducted by Dr. Hari Om Sharma, Principal Scientist of this Centre. He has done field investigation, tabulation, and analysis, interpretation of results and drafting of the report in stipulated time limit, besides he is also deputed as Professor In-charge (Examination) and Deputy Registrar (Examination) of the university. I wish to express my deep sense of gratitude to him and his team members namely; Shri B.S. Patel, Mr. Shrikant Upadhye, and Mr. C.K. Mishra. All the other Research Officers namely; Dr. Ashutosh Shrivastava and Dr. N. Khan and supporting staff members namely; Mr. Anil Denial and Mr. S.K. Sharma of Agro-Economic Research Centre deserved to be complemented for their untiring efforts in bringing this innovative study to its perfect shape.*

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*I hope the findings and suggestions made in the study would be useful to policy makers of the states and Govt. of India.*

**Date :** **(N.K. Raghuwanshi)**

**Place: Jabalpur** Honorary Director

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# CHAPTER-I

## INTRODUCTION

### 1.1 Background:

Market is a place where a producer can sell his product. The producer often looks at marketing from the point of view of prices. Price give him guideline as to; what type of crop is to be grown, how much area is to be reserved for it, how much out of total produce is to brought to the market for sale at one time. When he sell his produce, and obviously, where he sells his produce etc. Even at lowest subsistence level responds to prices as he to sell a portion of his produce after harvest under economic compulsion.

The trader (middleman) looks at marketing from the point of view of keeping themselves engaged in the business of buying and selling and thereby earning his livelihood. He renders services to the society indirectly by making available the goods needed for consumption.

The efficient marketing system is of vital importance to an area under all condition and each stage in its development. In areas of dense population living at subsistence level, the seasonal failure of a basic food crop can bring about wide spread famine and suffering, Meanwhile other parts of the same country may be holding supplies more than adequate for their needs. Such disaster are lessened by transportation and readily available buffer stock facilities, availabilities of communication between one part to another, availabilities of information on current stocks and future requirement and the reliability of the existing trade organization in recognizing and responding to needs of the community. All these conditions reflect the role of marketing in the overall set up of the area.

Competition can have both beneficial and detrimental effects. Some agricultural economists claimed that competition serve as a mechanism for determining the best-suited group politically, economically and ecologically. On the negative side; competition can cause injury to the organism involved and drain valuable resources and energy.

In the present era of liberalization, the agricultural marketing are liberalized to create an opportunity for the alternative marketing channels for selling the agricultural produce. Private companies, co-operatives or any legal entry was establish and operate the agricultural marketing infrastructure and supporting services as competitive

measures with the markets established by APMCs. Direct purchase of agricultural produce from the farmers' field by individuals as well as companies, societies, co-operatives is encouraged to reduce the number of intermediaries thereby providing opportunity in increasing the share of farmer in consumer rupee. Producer or Consumer markets are established for the direct sale to the processors or consumers. Contract farming is popularized for the assured sale at the predetermined price before sowing. Specialized market yards for special commodities also are developed to provide a commodity specific modern market infrastructure for the particular crops grown in a particular area. Public-Private Participation for establishment and management of markets for agricultural produce to encourage the private investment and professionalism in agricultural marketing including post harvest handling of agricultural produce and encouraging value addition to share the burden and provide healthy competition with APMC's. e-market, e-marketing, and e-trading for speedy and distance transactions. Market Stabilization is also found to be created at State level to safeguard the interests of the producers in the wake of sudden and anticipated fall in the prices of agricultural produce. Marketing extension cell is also found to be established for market driven extension service to farmers to adopt the improved practices of marketing to fetch the better price. Agricultural Produce Marketing Standards Bureau is also set up for grading, standardization and quality certifications of all the agricultural produce. The producer be helped and provided all technologies to produce hygienic and provided all better qualities for export to other countries to fetch better prices. Now, the States has also been initiated the steps for farmers organizations to produce in collective manner for reduction in the production costs by pooling the resources, assemble produce at one point to sell in bulk to the main buyer on spot payment and also to use the free time for other earning activities created by those farmer organizations. The other areas related to agriculture and horticulture as well as animal husbandry and products of live stocks, forestry, apiculture and sericulture are also well equipped and provided a suitable platform to increase the farm income as a subsidiary occupation.

ITC has emerged as a new marketing channel in field of farm products. The company "e-choupal" initiative is enabling Indian agriculture to significantly enhance it's competitiveness by empowering Indian farmers through the power of internet.

ITC's Agri Business Division, one of India's largest exporters of agricultural commodities, has conceived e-Choupal as a more efficient supply chain aimed at

delivering value to its customers around the world on a sustainable basis. The e-Choupal model has been specifically designed to tackle the challenges posed by the unique features of Indian agriculture, characterized by fragmented farms, weak infrastructure and the involvement of numerous intermediaries, among others. ‘e-Choupal’ also unshackles the potential of Indian farmer who has been trapped in a vicious cycle of low risk taking ability - low investment - low productivity - weak market orientation - low value addition - low margin - low risk taking ability. This made him and Indian agribusiness sector globally uncompetitive, despite rich & abundant natural resources. Such a market-led business model can enhance the competitiveness of Indian agriculture and trigger a virtuous cycle of higher productivity, higher incomes and enlarged capacity for farmer risk management, larger investments and higher quality and productivity. Further, a growth in rural incomes will also unleash the latent demand for industrial goods so necessary for the continued growth of the Indian economy. This will create another virtuous cycle propelling the economy into a higher growth trajectory.

Appreciating the imperative of intermediaries in the Indian context, ‘e-Choupal’ leverages Information Technology to virtually cluster all the value chain participants, delivering the same benefits as vertical integration does in mature agricultural economies like the USA. e-Choupal’ makes use of the physical transmission capabilities of current intermediaries–aggregation, logistics, counter-party risk and bridge financing–while disintermediation them from the chain of information flow and market signals.

With a judicious blend of click & mortar capabilities, village internet kiosks managed by farmers–called sanchalaks–themselves, enable the agricultural community access ready information in their local language on the weather & market prices, disseminate knowledge on scientific farm practices & risk management, facilitate the sale of farm inputs (now with embedded knowledge) and purchase farm produce from the farmers’ doorsteps (decision making is now information-based).Real-time information and customized knowledge provided by ‘e-Choupal’ enhance the ability of farmers to take decisions and align their farm output with market demand and secure quality & productivity. The aggregation of the demand for farm inputs from individual farmers gives them access to high quality inputs from established and reputed manufacturers at fair prices. As a direct marketing channel, virtually linked to the ‘mandi’ system for price discovery, ‘e-Choupal’ eliminates wasteful intermediation and

multiple handling. Thereby it significantly reduces transaction costs. 'e-Choupal' ensures world-class quality in delivering all these goods & services through several product/service specific partnerships with the leaders in the respective fields, in addition to ITC's own expertise.

While, the farmers benefit through enhanced farm productivity and higher farm gate prices, ITC benefits from the lower net cost of procurement (despite offering better prices to the farmer) having eliminated costs in the supply chain that do not add value.

How far this particular emerging market channel benefited to the farmers as compared to the traditional market channel i.e. regulated market in Madhya Pradesh is the matter of intend study. Hence, this study is formulated with following specific objectives:

## 1.2 Objectives of the Study:

a) To analyse the economics of soybean production.
b) To identify the post harvest losses in the marketing of soybean.
c) To determine the price spread in the marketing of soybean.
d) To analyse the marketing efficiency of soybean marketing.
e) To identify the services availed by the farmers and their perception of market infrastructure.
f) To suggest the ways and means and policy implication for effective marketing of soybean in the state.

## 1.3 Review of Literatures

The different studies conducted so far in the same line are considered, as these provide the basic knowledge in the same aspects.

Somsak (1984) conducted a study on representative farmers classified in to three groups and observed that increase in soybean production should emphasize on the improvement of soybean productivity instead of the increase in sown area. Production cost per unit of soybean varied with the farm size. Relatively, the large farmers spend less production cost (3.50 baht /kg.) than the smaller farmers (5.10 baht /kg.) whereas the medium farms spent (3.50 baht /kg.). Again the farms gate prices of soybean differed among different farm size. On the average the farm gate prices of soybean for small, medium, and large farms were respectively 1.62, 3.32 and 3.38 bath per kg. This indicates that farmers with large farms earned more profit for each unit of soybean produced than the smaller farms. The average return to capital investment on soybean

production for small farm was 32%, while it was as high as 95% for the medium and large farms. These return to capital investment ranging from 32% - 95% seen to be a promising alternative with high economic incentive for the farmers.

Yuningsih (1993) observed that the production of soybean in lampang area is relatively still lower than national product. The low farmer income effects farmer motivation to adopt technology that can increase production. Instrument of analysis used in this experiment was model inputs output ratio of marketing system and elasticity price of transmission. The result of these experiments shows that marketing system of soybean up to date in production areas in relatively efficient enough. The result also shows rate of input output ratio channel 1: 1.12, channel 2: 1.14, it means that the efficiency marketing system of soybean in the area is independent on the period of marketing.

Sharma, *et. al.* (1996) conducted a study on constraints of soybean production in Madhya Pradesh. Soybean yield in Madhya Pradesh are 77 per cent to 244 per cent lower than recommended technology and potential yield respectively. This study was under taken to investigate the factor responsible for these differences. The analysis indicated that lack of knowledge of soybean production technology , lack of capital for purchasing inputs, lack of skilled labour at peak period and non available of timely input and labour are the major constraints which result in low production and income.

Pawar, N.D. (1999) observed the marketing channels for soybean in Maharashtra, India and analyzed marketing costs and margins. He obtained data from survey of 144 soybean growers in Satara district and 24 commission agents, 16 wholesaler, and 29 retailers in the Satara karad, Koregoan and Umbraj markets. Three channels were identified i.e. producer- itinerant traders - commission agent – oil miller (channel 1); producer–commission agent–wholesaler–oil miller (channel 2), wholesaler –oil miller (channel 3). The commission charges were the most expensive item in the marketing costs. Gross marketing margins were highest in channel 1 followed by channel 2 and 3.

Kulkarni and Kunnal (2001) made an attempt to identify the different marketing channel and estimate the cost of marketing. They observed two marketing channels and revealed that in channel second, farmer sold the produce to oil seed growers co-operative society and transport cost was also very less in the channel as compare to channel first because there where sufficient number of OGCS in the study area. The channel first was preferred by 72.72 per cent of large and 27.80 per cent of small

farmers and channel second was preferred by 72.20 per cent of small and 27.28 per cent of large farmers. It conducted in the study there is need to set up soybean processing unit near Athani and Chikodi to Luks where the soybean purchasing by the Karnataka co-operative growers federation has solved the problems of marketing of soybean to a great extent.

Tripathi (2001) examined the marketing structure and cost effectiveness of different marketing channels in Chindwara district of Madhya Pradesh and observed that out of 167 farmers, nearly 49 per cent of total farmers disposed of their produce through villages. Among the three categories of farmers 63 per cent of small farmers sold their produce at village level where as share of medium and large farmers was 45 per cent and 15 per cent respectively mandi or ganj is second important source of channel for disposal of soybean where farmers directly sell their produce. The share was this channel was 35 per cent, 64 per cent large growers sold their produce in mandi followed by medium and small categories of farmers which accounted for 30 and 22 per cent respectively. It also conducted from study that *tilhan sangh* has been found to be the efficient marketing channel compared to the other keeping in view the producer share in consumer rupees in higher is this channel.

Rajput (2001) examined the cost and return of soybean production under different size of farms in Vidisha district of Madhya Pradesh and observed that the total cost was higher for large size of holding at Rs. 8612.23 /ha. medium at Rs.8290.68 /ha. and lower at Rs. 7142/ha. for small size of land holding and net return per hectare was obtained by large size holding (Rs. 2689.67)followed by medium size holding (Rs. 2379.67 /ha.) and small size holding (Rs. 2218.96 /ha.) input output ratio was also found to be maximum for large farmers (1:1:31) followed by small farmers (1:1:31) and medium farmers (1:1:29).

### 1.4 Organization of Report

The study is organized into 5 chapters. Chapter 1 is introduction includes marketing system and its importance along with objectives, review of literature, methodology, concept used and limitation of the study. The background information of the Traditional Marketing Channel (Regulated Market) and Emerging Marketing Channel (ITC e-choupal) of marketing of farm products performing function in the Madhya Pradesh is discussed out in chapter 2. Chapter 3 related to the profile of the study area and selected crops. Comparative farmer’s profile, cost incurred and returns obtained from the

cultivation of soybean, cost of production, post harvest losses, marketing cost, margin, price spread and market efficiency in marketing of soybean and constraints in trading in the and emerging (ITC e - choupal) market channels are Subject matter of Chapter 4. Finally, the Chapter 5 encompasses the summary, conclusions and policy implications emerging out from the present study.

## 1.5 Research Methodology:

This section deals with the sampling techniques used, nature and type of data required, tools of data collection, methods of classification, tabulation and analysis of collected data and concepts used while interpretation of data analyzed the data for interpretations.

### a) Sampling Techniques:

Amongst different districts of the state (50), Sehore has been selected purposively for the study, as the district has not only remarkable position in soybean acreage (Table 1.1) but also the first district, where the ITC e-soya choupal was introduced by the ITC in the year 2004. The Sehore block of Sehore district has also been selected purposively for the study as the block have the maximum area under the cultivation of crop in the district and the e-soya choupal was also established in this block. A list of all the villages in the jurisdiction of the ITC e- soya choupal was prepared and 3 villages in which the concentration of the soybean area was found to be remarkable has been selected for the study.

A list of all the soybean growers of the selected villages was prepared and 50 soybean growers who were sold their produce to ITC e-soya choupal were selected for the study. An equal number of soybean growers (50) who marketed their produce to regulated market have also been selected for the study for comparison between these two marketing channels. The primary data collections were done by the personal interview method for the reference year 2008-09.

### b) Area coverage and the crop selected:

The study was confined to Madhya Pradesh states of India and for oilseed crop soybean as the Government of Madhya Pradesh. Bhopal gave permission to ITC for the purchase of soybean from the soybean growers in the year 2004. In the marketing of vegetables and fruits no emerging channel like ITC e-soya choupal was found in

Madhya Pradesh and Chhattisgarh. Hence, the study confined to only Soybean and for Madhya Pradesh state.

**c) Nature & Sources of Data:**

The study was based on both primary and secondary data. The primary data of the study were collected from the selected respondents by personal interview with the help of interview schedule provided by the coordinating centre i.e., Institute of Economic Growth, University Enclave, University of Delhi ( North Campus), Delhi 110007. The required secondary data were collected on the different aspects of the study from all the institutions, which are directly related to soybean marketing viz. "Department of Farmers Welfare and Agricultural Development" Vindhyachal Bhawan , Bhopal, M.P., Department of Agriculture Statistics, Government of M.P., ITC Limited Agri. Business Division, Bhopal, M.P., the ITC e-soya Choupal, Sagar, Bhopal, Sehore, M.P., the Krishi Uppaj Mandi Samiti, Sehore, the office of the Mandi Board, Bhopal, M.P., etc. from their published and unpublished records. The secondary data were also collected from different Internet website viz.www.sopa.org, www.mpmadiboard.gov.in.,www.soyachoupal.org etc.

**d) Tools of Data Collection:**

The primary data were collected with an interview schedule, which was provided by the coordinator of the project. This interview schedule having all the information about the sample farmer (land utilization pattern, cropping pattern, farm assets, cost & returns obtained from the cultivation, marketing aspects of the crops and perception of the producers ). The primary data pertained to the agricultural year 2009-2010 and being collected in the month of April and Sept 2010.

**e) Classification, Tabulation and Analysis of Data:**

The primary data were classified and tabulated in light of stated objectives of the study. The SPSS (Statistical Package for Social Science) was used for classification, tabulation and analysis of collected data. The collected data were analyzed with compare means, percentage etc.

**Table 1.1 : Area of Soybean in Different Districts of M.P. (Tn Ave. ending 2012).**

| Division/District | Area sown 000'ha | Percentage to Total | yield (kg/ha) | Percentage Diff. to Total | Total production 000't | Percentage to Total |
|---|---|---|---|---|---|---|
| Ujjain | 4.42 | 8.30 | 1190 | 113.19 | 5.26 | 9.39 |
| Mandsour | 2.61 | 4.91 | 1022 | 97.21 | 2.67 | 4.76 |
| Neemuch | 1.24 | 2.33 | 1050 | 99.87 | 1.30 | 2.33 |
| Ratlam | 2.11 | 3.97 | 1105 | 105.10 | 2.33 | 4.17 |
| Dewas | 3.04 | 5.71 | 1147 | 109.03 | 3.49 | 6.23 |
| Shajapur | 3.34 | 6.27 | 1001 | 95.15 | 3.34 | 5.96 |
| Bhopal | 0.95 | 1.78 | 1082 | 102.85 | 1.02 | 1.83 |
| **Sehore** | **2.88** | **5.42** | **1021** | **97.08** | **2.95** | **5.26** |
| Raisen | 1.49 | 2.79 | 973 | 92.49 | 1.45 | 2.59 |
| Vidisha | 1.87 | 3.52 | 1065 | 101.24 | 2.00 | 3.57 |
| Rajgarh | 2.90 | 5.46 | 941 | 89.45 | 2.73 | 4.88 |
| Betul | 1.92 | 3.62 | 975 | 92.71 | 1.88 | 3.35 |
| Hoshangabad | 1.97 | 3.70 | 1070 | 101.77 | 2.11 | 3.77 |
| Harda | 1.65 | 3.10 | 1097 | 104.31 | 1.81 | 3.24 |
| Indore | 2.25 | 4.22 | 1183 | 112.46 | 2.66 | 4.74 |
| Dhar | 2.49 | 4.69 | 1167 | 111.00 | 2.91 | 5.20 |
| Jhabua | 0.51 | 0.95 | 983 | 93.50 | 0.50 | 0.89 |
| Alirajpur | 0.10 | 0.19 | 990 | 94.14 | 0.10 | 0.18 |
| Khargone | 0.60 | 1.13 | 1034 | 98.35 | 0.62 | 1.11 |
| Badwani | 0.33 | 0.62 | 1013 | 96.35 | 0.33 | 0.59 |
| Khandwa | 1.41 | 2.66 | 1144 | 108.75 | 1.62 | 2.89 |
| Burahanpur | 0.15 | 0.28 | 1132 | 107.61 | 0.17 | 0.30 |
| Jabalpur | 0.04 | 0.08 | 965 | 91.73 | 0.04 | 0.07 |
| Katni | 0.01 | 0.03 | 978 | 93.03 | 0.01 | 0.03 |
| Balaghat | 0.11 | 0.20 | 1032 | 98.10 | 0.13 | 0.23 |
| Chhindwara | 1.69 | 3.17 | 1042 | 99.11 | 1.76 | 3.14 |
| Mandla | 0.02 | 0.04 | 937 | 89.06 | 0.02 | 0.03 |
| Seoni | 1.06 | 1.99 | 1027 | 97.62 | 1.09 | 1.95 |
| Narsinghpur | 0.98 | 1.84 | 968 | 92.01 | 0.95 | 1.69 |
| Sagar | 2.94 | 5.53 | 959 | 91.19 | 2.82 | 5.03 |
| Damoh | 0.53 | 1.00 | 972 | 92.46 | 0.52 | 0.93 |
| Panna | 0.09 | 0.18 | 963 | 91.60 | 0.09 | 0.16 |
| Tikamgarh | 0.33 | 0.62 | 978 | 93.03 | 0.33 | 0.58 |
| Chattarpur | 0.33 | 0.62 | 1012 | 96.20 | 0.33 | 0.59 |
| Gwalior | 0.02 | 0.03 | 908 | 86.37 | 0.01 | 0.03 |
| Shivpuri | 0.86 | 1.62 | 965 | 91.79 | 0.84 | 1.49 |
| Guna | 1.88 | 3.53 | 955 | 90.81 | 1.79 | 3.20 |
| Ashoknagar | 0.89 | 1.68 | 996 | 94.71 | 0.89 | 1.58 |
| Datia | 0.01 | 0.01 | 933 | 88.75 | 0.01 | 0.01 |
| Morena | 0.00 | 0.00 | 937 | 89.06 | 0.00 | 0.00 |
| Sheopur Kalan | 0.10 | 0.18 | 973 | 92.55 | 0.09 | 0.17 |
| Bhind | 0.00 | 0.00 | 632 | 60.06 | 0.00 | 0.00 |
| Rewa | 0.35 | 0.65 | 938 | 89.22 | 0.33 | 0.59 |
| Sidhi | 0.03 | 0.05 | 930 | 88.43 | 0.02 | 0.04 |
| Satna | 0.48 | 0.91 | 957 | 90.97 | 0.46 | 0.83 |
| Singhroli | 0.00 | 0.01 | 962 | 91.44 | 0.00 | 0.01 |
| Shahdol | 0.09 | 0.16 | 973 | 92.55 | 0.08 | 0.15 |
| Anooppur | 0.03 | 0.05 | 957 | 90.97 | 0.03 | 0.05 |
| Umaria | 0.04 | 0.07 | 965 | 91.76 | 0.03 | 0.06 |
| Dindori | 0.07 | 0.13 | 978 | 93.03 | 0.07 | 0.12 |
| **Total M.P.** | **53.20** | **100.00** | **1052** | **100.00** | **56.01** | **100.00** |

g) **Concepts Used**:

The different concepts related to production and marketing of soybean were used and are as follows:

i. Total Variable cost: It includes total labour cost, total input cost, depreciation and interest on working capital per hectare.

ii. Labour cost: The per hectare expenses on human labour (family & hired), bullock labour and machine hours.

iii. Input cost: The per hectare expenses on material cost i.e. seed, seed treatment, micro nutrients, bio-fertilizers, fertilizer & manures, insecticides, pesticides fungicide were considered as input cost.

iv. Fixed Cost: The interest on fixed capital, imputed value of owned land were considered in the fixed capital.

v. Interest on working capital: worked out as 3 per cent per year of total variable cost for the 4 months (crop period).

vi. Interest on fixed capital: worked out as 12 per cent per year of total fixed cost for the 4 months (crop period).

vii. Depreciation: worked out as 10 per cent of the machine used in the cultivation of soybean.

viii. Imputed value of owned land: worked out as 15 per cent of the value of main product.

ix. Total Cost of Cultivation: Total Variable cost+ Total Fixed Cost.

x. Gross Income: Yield of main product X Average rate prevailing rate of Soybean grain.

xi. Net farm income at total variable Cost: Gross income – Total variable Cost.

xii. Net Farm Income at Total Cost: Gross income – Total Cost.

xiii. Input Out put Ratio at Total Variable Cost: Gross Income/Total Variable Cost.

xiv. Input Out put Ratio at Total Cost: Gross Income/Total Cost.

xv. Marketing Cost: Total market expenses incurred during the marketing of the crop produce.

xvi. Market Margins: Total margins received by the different intermarry in the marketing of soybean.

xvii. Price Spread (%): {Consumer price – (producer's price)/Consumer price} X 100.

xviii. Marketing Efficiency:

Modified measure of marketing efficiency was used for the study –

MME= {Price paid by the processor/ (Marketing Cost+ Market Margins)}-1

## 1.6 Limitation of the Study:

a) The study is confined to the state M.P. only as there was not found any emerging channel of marketing of farm produce (oilseeds, fruits and vegetables)

in the state of Chhattisgarh, as there no emerging channel was found be involved in marketing of the agricultural produce, which purchased the products directly from the producers.

b) The study was limited only to marketing of an oilseed produce i.e Soybean only. As the Government of Madhya Pradesh, Bhopal gave permission to ITC for purchasing of soybean from the soybean growers in the year 2004. In the marketing of vegetables and fruits there was found no emerging channel like ITC e-soya choupal, which was found be involved in marketing of the products directly from the producers. Hence, the study was confined to only Soybean crop.

c) It was clear during the investigation that the marketing of soybean grain stopped at the door step of the processor and none of the retailer in the study area was found to sell soybean grain to the consumers. Therefore, the processor is consider as the final consumer of the soybean grain product in this study. The maximum quantity of soybean grain was found to be converted in to soya oil and de oiled cake. There are so many products are also found to be made from soybean i.e. soya biscuit, soya floor. Soya bari, soya sauce, soya pannier, soya milk etc. Hence it is not possible to consider all these products and by-product in an ad-hoc study of 12 months only. Kulkarni and Kunnal, (2001), Tripathi (2001) and Powar N.D. (1999) also have done their research work in the same line.

d) As there was found no remarkable difference in the different size groups i.e. marginal, small, medium and large of the farmers during the classification & tabulation that. Hence, all the groups are pooled and merged in to one and there over all figures are taken in to consideration while analysis and interpretation of data.

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# CHAPTER –II

## A BACKGROUND ON AGRICULTURAL MARKET REFORMS: REGULATED MARKET AND E–SOYA CHOUPAL

This chapter deals with background information of the TMC (Regulated Market) and EMC (ITC e-choupal) of marketing of farm products performing function in the Madhya Pradesh.

### 2.1 Traditional Marketing Channel: Regulated Market:

The regulation for the sale and purchase of agricultural marketing had been taken as an important task after the independence. Prior to the independence a few number regulated markets were established. The productivity is increased significantly with the optimum use of resources and adoption of technology which ultimately forced to develop the infrastructure to cop up with the increased market surplus. Prior to 1939, there were only 57 regulated markets, later on with the passage of time and also due to increased surpluses, the number of regulated market increased to 1777 in 1974 and 7566 in the year of 2006.

**Table 2.1: Trends of Regulated markets in India**

| Period | No. of Regulated Markets |
|---|---|
| Prior to 1939 | 57* |
| End of 1940 | 73* |
| End of 1950 | 286* |
| March, 1961 | 715* |
| March, 1974 | 1777* |
| March, 1985 | 5695 |
| March, 1990 | 6217 |
| March, 2000 | 7077 |
| March, 2005 | 7521 |
| March, 2006 | 7566 |

**Source: D.M.I. Faridabad. *Represents only principal markets.**

Regulation of primary markets was taken up as an institutional innovation and construction of well laid-out market yard was considered as an essential requirement of effective implementation of the regulation programme. As the programme was a developmental-cum-legal measure, it took considerable time to extend it to a wider scale. Berar Cotton and Grain Market Law, 1897 will be long remembered as the first law which provided the basis for the regulation of markets all over the country. Till 1950 there was not any regulated market in the state. In the different States of the country have developed 2429 principal market yards and 5137 sub market yards. The maximum market yards are

890 in the State of Andhra Pradesh, followed by 684 in West Bengal, 585 in Uttar Pradesh, 516 in Madhya Pradesh, 495 in Karnataka and so on.

These regulated markets established under the Laws of respective State covers different areas. But it seems that still there is requirement of markets to be established at some places. The minimum area covered is in Pondicherry, followed by Chandigarh, Delhi, Punjab, and West Bengal. In the State of Punjab, Haryana, Jharkhand, Andhra Pradesh each market serves the population of 55582, 74236, 84092, and 85183 respectively.

In Madhya Pradesh regulatory framework for agricultural marketing is unique and consists of two distinct set of measures. One of these is development and regulation of primary markets, popularly called "Regulated Markets" and the second set is the regulation of market through a series of legal instruments.

The Government of Madhya Bharat passed the Madhya Bharat Agricultural Produce Market's Act in 1952, this was modeled mostly on the lines of Bombay Act. With the reorganization of the state in 1956, more than one Act was operative simultaneously in different regions of the state. The programme got momentum after passing of the Madhya Pradesh Agricultural Markets Act, 1960 which came in force w.e.f 15$^{th}$ October, 1960.

Further in accordance with the recommendations of the National Agriculture Commission, the **M.P. State Agricultural Marketing Board** i.e. MPSAMB (also known as Mandi Board) has come into existence w.e.f 1973 under the provisions of M.P. Krishi Upaj Mandi Adhiniyam 1972.

Presently in the state there are a total of 516 regulated markets of which 246 are main wholesale markets having elaborate infrastructure also known as Krishi Upaj Mandi and the balance 270 having lower level of infrastructure known as Sub Mandi. In addition to these there are *haat bazars* in the rural areas where farmers and other people congregate periodically to sell their farm marketable surpluses and buy their essential requirements.

The mandi board is a three tire organisation. First tire consist of **M.P. State Agricultural Marketing Board** (MPSAMB) with the office at the state capital Bhopal. The second tier of the MPSAMB structural channel is the Regional office, which have their demarcated area of operation and the Mandies situated in the said area of operation are affiliated to the Division office for administrative control. There are 7 Division Offices

in the State individually having a minimum 18 to a maximum of 45 Mandi Committees under its jurisdiction. Third tier consists of regulated markets. These are in the nature of physical and institutional infrastructure at the first contact point for farmers to en-cash their farm marketable surpluses. Mandies in the state were of A, B, C and D grade. These grades are asign to the mandies on the basis of their turn over. Out of this mandies only A grade mandis , 51 in number regularly upgraded by the organization and provide the daily rate and arrivals to the farmers through the internet on www.mpmandiboard.org.

The State has the distinction of eliminating middlemen from the process of agricultural marketing, adopting the Citizen charter to ensure right of information to the public and installing the democratically elected governing bodies in the Mandi committees.

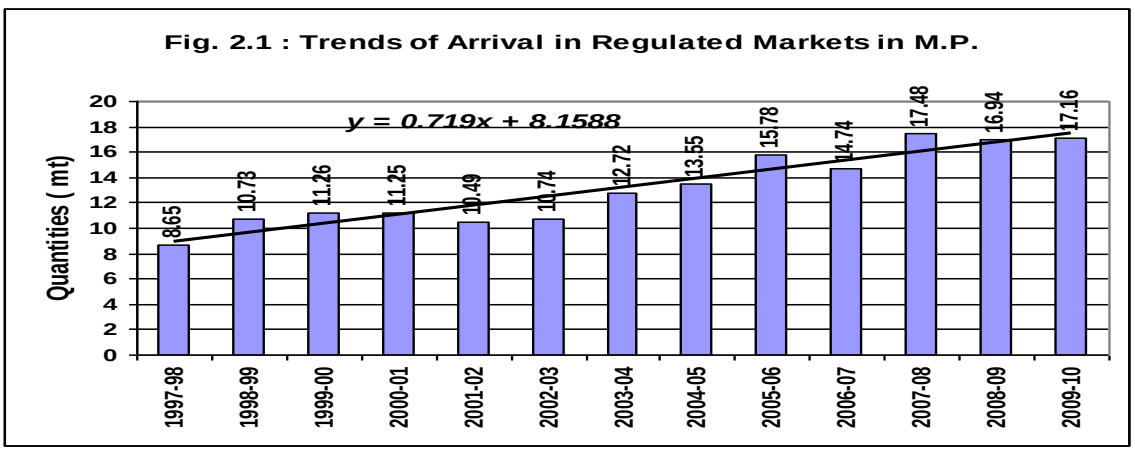
Election of the governing body of the Mandi committees are being held regularly (recently elections have been held in June 2005 ), which is an illustration of active participation of the farmers and traders in the functioning of the market yards and decentralization of administration where in governance is done of the farmers organization for and by the farmers.

**Regulated market in M.P.: A Profile**

- **Area of Operation:** Entire state of Madhya Pradesh i.e. 50 District through 246 notified Mandi Committees and its 270(notified) Sub-Mandi Committees.
- **Available Covered Godown Capacities in Mandi Committees of the State:** 0.2572 million tonnes which is under expansion to 0.100 million tonnes.

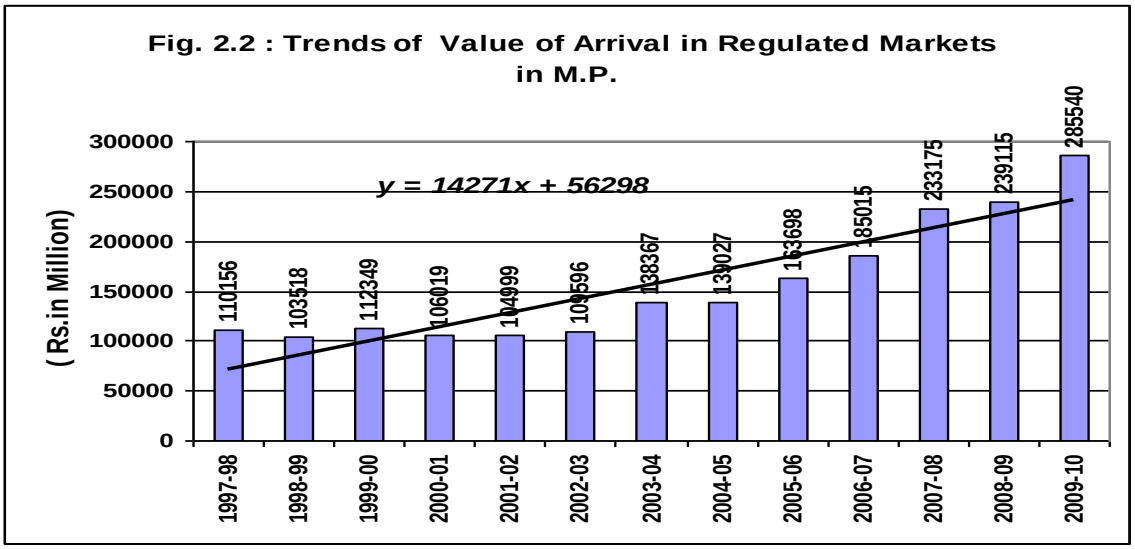
**Total Arrivals in the Mandi Committees:**

The total arrival of the production was found to be increased from 8.65 mt ( 1887-88) to 17.16 mt ( 2009-10) with an annual increased of 0.719 mt per year. (Fig. 2.1)



**Approximate value of commodities sold/purchased through Mandi Committees:**

The approximate value of total arrival was also found to be increased from Rs. 110156 million (1887-88) to Rs. 285540 million (2009-10) with an annual increased of Rs. 14271 million per year. (Fig. 2.2)




**Arrivals in the Mandi Committees arrivals : Major commodities**

**Cereals** : Wheat, Sorghum (Jowar), Maize and Paddy

**Oilseeds** : Soyabean, Mustard, Linseed

**Pulses** : Gram, Lentil (Masoor), Pigeon Pea (Tur)

Other important commodities in the arrivals are Cotton, Banana, Orange, Chilies, Forest Produce and Coriander etc.

## 2.2 ITC e-Choupal : An Energizing Market Channel

### 2.2.1 ITC The profile

ITC was incorporated on August 24, 1910 under the name Imperial Tobacco Company of India Limited. As the Company's ownership progressively Indianised, the name of the Company was changed **from Imperial Tobacco Company of India Limited to India Tobacco Company Limited in 1970** and then to **I.T.C. Limited in 1974**. In recognition of the Company's multi-business portfolio encompassing a wide range of businesses-Cigarettes & Tobacco, Hotels, Information Technology, Packaging, Paperboards & Specialty Papers, Agri-business, Foods, Lifestyle Retailing, Education & Stationery and Personal Care the full stops in the Company's name were removed effective September 18, 2001. **The Company now stands rechristened '<u>ITC Limited</u>'**.

The Company’s beginnings were humble. A leased office on Radha Bazar Lane, Kolkata, was the centre of the Company's existence. The Company celebrated its 16th birthday on August 24, 1926, by purchasing the plot of land situated at 37, Chowringhee, (now renamed J.L. Nehru Road) Kolkata, for the sum of Rs 310,000. This decision of the Company was historic in more ways than one. It was to mark the beginning of a long and eventful journey into India's future. The Company's headquarter building, 'Virginia House', which came up on that plot of land two years later, would go on to become one of Kolkata's most venerated landmarks.

- Though the first six decades of the Company's existence were primarily devoted to the growth and consolidation of the **Cigarettes and Leaf Tobacco** businesses, the Seventies witnessed the beginnings of a corporate transformation that would usher in momentous changes in the life of the Company.
- ITC's **Packaging & Printing Business** was set up in 1925 as a strategic backward integration for ITC's Cigarettes business. It is today India's most sophisticated packaging house.
- In 1975 the Company launched its **hotels business** with the acquisition of a hotel in Chennai which was rechristened **'ITC-Welcomgroup Hotel Chola'.** The objective of ITC's entry into the hotels business was rooted in the concept of creating value for the nation. ITC chose the hotels business for its potential to earn high levels of foreign exchange, create tourism infrastructure and generate large scale direct and indirect employment. Since then ITC's Hotels business has grown to occupy a position of leadership, with over 100 owned and managed properties spread across India.
- In 1979, ITC entered the **Paperboards business** by promoting ITC Bhadrachalam Paperboards Limited, which today has become the market leader in India. Bhadrachalam Paperboards amalgamated with the Company effective March 13, 2002 and became a Division of the Company, Bhadrachalam Paperboards Division. In November 2002, this division merged with the Company's Tribeni Tissues Division to form the Paperboards & Specialty Papers Division. ITC's paperboards' technology, productivity, quality and manufacturing processes are comparable to the best in the world. It has also made an immense contribution to the development of Sarapaka, an economically backward area in the state of Andhra Pradesh. It is directly involved in education, environmental protection and community development. In 2004, ITC

acquired the paperboard manufacturing facility of BILT Industrial Packaging Co. Ltd (BIPCO), near Coimbatore, Tamil Nadu. The Kovai Unit allows ITC to improve customer service with reduced lead time and a wider product range.

- In 1985, ITC set up Surya Tobacco Co. in Nepal as an Indo-Nepal and British joint venture. Since inception, its shares have been held by ITC, British American Tobacco and various independent shareholders in Nepal. In August 2002, Surya Tobacco became a subsidiary of ITC Limited and its name was changed to **Surya Nepal Private Limited** (Surya Nepal).

- In 1990, ITC acquired Tribeni Tissues Limited, a Specialty paper manufacturing company and a major supplier of tissue paper to the cigarette industry. The merged entity was named the Tribeni Tissues Division (TTD). To harness strategic and operational synergies, TTD was merged with the Bhadrachalam Paperboards Division to form the Paperboards & Specialty Papers Division in November 2002.

- Also in 1990, leveraging its agri-sourcing competency, ITC set up the **Agri Business Division** for export of agri-commodities. The Division is today one of India's largest exporters. ITC's unique and now widely acknowledged e-Choupal initiative began in 2000 with soya farmers in Madhya Pradesh. Now it extends to 10 states covering over 4 million farmers. ITC's first rural mall, christened 'Choupal Saagar' was inaugurated in August 2004 at Sehore. On the rural retail front, 24 'Choupal Saagars' are now operatonal in the 3 states of Madhya Pradesh, Maharashtra and Uttar Pradesh.

- In 2000, ITC forayed into the Greeting, Gifting and Stationery products business with the launch of Expressions range of greeting cards. A line of premium range of notebooks under brand **“Paperkraft”** was launched in 2002. To augment its offering and to reach a wider student population, the popular range of notebooks was launched under brand **“Classmate”** in 2003. **“Classmate”** over the years has grown to become **India’s largest notebook brand** and has also increased its portfolio to occupy a greater share of the school bag. Years 2007- 2009 saw the launch of Children Books, Slam Books, Geometry Boxes, Pens and Pencils under the **“Classmate”** brand. In 2008, ITC repositioned the business as the Education and Stationery Products Business and launched **India's first environment friendly premium business paper** under the **“Paperkraft”** Brand. “Paperkraft” offers a diverse portfolio in the premium executive stationery and office consumables segment. Paperkraft entered new

categories in the office consumable segment with the launch of Textliners, Permanent Ink Markers and White Board Markers in 2009.

- ITC also entered the Lifestyle Retailing business with the **Wills Sport** range of international quality relaxed wear for men and women in 2000. The Wills Lifestyle chain of exclusive stores later expanded its range to include **Wills Classic formal wear** (2002) and **Wills Club life evening wear** (2003). ITC also initiated a foray into the popular segment with its men's wear brand, **John Players**, in 2002. In 2006, Wills Lifestyle became title partner of the country's most premier fashion event - **Wills Lifestyle India Fashion Week** - that has gained recognition from buyers and retailers as the single largest B-2-B platform for the Fashion Design industry. To mark the occasion, ITC launched a special 'Celebration Series', taking the event forward to consumers.

- In 2000, ITC spun off its information technology business into a wholly owned subsidiary, **ITC Info-Tech India Limited,** to more aggressively pursue emerging opportunities in this area. Today ITC Info-Tech is one of India’s fastest growing global IT and IT-enabled services companies and has established itself as a key player in offshore outsourcing, providing outsourced IT solutions and services to leading global customers across key focus verticals - Manufacturing, BFSI (Banking, Financial Services & Insurance), CPG&R (Consumer Packaged Goods & Retail), THT (Travel, Hospitality and Transportation) and Media & Entertainment.

- ITC's foray into the Foods business is an outstanding example of successfully blending multiple internal competencies to create a new driver of business growth. It began in August 2001 with the introduction of **'Kitchens of India'** ready-to-eat Indian gourmet dishes. In 2002, ITC entered the confectionery and staples segments with the launch of the brands **mint-o** and **Candyman** confectionery and **Aashirvaad Atta** (wheat flour). 2003 witnessed the introduction of **Sunfeast** as the Company entered the biscuits segment. ITC's entered the fast growing branded snacks category with **Bingo!** in 2007. In eight years, the Foods business has grown to a significant size with over 200 differentiated products under six distinctive brands, with an enviable distribution reach, a rapidly growing market share and a solid market standing.

- In 2002, ITC's philosophy of contributing to enhancing the competitiveness of the entire value chain found yet another expression in the **Safety Matches** initiative. ITC

now markets popular safety matches brands like **Ikno, Mangaldeep, Aim, Aim Mega** and **Aim Metro.**

- ITC's foray into the marketing of **Agarbattis (incense sticks)** in 2003 marked the manifestation of its partnership with the cottage sector. ITC's popular agarbattis brands include **Spriha** and **Mangaldeep** across a range of fragrances like Rose, Jasmine, Bouquet, Sandalwood, Madhur, Sambrani and Nagchampa.

- ITC introduced **Essenza Di Wills**, an exclusive range of fine fragrances and bath & body care products for men and women in July 2005. **Inizio,** the signature range under **Essenza Di Wills** provides a comprehensive grooming regimen with distinct lines for men (**Inizio Homme**) and women (**Inizio Femme**). Continuing with its tradition of bringing world class products to Indian consumers the Company launched '**Fiama Di Wills**', a premium range of Shampoos, Shower Gels and Soaps in September, October and December 2007 respectively. The Company also launched the '**Superia**' range of Soaps and Shampoos in the mass-market segment at select markets in October 2007 and **Vivel De Wills** & **Vivel** range of soaps in February and **Vivel** range of shampoos in June 2008.

ITC is one of India's foremost private sector companies with a market capitalization of over US $ 22 billion and a turnover of US $ 6 billion.* ITC is rated among the World's Best Big Companies, Asia's 'Fab 50' and the World's Most Reputable Companies by Forbes magazine, among India's Most Respected Companies by Business World and among India's Most Valuable Companies by Business Today. ITC ranks among India's `10 Most Valuable (Company) Brands', in a study conducted by Brand Finance and published by the Economic Times. ITC also ranks among Asia's 50 best performing companies compiled by Business Week.

As one of India's most valuable and respected corporations, ITC is widely perceived to be dedicatedly nation-oriented. ITC's diversified status originates from its corporate strategy aimed at creating multiple drivers of growth anchored on its time-tested core competencies: unmatched distribution reach, superior brand-building capabilities, effective supply chain management and acknowledged service skills in hoteliering. Over time, the strategic forays into new businesses are expected to garner a significant share of these emerging high-growth markets in India.

ITC's Agri-Business is one of India's largest exporters of agricultural products. ITC is one of the country's biggest foreign exchange earners (US $ 3.2 billion in the last decade). The Company's 'e-Choupal' initiative is enabling Indian agriculture significantly enhance its competitiveness by empowering Indian farmers through the power of the Internet. This transformational strategy, which has already become the subject matter of a case study at Harvard Business School, is expected to progressively create for ITC a huge rural distribution infrastructure, significantly enhancing the Company's marketing reach.

ITC's wholly owned Information Technology subsidiary, ITC InfoTech India Ltd, provides IT services and solutions to leading global customers. ITC InfoTech has carved a niche for itself by addressing customer challenges through innovative IT solutions.

ITC's production facilities and hotels have won numerous national and international awards for quality, productivity, safety and environment management systems. ITC was the first company in India to voluntarily seek a corporate governance rating.

ITC employs over 26,000 people at more than 60 locations across India. The Company continuously endeavors to enhance its wealth generating capabilities in a globalizing environment to consistently reward more than 3,73,000 shareholders, fulfill the aspirations of its stakeholders and meet societal expectations. This over-arching vision of the company is expressively captured in its corporate positioning statement: "Enduring Value. For the nation. For the Shareholder."

ITC is a board-managed professional company, committed to creating enduring value for the shareholder and for the nation. It has a rich organisational culture rooted in its core values of respect for people and belief in empowerment. Its philosophy of all-round value creation is backed by strong corporate governance policies and systems.

ITC’s corporate strategies are :

- Create multiple drivers of growth by developing a portfolio of world class businesses that best matches organizational capability with opportunities in domestic and export markets.
- Continue to focus on the chosen portfolio of FMCG, Hotels, Paper, Paperboards & Packaging, Agri Business and Information Technology.

- Benchmark the health of each business comprehensively across the criteria of Market Standing, Profitability and Internal Vitality.
- Ensure that each of its businesses is world class and internationally competitive.
- Enhance the competitive power of the portfolio through synergies derived by blending the diverse skills and a capability residing in ITC's various businesses.
- Create distributed leadership within the organization by nurturing talented and focused top management teams for each of the businesses.
- Continuously strengthen and refine Corporate Governance processes and systems to catalyze the entrepreneurial energies of management by striking the golden balance between executive freedom and the need for effective control and accountability.

### 2.2.2 ITC e-Choupal:

Indian farmers typically buy at retail prices and sell their produce at wholesale prices, losing out on both ends of the deal. By virtually aggregating them, e-choupal brings the power of scale to the smallest of farmers. ITC ensures that there are at least two suppliers of all products sold through the e-choupal. Farmers can pool their demand, compare prices and place orders on the Net bargain and choice-two key virtues of competition-are delivered to the farmers' right on their doorstep.

When it is time to sell the produce, e-choupal helps the farmers by breaking the monopoly of local markets that are controlled by trade cartels. In most mandis, farmers are cheated at several stages-**arbitrary pricing, under-weighing, delayed payments**. Farmers lose between 10 and 30 per cent of their income to such malpractices. ITC is setting up its own purchase centers in the six states covered by e-choupals. The farmers' response has been overwhelming. In 2001-02, the company purchased 60,000 metric tonnes of crop through e-choupal. By 2003-04 the purchase increased to 2,10,000 tonnes and in four months of 2004-05, the company picked up 1,80,000 tonnes of farm produce.

For farmers it is a win-win situation. Sitting in their village, they can check the prevailing purchase price at the mandi and the ITC centre through e-choupal and sell wherever they wish to. ITC's entry into crop purchase invariably means a rise in mandi rates too, benefiting even those farmers who can't sell to ITC. In places where ITC rates aren't higher than the mandi rates, farmers are drawn to ITC centres because the company uses electronic weighing, better quality testing and ensure spot payment.

Now, farmers are used high-yielding, branded seeds bought through e-choupal. Due to this their wheat crop nearly doubled and the income from sale almost tripled. It was a result of better seeds, better herbicides and better sales prices-all achieved in a single year.

Farmers also check the price movements of soya bean on the Chicago Board of Trade from his village and in his local language. That gives him and other cultivators an idea of the future prices of soya bean in the local market. Helped by e-choupal, farmers are transiting from the world of low-knowledge, low-productivity, low-income farming to one of information-based, high-productivity, high-income agriculture.

ITC is setting up six e-choupals a day at the cost of about Rs 3 lakh per installation (Rs 2 lakh for hardware and Rs 1 lakh for pre-installation preparation). Since each e-choupal covers between five and six villages, the company is entering 30-36 new villages a day. About Rs 125 crore has so far been invested in e-choupal and the company is committed to spending Rs 1,000 crore on the initiative. It has also begun a chain of giant rural malls, with **the first one already operational in Sehore on Indore-Bhopal highway.**


**ITC's e-Choupal:** Going into overdrive

The 76-year-old ITC (once called the Imperial Tobacco Company and even now is one-third owned by British tobacco giant bat) betting so big on rural India. Just eight years ago the company was under pressure to quit agri-business and forced to sell its edible oil brand *Sundrop*. A combination of coincidence, compulsion and courage. Though ITC still gets 80 per cent of its sales and earns 70 per cent of its profits from tobacco that is set to change. Beginning 2000 the company has become aggressive on agri-business and has launched and acquired over a dozen products and brands.

The company's fast-expanding food division-with brands like Kitchens of India, *Aashirvaad, Sunfeast, Candyman and Mint-o-is* one of e-choupal's big customers. Sourcing inputs directly from farmers (instead of agents) gives it a competitive edge over its rivals in quality and cost. e-choupal is also beginning to dictate the company's product portfolio. For instance, ITC launched the Aashirvaad brand atta because it wanted to enter Uttar Pradesh to buy wheat. Aashirvaad has become one of India's largest selling atta

brands and the company is able to build a link right from farm to fork. Similarly, the company owns Wills Sport and other garment brands. It plans to enter cotton procurement which will help it forge linkages between fiber and fashion.

There is almost an endless scope for making money out of the e-choupal network which is expanding at a blistering speed. As a commercially viable way to reach 600 million villagers, it is emerging as a honey pot for companies whose distribution networks rarely reach small villages. As the owner of this unique road into rural India, ITC will charge a fee from every user company. Already ITC gets a commission from 37 companies that sell their products through the e-choupal. These products range from tractors to soaps to hair oil. "We sell our products through the e-choupal. In the long term I think it will be a success," Says Adi Godrej, chairman, the Godrej Group. By 2010 the turnover of the e-choupals is likely to log as much as the current turnover of ITC's tobacco division: over Rs 9,000 crore.

Not to be underestimated is the positive spin-off of doing business while simultaneously doing social good-so critical for a company in the business of tobacco which is globally under fire as a dirty business. ITC is now propounding a concept of "triple bottom line": measuring a company's performance on the use of economic capital, environment capital and social capital. But even though it is way ahead of others in the speed and spread of its e-choupal, the company needs to watch out for the big and the mighty of the corporate world that are rolling out their rural ventures, some of which have longer experience in agri-business than ITC has (see "New Deal for Rural India"). e-choupal's speed and spread have also created resentment among mandi functionaries in Madhya Pradesh who perceive ITC's participation as interference on their turf.

In many ways typical of millions of farmers across India whose faces reflect not just the hard work they put in to till their land amid difficult conditions, that's always a way of life with them, Rakesh Patidar and Rajesh Nigodia are middle-class farmers with incomes that could easily help them lead a comfortable life by rural standards. However, still, like many of their ilk in the rest of the country, these two farmers do not lead a normal life. Thanks to years of government apathy, corruption, and half-baked development projects, life is not easy in Tumda village in Bhopal district of Madhya Pradesh where Rakesh lives, nor Badi Mungali in Sehore district of the state where Rajesh lives. Even though not very far from the state capital Bhopal, these two villages seem to be medieval in their existence. They have no access roads worth the name nor do they get

proper power supply. They have no access to a good health or education system. This is the state of affairs despite the billions of rupees that the Indian government earmarks every year for farmers across India.

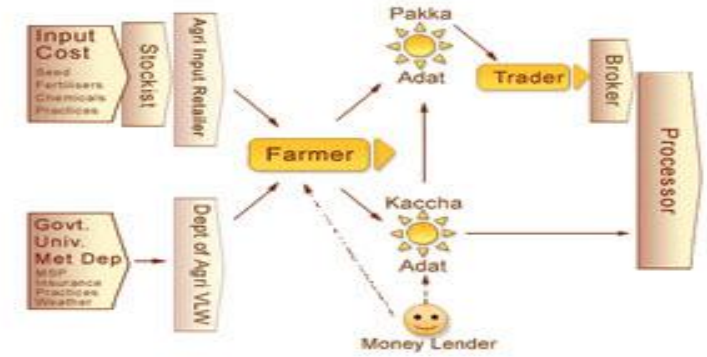
**Not only does e-Choupal allow farmers to check both futures' prices across the globe and local prices as well, but it also provides them access to local weather conditions, new farming techniques and the like**

The thousands of other farmers in Madhya Pradesh have found a very unlikely savior in the Internet. Unlikely, because Internet or for that matter anything similar to it was much beyond their imagination until ITC came up with the concept of e-Choupal. Relying on the power of the Internet to deliver customized and localized information, ITC, one of India's leading diversified conglomerates, is in many ways transforming the lives of thousands of farmers across the state. While for ITC e-Choupal makes good business sense, helping it beat competition in procuring tons of valuable soybean, for the farmers e-Choupal is about informed decision making. Not only does e-Choupal allow the farmers to check both futures prices across the globe and local prices before they sell their produce in the market, it also provides them access to local weather conditions, soil testing, and new farming techniques and other expert knowledge like proper use of pesticides and insecticides that are crucial for increasing productivity.

The farmers now not only get a better prices for their produce, but also produce more soybean than what they used to earlier with the practiced scientific farming techniques all this is gradually changing now as farmers are more aware of what is right and what is wrong.

The around 1,700 sanchalaks, (a name given by ITC to those in charge of an equal number of e-choupals) are now in working in the villages of M.P. The focal point of the e-Choupal is the interactive website *www.echoupal.com* or *www.soyachoupal.com,* which contains information on local weather, farming techniques, soil examination, and market news. Besides, the website also contains information on government projects. Moreover, the websites also contain email facility that the farmers can use to send email to anybody

in the world. In Madhya Pradesh, sanchalaks have been using e-mail to network among themselves and share information.




**Understanding the village economy**

What is also interesting is that villagers are beginning to use their newfound access to Internet to look for other information as well. In many villages of Madhya Pradesh it is now common for villagers to look for examination results on Internet. Many of the farmers this writer spoke to in Tumda and Badi Mungali said that use of Internet has helped them get better prices for their produce and also to know and understand better farming techniques.

A cursory look at the e-Choupal model would lead one to believe that there is nothing great about it-there is one e-Choupal for every 30–40 villages, each e-Choupal is equipped with a PC connected to the Internet via a VSAT, a printer, specially designed UPS for power backup, and is managed by one sanchalak (coordinator) who has been imparted some basic skills for using the Internet. But what ITC has done by way of e-Choupal is innovative and challenging too. It has been challenging because ITC had to build up the entire network despite severe infrastructural problems with power supply, telecom connectivity and bandwidth, and inaccessible roads. More challenging has been the task of imparting Internet skills to farmers who had never seen a computer before and then building a relationship of trust with them. In many ways, ITC has overcome these challenges through effort and innovation. Many more still remain to be overcome.

Two factors which have made it easy for the sanchalaks to use the Internet is use of Hindi on the website and very user-friendly keyboards. Together, both make the computer appear very friendly to the users. In fact, the localization and customization of the information provided on the website and its close relationship with the daily activities of the farmers has been the key to project's success in Madhya Pradesh.

e-Choupal is by far the biggest Internet-based interventions in rural India and quite successful too. According to ITC, e-Choupal services today reach out to more than two million farmers cultivating a range of crops-soybean, coffee, wheat, rice, pulses, shrimp-in over 21,000 villages through 4,100 kiosks across six states (Madhya Pradesh, Karnataka, Andhra Pradesh, Uttar Pradesh, Maharashtra, and Rajasthan). and the network is growing every day.

### 2.2.3 e-Choupal Ver. 2.0

Rural India meet hypermarket. ITC's Choupal Saagar, the second layer of its e-choupal initiative, recently opened its first rural hypermarket in Sehore in Madhya Pradesh. Apart from buying and selling agricultural commodities, it provides farmers with training in agricultural best practices. "We invite leading agricultural scientists for lecture-demonstration sessions on water management, cropping patterns and other farming practices," says S. Sivakumar, Chief of Agri Business, ITC, adding: "We also offer medical facilities at these multi-utility service centre's." The Choupal Saagar will also sell FMCGs, white goods, and even mobile phones and SIM cards. ITC is expanding these facilities fast. The target for this fiscal: 30. Over the next seven to 10 years, the count could touch 700, and once in place will add Rs 5,000-7,000 crore to ITC's topline. Wal-Mart, eat your heart out.

## 2.3 Comparative Features of Traditional and Emerging Market Channels:

The comparative features of traditional (regulated) and emerging (ITC e- Choupal) market channels are presented in table 2.2

## Table 2.2: Comparative Features of Traditional and Emerging Market Channels

| Features | TMC( Regulated Market ) | EMC ( ITC e-Choupal) |
|---|---|---|
| A. Differences | | |
| 1. Information Technology | Not Available | The information regarding on the market price, weather, and on scientific knowledge of epidemic and improved farm practices are ready to available at village level from the internet Kiosks managed by a farmer called *Sanchalak* . |
| 2. Hyper Market | Not Available | There is a facility to the farmer, Who came to sold his produce in the e- Choupal that he could purchased quality inputs and consumable good in the *Hyper Market* called *Saagar Chuopal* established in the market yard. Inputs are available not only at fair prices but also emended with knowledge. |
| 3. Extension Activities | Extension activities are done by the Agriculture Department of the Government of Madhya Pradesh | Performed extension activities like demonstrations, field days etc. at farmers' fields. Also engaged in other developmental programme for the welfare of the rural community. |
| 4. Grading & Standardization | Not Available | Produce of the farmers only be purchased at the standard norms fixed or defined by the ITC-e-choupal. |
| 5. Warehousing Facilities | Available to the farmers | Not available |
| 6. Action | Produce of the farmer will be purchased by action and supervised by the mandi committee | Not Available |
| 7. Price Risk Coverage | No coverage | Price of the product was declared by the organization one day before at the village level. Next day if the rates are higher than the declared rate in the regulated market. Farmers are also benefited with the maximum prevailing rate of the produce at the time of selling of his produce. |
| 8. Computerized weighing | Computerized weighing is now also available at the regulated markets but the whole sellers are not faith on it. They weigh the produce on their owned weighing machine. | Weighing are fully computerized. |
| 9. Soil Testing Facilities | Available by the Soil Testing Labs. established by the Department of Agriculture but not available at the market yard. | Paid facilities available at market yard |
| 10. ATM & banking Facilities | Available | Only ATM facilities is available |
| 12. Stay at Night | Facility to stay at night at *rainbasera* is available to the farmers. | Not available |
| 13. Taxation and Fees | Authorized Fee and Taxation are prevailed in the regulated market | No Taxation and Fees |
| B. Similarities | | |
| Well layout Market Yard, Canteen, Parking, Drinking Water etc. | Available | Available |

*****

# CHAPTER –III

## PROFILE OF THE STUDY AREA & SELECTED CROP

The chapter deals with the study area i.e. Madhya Pradesh, Sehore District and Sehore block where this study has been conducted. The information regarding the selected crop i.e. Soybean was also considered in this chapter.

### 3.1 Study Area: Madhya Pradesh:

Madhya Pradesh, in its present form, came into existence on November 1, 2000 following its bifurcation to create a new state of Chhattisgarh. The undivided Madhya Pradesh was founded on November 1, 1956. Madhya Pradesh because of its central location in India, has remained a crucible of historical currents from North, South, East and West.

Madhya Pradesh is situated in the heart of India between latitudes $21^0$53' to $22^0$53' North and longitude $77^0$47' to $78^0$44' East. It is the second largest state after Rajasthan of Indian Union with a total geographical area of 307.56 thousand square Kilometers. In terms of population (6, 0348023) it occupies $5^{th}$ position in India (2001). It has 10 commissionaire division (Chambal, Gwalior, Bhopal, Ujjain, Indore, Sagar, Rewa, Jabalpur, Hoshangabad and Shahdol) divided into 50 districts, 272 tehsil, 313 block & 370 towns and 76,468 villages. (Table 3.1) It is abundantly rich in minerals and bio resources. With 27% of land area under forests, it supports a wide variety of animal and plant life. The state has a rich history, culture and crafts.

**Table 3.1: Location of Madhya Pradesh**

| S. No. | Particulars | |
|---|---|---|
| 1 | Latitude | 21° 53` to22° 59`N |
| 2 | Longitude | 76°47` to 78°44` E |
| 3 | Height from see means level | 50-1200 |
| 4 | No of districts | 50 |
| 5 | Number of Tehsils | 272 |
| 6 | Number of Blocks | 313 |
| 7 | Number of Villages | 55393 |
| 8 | No. of Gram Panchayat | 22029 |
| 9 | No. of electrified Villages | 50474 |
| 10 | Percentage of electrified villages to total Villages | 100 |

The Physiography of the state exhibits a great deal of diversity with areas ranging from less than 50 meter above mean sea level to more than 1200 meter. The state falls under the catchments of Jamuna, Ganga, Narmada, Mahanadi and Godavari. On the basis of broad land features, the state could be classified in 5 physiographic regions and 11 agro-climatic zones (Table 3.2)

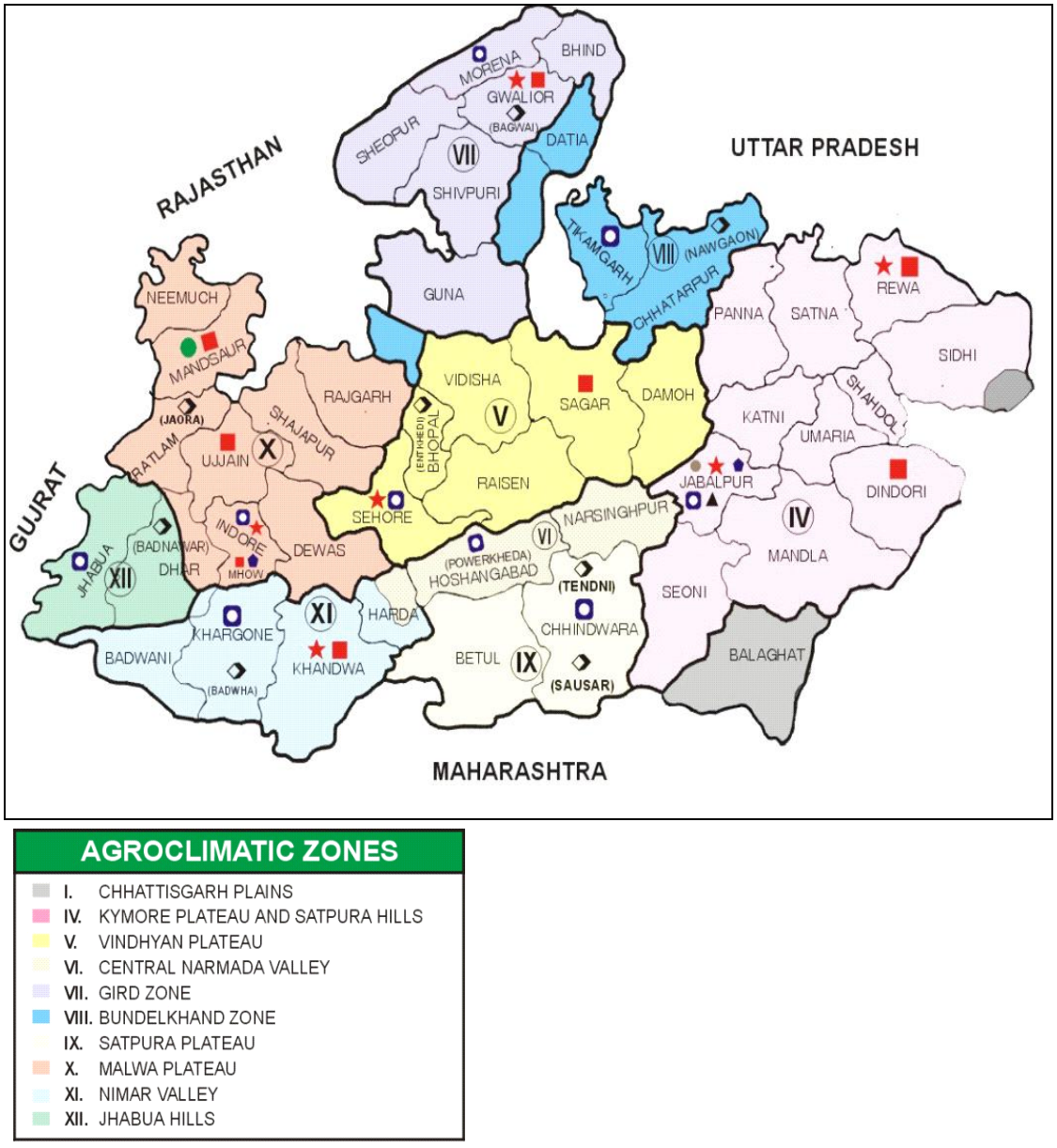
1. Northern low lying plains comprising Gwalior, Bhind and Morena districts and extend to Bundelkhand up to the west of Panna range and excludes certain parts of Rewa district between Panna and Kaymore hills of Baghelkhand.

2. The Malwa and Vindhyan Plateau comprises of Vidisha, Shivpuri, Datia, Guna, Morena, Ujjain and Mandsour districts and parts of Sehore, Raisen and Dewas districts. It consists of large undulating plains of black cotton soil dotted with flat-topped hills. It has also hilly Vindhyan Plateau situated it the north of Narmada Valley and to the south of the low-lying regions of Bundelkhand and Baghelkhand. It spared from east of Malwa plateau to Maikal and Dorea hills Satpura range.

3. The Narmada Valley stretching from Jabalpur in the east up to Barwani district in the west. It is nearly 560 Km long and 48 Km wide and is walled on the north by the Vindhyan range and on the south by Satpura range. It covers the districts of Jabalpur, Nasinghpur, Hoshangabad, Khandwa, Khargone, Barwani, Dhar, and some parts of Raisen, Sehore, and Dewas districts.

4. The Satpura range runs from west to east for about 640 Km through Khandwa, Betul, Chhindwara, Seoni, Mandla, Bilaspur and Sarguja districts. Its northern spurs go into Hoshangabad and Nasinghpur districts and in the south an extensive spur of 160 Km covers entire Balaghat districts.

5. Madhya Pradesh also covers Balaghat and Shahdol district of Chhatisgarh Plains and Northern Hills of Chhatisgarh zone respectively.




**AGROCLIMATIC ZONES**

- I. CHHATTISGARH PLAINS
- IV. KYMORE PLATEAU AND SATPURA HILLS
- V. VINDHYAN PLATEAU
- VI. CENTRAL NARMADA VALLEY
- VII. GIRD ZONE
- VIII. BUNDELKHAND ZONE
- IX. SATPURA PLATEAU
- X. MALWA PLATEAU
- XI. NIMAR VALLEY
- XII. JHABUA HILLS

**Fig. 3.1: Agro-Climatic Zones of Madhya Pradesh**

**Table-3.2: Agro-Climatic Regions and covered Districts /Tehsils in Madhya Pradesh**

(Area in Lakh ha)

| Agro-Climatic Regions | Districts /Tehsils | Geogra-phical Area | Percent to Geographical Area |
|---|---|---|---|
| **1.Malwa Plateau** | Indore, Dhar, (Dhar, Badnawar, Sardarpur tehsils) Shajapur, Mandsour, Nimuch, Ratlam, Ujjain, Dewas Rajgarh districts and Petlawad tehsil of Jhabua district | 51.47 | 16.74 |
| **2.Vindhyan Plateau** | Bhopal, Vidisha, Sehore (Sehore, Ashta, Ichhawar, Narsullaganj tehsils) Raisen (Raisen, Gairatganj, Begamganj, Silwani, Goharganj, Udaipura tehsils), Damoh, Guna (Chachora & Raghogarh tehsils) & Sagar districts | 42.59 | 13.85 |
| **3.Central Narmada Valley** | Hoshangabad (Seoni-Malwa, Hoshangabad, Sohagpur tehsils), Harda, Nasinghpur districts, Budhani and Barelli tehsil of Sehore and Raisen districts respectively | 17.45 | 5.67 |
| **4.Satpura Plateau** | Betul, Chhindwara districts | 21.93 | 7.13 |
| **5.Jhabua Hills** | Jhabua, Jobat, Alirajpur tehsils of Jhabua district & kukshi tehsil of Dhar district | 6.88 | 2.24 |
| **6.Gird Region** | Gwalior, Bhind, Morena, Shivpur-Kalan, Guna (Mungawali and Ashoknagar tehsils), Shivpuri (Shivpuri, Kalaras, Pohari tehsils) | 31.85 | 10.36 |
| **7. Kymore Plateau** | Jabalpur, Katni, Rewa, Panna, Satana, Sidhi, Seoni and Gopadbana & Deosar tehsils of Sidhi district. | 49.97 | 16.25 |
| **8.Bundel Khand Region** | Tikamgarh, Chhatarpur, Datia districts, Karela, Pachore tehsil of Shivpuri and Guna tehsil of Guna district | 22.82 | 7.42 |
| **9.Nimar Valley** | Khandwa, Khargone, Barwani district, Manawar tehsil of Dhar district and Harda district | 25.17 | 8.18 |
| **10.Northern Hills of Chhattisgarh** | Shahdol, Umariya Mandla, Dindori district & Singrauli tehsil of Sidhi district | 28.17 | 9.16 |
| **11.Chhattisgarh Plain** | Balaghat district | 9.25 | 3.00 |
| **Madhya Pradesh** | | 307.55 | 100.00 |

The main soil types found in Madhya Pradesh are alluvial, deep black, medium black shallow black, mixed red and black, mixed red and yellow and skeletal soils. (Table 3.3)

**Table 3.3: Soil types and districts covered in Madhya Pradesh.**

| Types of Soil | Districts covered |
|---|---|
| **Alluvial Soil** | Bhind, Morena and Gwalior |
| **Deep Black Soil** | Hoshangabad and Nasinghpur |
| **Medium Black Soil** | Jabalpur, Sagar, Vidisha, Sehore, Damoh, Guna, Bhopal, Raisen, Rajgarh, Indore, Dewas, Ujjain, Mandsour, Shajapur, Ratlam, Dhar, Khargone and Khandwa |
| **Shallow Black Soil** | Betul, Chhindwara and Seoni |
| **Red & Black Soil** | Shivpuri, Rewa, Satna, Panna, Sidhi, Chhaterpur, Tikamgarh, Datia and some parts of Guna district. |
| **Red & Yellow Soil** | Balaghat. |
| **Gravelly Soil** | Mandla. |

The climate of Madhya Pradesh by virtue of its location is predominately moist sub humid to dry sub humid, semi arid to dry sub-humid and semi arid in east, west and central plateau and hills respectively, according to agro-climatic regions of India. The seasons in Madhya Pradesh are as given below:

**Table 3.4: Seasons and their periods in Madhya Pradesh.**

| Seasons | Period | |
|---|---|---|
| | **From** | **To** |
| **Rainy** | June | September |
| **Post Monsoon** | October | November |
| **Winter** | December | February |
| **Summer** | March | May |

The annual rainfall received in the state varies from 800 mm. in the northern and western regions to 1600 mm in the eastern districts. In some years rainfall goes much below to the normal. Most of rainfall is received in the Monsoon season from June to September and about 10 per cent of the rainfall is received in the remaining part of the year.

The maximum temperature during extreme summer reaches as high as $47^0$C and the minimum during winter dips up to $5^0$C. The maximum normal temperature varies between 25 and $35^0$C and minimum normal between $10^0$ to $20^0$C.The relative humidity ranges from 40 to 70 % throughout the year.

According to 2001 census the population of the state was 60348023 comprises of 52.10% of male and 47.90% female. Over 1000 male there were only 927 females. State had a rural background as the 73.54% of total population lives in villages and rest 26.46% in urban areas. The percentage of literacy was found only 64.11% with male female ratio of 1:1. Madhya Pradesh comes under tribal area 20.27% of total population were belongs to scheduled tribes. The percentage or worker was 42.68% of total population, while 57.16% of total population belongs to non worker category. 31.16% population classified order main worker category, while, only 18.32% were falls in farmers. (Table 3.5)

**Table 3.5: Population parameters of Madhya Pradesh (Census 2001)**

| S. No. | Particulars | Population | Percentage to total |
|---|---|---|---|
| 1 | Total Population | 60348023 | 100 |
| A | Male | 31443852 | 52.10 |
| B | Female | 28904371 | 47.90 |
| 2 | Sex ratio | 927 | |
| 3 | Rural Population | 44380878 | 73.54 |
| 4 | Urban Population | 15967145 | 26.46 |
| 5 | Population of Schedule Caste | 9155177 | 15.17 |
| 6 | Population of Schedule Tribes | 12233474 | 20.27 |
| 7 | Number of Literate persons | 38689103 | 64.11 |
| 8 | Number of Farmers | 11058500 | 18.32 |
| 9 | Agriculture Labour | 7380878 | 12.23 |
| 10 | Home Industry | 1010067 | 1.67 |
| 11 | Other Workers | 6307040 | 10.45 |
| 12 | Total Main Workers | 19077568 | 31.61 |
| 13 | Marginal Workers | 6678917 | 11.07 |
| 14 | Total Workers | 25756485 | 42.68 |
| 15 | Non Workers | 34496254 | 57.16 |

The total geographical area of the State is 307.56 lakh ha. in which 49.01% land was found to be under cultivation (Table 3.6) and 11.02 per cent land not available for cultivation. The 4.42 per cent of total land was classified under culturable waste land, while 3.38% of total is in fallow land. The cropping intensity of the state was found to be 130.76 per cent.

**Table 3.6: Land use Classification of Madhya Pradesh. (Lakh ha)**

| S.No. | Particulars | Area | Percentage to Geographical Area |
|---|---|---|---|
| 1 | Geographical Area | 307.56 | 100 |
| 2 | Forest | 85.89 | 27.93 |
| 3 | Area not available for cultivation | 33.89 | 11.02 |
| 4 | Other non agricultural land (excluding fallow land) | 13.58 | 4.42 |
| 5 | Culturable Waste lands | 11.61 | 3.77 |
| 6 | Fallow land | 11.85 | *3.85* |
| 7 | Net area sown | 150.74 | 49.01 |
| 8 | Double cropped Area | 46.37 | |
| 9 | Gross Area sown | 197.11 | |
| **10** | **Cropping Intensity (%)** | **130.76** | |

Wells (39.93%), tube-wells (25.42%), canals (18.31%) and tanks (2.35%) are found the major sources of irrigation in M.P. The state had 5681 thousand ha. area under irrigation. (Table 3.7)

**Table 3.7 Irrigation Status of Madhya Pradesh.**

| S. No. | Source | Net Irrigated Area | Percentage to total | Gross Irrigated Area | Percentage to total |
|---|---|---|---|---|---|
| 1 | Canal | 1030 | 18.13 | 1076 | 18.31 |
| 2 | Tanks | 134 | 2.36 | 138 | 2.35 |
| 3 | Tube-well | 1449 | 25.51 | 1494 | 25.42 |
| 4 | Well | 2246 | 39.54 | 2347 | 39.93 |
| 5 | Others | 822 | 14.46 | 823 | 14.00 |
| 6 | Total | 5681 | 100.00 | 5878 | 100.00 |

Madhya Pradesh have rich diversity and occupied nearly all the cereals (37%), pulses (21 %), oilseeds (29%) fibers (3%), fruits and vegetables (1%), spices(1%), sugarcane (4%) and Fodder ( 3%) in its total food and non food basket (i.e. 19,710 thousand ha.) (Fig. 3.2)

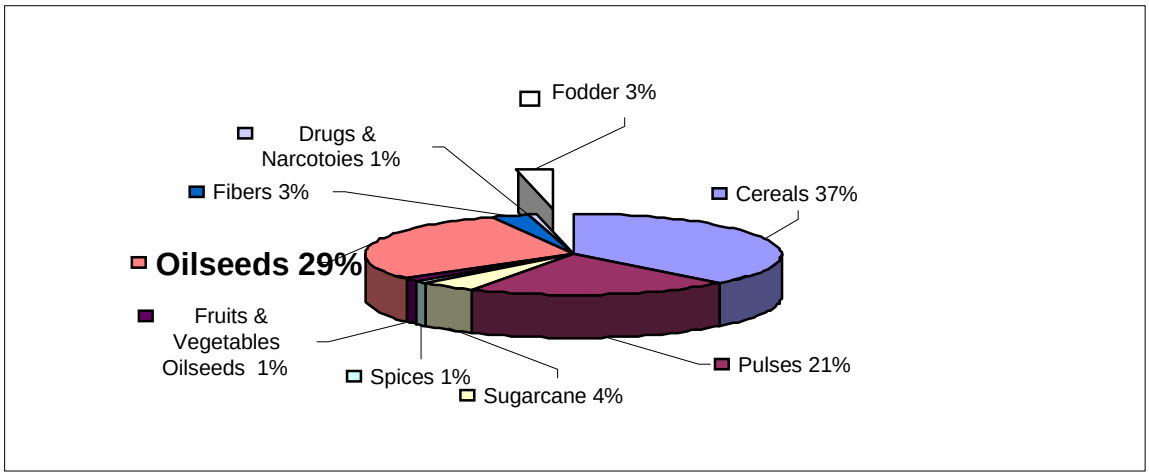



**Fig 3.2: Share of Fodder in Gross Cropped Area (21.05 lakh ha) in M.P.**

The wheat, paddy, jowar, maize are found the main cereals (7555 thousand ha.) crops of the state. The chickpea, tur, lentil, peas, are the main pulse crop of the state. Madhya Pradesh known for soybean production, about 55% of total area of the country exists in the state. Apart from soybean, seasamum, linseed, groundnut, mustard and rape seed are the other oilseeds grown by the majority cultivators in the state.

## 3.2 SELECTED DISTRICT & BLOCK : SEHORE

Sehore is a city and a municipality in Sehore district in the Indian state of Madhya Pradesh. It is district head quarters of Sehore district and is located on the Bhopal -Indore highway, 37 km away from Bhopal. Some inscription on rocks discovered in the vicinity of modern Sehore it's name as *Sidhapur* and *Sidrapur*. The location Sehore in the foothills of the Vindhyachal Mountains lends credence to this belief. It's height from the sea level is 1500 ft to 2000 ft. Sehore is situated on the western railway line from Bhopal to Ratlam. Sehore is surrounded by six districts Bhopal, Raisen, Hoshangabad, Dewas, Shajapur and Rajgarh. (Fig. 3.2) Sehore district extends between the parallels of latitude $22^{o}31$ to $23^{o}40$ north and between meridians of longitude $76^{o}22$ and $78^{o}08$ east. (Table 3.8)

Sehore's most famous places are the ancient *Ganesh Temple* (it is believed to be constructed in the 16th century by the *Maratha dynasty*), the Crescent Resort and Water Park, Lisa Cinema, Bhopal Sugar Industries, *Lal masjid* and the RAK Agriculture College. The fertile black soil of Sehore also produces World's best quality Wheat (*Sharbati* variety) for which many processed food companies queue up to buy during the harvest season. Sehore is also the birth place of a Cricketer Faisal Mohammad Khan ,

who represented BU in more than one occasion. He is very versatile cricketer have great fan following in Sehore.

**Table 3.8: Location of Sehore district.**

| S.No. | Particulars | Figures |
|---|---|---|
| 1 | Geographical area(sq.km.) | 656368 |
| 2 | Height from mean sea level (m) | 457.19 |
| 3 | North longitude | $22^0$31to$23^0$40 |
| 4 | East latitude | $76^0$22to$78^0$88 |
| 5 | Number of tehsils | 5 |
| 6 | Number of blocks | 5 |
| 7 | Number of villages | 1076 |
| 8 | Number of gram- panchayat | 658 |
| 9 | Number of electrified villages | 1007 |
| 10 | Percentage of electrified villages to total villages | 93.58 |

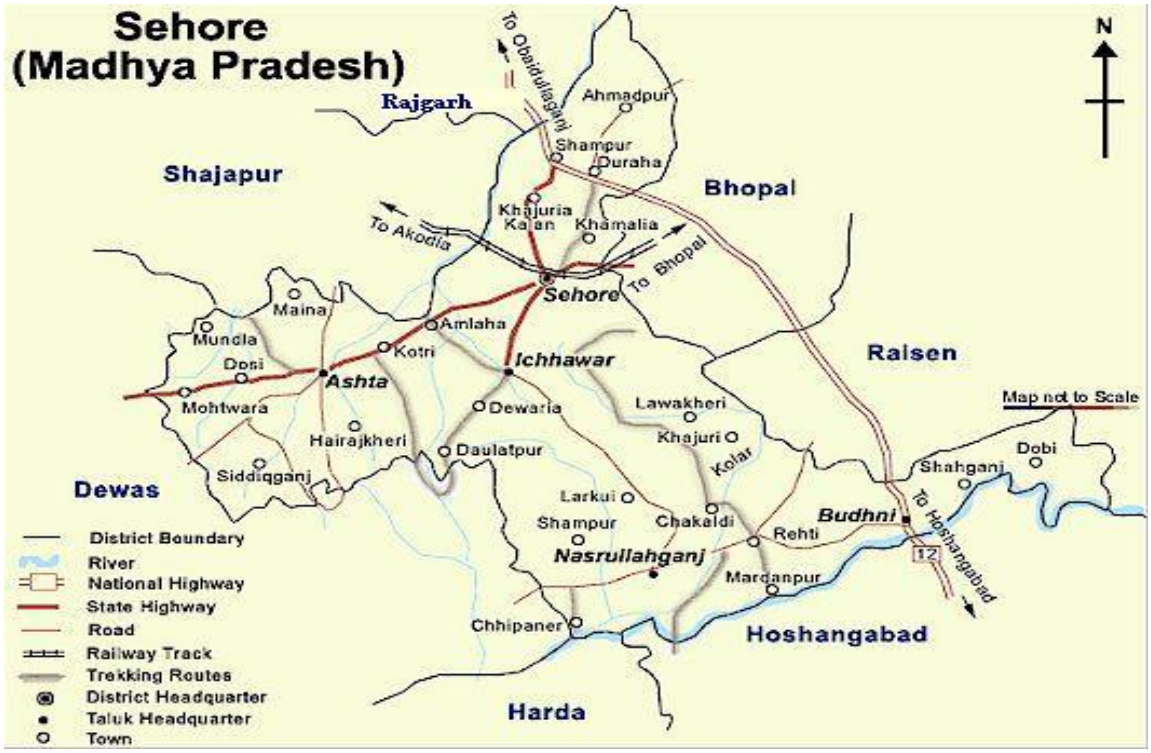



**Fig 3.3 : Map of Sehore district of Madhya Pradesh**

As of 2001 India census Sehore had a population of 90,930. Males constitute 52% of the population and females 48%. Sehore has an average literacy rate of 68%, higher than the national average of 59.5%: male literacy is 75%, and female literacy is 61%. In Sehore, 14% of the population is under 6 years of age.

**Table 3.9: Population parameter of Sehore district**.

| S.No. | Particulars | Numbers | Percentage to total |
|---|---|---|---|
| 1 | Total population | 1078912 | 100 |
| A | Male | 565137 | 52.38 |
| B | Female | 513775 | 47.61 |
| 2 | Sex ratio per thousand male | | |
| 3 | Rural population | 885172 | 82.04 |
| A | Male | 463139 | 42.92 |
| B | Female | 422033 | 39.11 |
| 4 | Urban population | 193740 | 17.95 |
| A | Male | 101998 | 9.45 |
| B | Female | 91742 | 8.50 |
| 5 | Population of schedule caste | 221077 | 20.49 |
| A | Male | 115754 | 10.72 |
| B | Female | 105323 | 9.76 |
| 6 | Population of schedule tribes | 116122 | 10.76 |
| A | Male | 59751 | 5.53 |
| B | Female | 56371 | 5.22 |
| 7 | Number of literate persons | 607953 | |
| 8 | Number of farmers | 164367 | 15.23 |
| A | Male | 119950 | 11.11 |
| B | Female | 44417 | 4.11 |
| 9 | Agriculture labour | 70630 | 6.54 |
| A | Male | 48383 | 4.48 |
| B | Female | 22247 | 2.06 |
| 10 | Home industry | 5407 | 0.05 |
| A | Male | 4371 | 0.04 |
| B | Female | 1036 | 0.09 |
| 11 | Other workers | 68029 | 6.30 |
| A | Male | 60749 | **5.63** |
| B | Female | 7280 | 0.67 |
| 12 | Total main workers | 308433 | 28.58 |
| A | Male | 233453 | 21.63 |
| B | Female | 74 980 | 6.94 |
| 13 | Marginal workers | 143009 | 13.25 |
| A | Male | 42598 | 3.94 |
| B | Female | 100411 | 9.30 |
| 14 | Total workers | 451442 | 41.84 |
| A | Male | 276051 | 25.58 |
| B | Female | 175391 | 16.25 |
| 15 | None workers | 627470 | 58.15 |
| A | Male | 289086 | 26.79 |
| B | Female | 338384 | 31.36 |

The total geographical area of the Sehore district was 656368 ha. out of which 26.32% of the total land was found under forest area . The 58.84%of land was comes under net sown area, while only 7.04% of land was comes under non agriculture uses. The cropping intensity of the district was found to be 162.81%.

**Table 3.10: Land use classification of Sehore district. (ha.)**

| S.No. | Particulars | Area | Percentage to geographical area |
|---|---|---|---|
| 1 | Geographical area | 656368 | 100 |
| 2 | Area under forest | 172776 | 26.32 |
| 3 | Area not available for cultivation | 46233 | 7.04 |
| 4 | Area under other none agricultural land (excluding fallow land) | 31287 | 4.76 |
| 5 | Area under cultivable waste land | 12159 | 1.85 |
| 6 | fallow land | 7668 | 1.16 |
| 7 | Net area sown | 386245 | 58.84 |
| 8 | Double cropped area | 242624 | |
| 9 | Gross area sown | 628869 | |
| 10 | Cropping intensity (%) | 162.81 | |

The total geographical area of the Sehore block was 158208 ha. out of which 7.99% of the total land was found under forest area . The 73.89% of land was comes under net sown area, while only 9.81% of land was comes under non agriculture uses. The cropping intensity of the block was found to be 171.44%.

**Table3.11 : Land use classification of Sehore block of Sehore district. (ha.)**

| S.No. | Particulars | Area | Percentage to geographical area |
|---|---|---|---|
| 1 | Geographical area | 158208 | 100 |
| 2 | Area under forest | 12643 | 7.99 |
| 3 | Area not available for cultivation | 15536 | 9.81 |
| 4 | Area under other none agricultural land (excluding fallow land) | 8597 | 5.43 |
| 5 | Area under cultivable waste land | 2876 | 1.81 |
| 6 | fallow land | 1647 | 1.04 |
| 7 | Net area sown | 116909 | 73.89 |
| 8 | Double cropped area | 83530 | |
| 9 | Gross area sown | 200439 | |
| 10 | Cropping intensity (%) | 171.44 | |

The Sehore district had 49.16% of net irrigated area to net cultivated area. In which 32.30%, 44.60% and 2.85% area was found to be irrigated though tube well, well and tanks respectively. The total net irrigated area by all resources was 189901ha. out of which 32.23% was irrigated by tube well ,canals and tanks respectively.

**Table 3.12: Irrigation status of Sehore district. (ha.)**

| S.No. | Particulars | Number | Area | Percentage to geographical area |
|---|---|---|---|---|
| 1 | Canal govt./ private | 94 | 38417 | 20.23 |
| 2 | Tube well | 21652 | 61357 | 32.30 |
| 3 | Well | 35517 | 84704 | 44.60 |
| 4 | Tank | 64 | 5423 | 2.85 |
| 5 | Other sources | - | - | - |
| 6 | Net irrigated area by all sources | - | 189901 | 100.00 |
| 7 | % of net irrigated area to net cultivated area | | 49.16 | |

The Sehore block had 50.90% of net irrigated area to net cultivated area. The 43.74%, 50.92% and 3.24% was found to be irrigated though tube well, well and tanks respectively. The total net irrigated area by all resources was 59514 ha. out of which 43.74% was irrigated by tube well ,canals and tanks respectively.

**Table 3.13 : Irrigation status Sehore block of Sehore district. (ha.)**

| S.No. | Particulars | Number | Area | Percentage to geographical area |
|---|---|---|---|---|
| 1 | Canal govt./ private | 9 | 1244 | 2.09 |
| 2 | Tube well | 10100 | 26033 | 43.74 |
| 3 | Well | 12921 | 30306 | 50.92 |
| 4 | Tank | 17 | 1931 | 3.24 |
| 5 | Other sources | - | - | - |
| 6 | Net irrigated area by all sources | - | 59514 | 100.00 |
| 7 | % of net irrigated area to net cultivated area | | 41.35 | |

Sehore district had 628869 ha. of land under total food and non food crops. Out of total food grain (49.31%) possesses the highest area. The district is pre-dominantly oilseed growing district, contributed 45.07% area to total food and non food crops. The highest area apart from oilseeds, pulses and cereals contributed 20.73% and 27.73% area respectively to total food and non food crops. In cereals, wheat (24.33%) had occupied maximum area under cultivation followed maize (2.27%), jowar (0.36%) and paddy (0.73%). soybean an oilseed crops also grown in kharif season by the cultivators, contributing 44.93% to total food and non food crops. In non food crops only fodder (5.58%)was found to be grown by the cultivators (Table 3.14).

**Table 3.14: Cropping pattern of Sehore district. (ha.)**

| S.No. | Crops | Area | Percentage to total |
|---|---|---|---|
| 1 | Wheat | 153062 | 24.33 |
| 2 | Paddy | 4645 | 0.73 |
| 3 | Jowar | 2311 | 0.36 |
| 4 | Maize | 14335 | 2.27 |
| 5 | Other cereals | 76 | 0.01 |
| **A** | **Total cereals** | **174429** | **27.73** |
| 6 | Chickpea | 116087 | 18.45 |
| 7 | Pigeon pea | 5586 | 0.88 |
| 8 | Black gram | 760 | 0.12 |
| 9 | Other pulses | 5551 | 0.88 |
| **B** | **Total pulses** | **127984** | **20.35** |
| 10 | Sugarcane | 2245 | 0.35 |
| 11 | Total fruits | 76 | 0.01 |
| 12 | Total vegetables | 2562 | 0.40 |
| 13 | Total spices | 2813 | 0.44 |
| **C** | **Total food grain** | **310109** | **49.31** |
| 14 | Cotton | 93 | 0.01 |
| 15 | Other fiber | 32 | 5.08 |
| 16 | Total fibers | 125 | 0.01 |
| 17 | Sesame | 108 | 0.01 |
| 18 | Linseed | 279 | 0.04 |
| 19 | Groundnut | 483 | 0.07 |
| 20 | Rapeseed & mustard | 57 | 9.06 |
| 21 | Soybean | 282554 | 44.93 |
| 22 | Other oilseed | - | - |
| **D** | **Total oilseed** | 283481 | 45.07 |
| **E** | **Total food crops** | **310109** | **49.31** |
| 23 | Tobacco | - | - |
| 24 | Other medicinal & narcotics | - | - |
| 25 | Total medicinal & narcotics | - | - |
| 26 | Fodder crops | 35149 | 5.58 |
| 27 | Other miscellaneous crops | 5 | 7.95 |
| **F** | **Total non food crops** | **318760** | **50.68** |
| **G** | **Total food & none food crops** | **628869** | **100** |

The cropping pattern of Sehore block is just like to Sehore district. In the block oilseeds (47.36%) occupied highest area followed by cereals (28.64%) and pulses (19.04%). Soybean (47.20%) followed by wheat (26.33%), chickpea, (17.85%) sesame (8.48%) area the main crop grown by the cultivators of the block.

**Table 3.15: Cropping pattern Sehore block of Sehore district. (ha.)**

| S.No. | Crops | Area | Percentage to total |
|---|---|---|---|
| 1 | Wheat | 52783 | 26.33 |
| 2 | Paddy | 115 | 0.05 |
| 3 | Jowar | 453 | 0.22 |
| 4 | Maize | 4073 | 2.03 |
| 5 | Other cereals | - | - |
| **A** | **Total cereals** | 57424 | 28.64 |
| 6 | Chickpea | 35781 | 17.85 |
| 7 | Pigeon pea | 1155 | 0.57 |
| 8 | Black gram | 111 | 0.05 |
| 9 | Other pulses | 1123 | 0.56 |
| **B** | **Total pulses** | 38170 | 19.04 |
| 10 | Sugarcane | 751 | 0.37 |
| 11 | Total fruits | 8 | 3.39 |
| 12 | Total vegetables | 565 | 0.28 |
| 13 | Total spices | 1029 | 0.51 |
| **C** | **Total food grain** | 97947 | 48.86 |
| 14 | Cotton | - | - |
| 15 | Other fiber | 1 | 4.98 |
| 16 | Total fibers | 1 | 4.98 |
| 17 | Sesame | 17 | 8.48 |
| 18 | Linseed | 22 | 0.01 |
| 19 | Groundnut | 239 | 0.11 |
| 20 | Rapeseed & mustard | 39 | 0.01 |
| 21 | Soybean | 94624 | 47.20 |
| 22 | Other oilseed | - | - |
| **D** | **Total oilseed** | 94941 | 47.36 |
| **E** | **Total food crops** | 97947 | 48.86 |
| 23 | Tobacco | - | - |
| 24 | Other medicinal & narcotics | - | - |
| 25 | Total medicinal & narcotics | - | - |
| 26 | Fodder crops | 7645 | 3.81 |
| 27 | Other miscellaneous crops | 5 | 2.49 |
| **F** | **Total non food crops** | 102492 | 51.13 |
| **G** | **Total food & non food crops** | 200439 | 100 |

As regards to yield per has of different crops grown in the district maize (1298 kg./ha.) gave highest yield to cultivators followed by jowar (1736 kg./ha.), wheat 1185(kg./ha.), soybean (1197 kg./ha.), chickpea (758 kg./ha.), pigeon pea (538 kg./ha.),

while production of wheat (189009 mt.) was found to be the highest in the district followed by chickpea (85528 mt.), soybean ( 340541 mt.) and maize (18945 mt).

**Table 3.16 : Average yield of different crops in Sehore district. (kg/ha.)**

| S.No. | Crops | Average yield |
|---|---|---|
| 1 | Paddy | 782 |
| 2 | Wheat | 1185 |
| 3 | Jowar | 1736 |
| 4 | Maize | 1298 |
| 5 | Gram | 758 |
| 6 | Pigeon pea | 538 |
| 7 | Groundnut | 866 |
| 8 | Linseed | 857 |
| 9 | Sesame | 414 |
| 10 | Soybean | 1197 |
| 11 | Rapseed & mustard | 745 |

**Table 3.17 : Production of different crops. (t/ha.)**

| S.No. | Crops | Production |
|---|---|---|
| 1 | Paddy | - |
| 2 | Wheat | 189009 |
| 3 | Jowar | 4962 |
| 4 | Maize | 18945 |
| 5 | Bajra | 0 |
| 6 | Gram | 85528 |
| 7 | Pigeon pea | 2991 |
| 8 | Green gram | 46 |
| 9 | Urad bean | 173 |
| 10 | Sugarcane | 6133 |
| 11 | Linseed | 481 |
| 12 | Groundnut | 415 |
| 13 | Sesame | 36 |
| 14 | Soybean | 340541 |
| 15 | Cotton | 46 |
| 16 | Rapeseed/mustard | 33 |

There were 149475 number of land holding present in the district in which small land holding ( 29.50%) was found maximum followed by semi medium (25.33%), marginal (25.04%), medium (17.44%) and large (2.67%) . These holdings occupied 405313 ha. of land. The medium size (37.93%) holdings occupied highest area followed by semi medium (25.59%), small (16.04%), large (15.51%) and marginal (5.01%) in the district. (Table 3.18)

**Table 3.18 : Average size of holdings of Sehore district. (ha.)**

| S.No. | Particulars | Number | Area | Average size of holding |
|---|---|---|---|---|
| 1 | Marginal farmers (below 1 ha) | 37440 | 20313 | 0.54 |
| 2 | Percentage to total | 25.04 | 5.01 | |
| 3 | Small farmers(1.01 to 2.00 ha) | 44097 | 65028 | 1.47 |
| 4 | Percentage to total | 29.5 | 16.04 | |
| 5 | Semi medium farmers(2.01 to 4.00) | 37866 | 103738 | 2.74 |
| 6 | Percentage to total | 25.33 | 25.59 | |
| 7 | Medium farmers (4.01 to 10.00 ha) | 26075 | 153736 | 5.90 |
| 8 | Percentage to total | 17.44 | 37.93 | |
| 9 | Large farmers(10.1 & above) | 3997 | 62894 | 15.74 |
| 10 | Percentage to total | 2.67 | 15.515 | |
| **11** | **Total** | **149475** | **405313** | **2.71** |

The average size of land holding of the district was found to be 2.71 ha .The average size of marginal holding was of 0.54 ha while the average size of small, semi medium, medium, large size respectively was of 1.47, 2.74, 5.90 and 15.74 hectares.

## 3.3 SELECTED CROP : SOYABEAN

India is the forth-largest oilseed producing country in the world, next only to USA, China, and Brazil, harvesting about 25 million tones of various oilseeds against the world production of 250 million tones. India occupies the pride place as the world's largest producer of groundnut, sesame-seed, linseed, and castor. Another distinctive feature about Indian oilseed cultivation is its largest varieties of oilseed cultivated along with wide range of other minor oilseeds and tree origin oilseeds.

In India the oilseeds group of crops, next to food crops hold a sizeable share of the country's gross cropped area (13%) and contribute 5% of its Gross Domestic Product and 10% of the value of all agricultural products. India is a paradise of oilseed crops, with its vast and diverse agro- climatic condition. It has the largest number of commercial varieties of oilseed. The major nine annual oilseed crops of India are groundnut, rape seed–mustard, soybean, sunflower, sesame, safflower castor, linseed and niger. The country has distraction of having around 19% of the total world's oilseed area and produces 10% of the world's oilseeds production. Now India is the fifth largest producer of oilseed in the world in terms of output and first in terms of area under oilseeds. It would be of interest to note that though productivity levels in India are less than half of those in the major oil seeds growing countries and around one-third of the rest of the world levels, the country is first in the world in production of sesame, safflower and castor, second in ground nut, fourth in rapeseed-mustard and linseed and ninth in soybean

**Table 3.19: India's Rank to World**

| Crop | Area | Production | Productivity |
|---|---|---|---|
| Groundnut | I | II | VI |
| Mustard | II | IV | X |
| Soybean | V | V | IX |
| Sunflower | V | VII | X |
| Sesame | I | I | I |
| Safflower | I | I | III |
| Castor seed | I | I | II |
| Linseed | II | IV | VII |
| Total Oilseed | I | V | XIV |

**Table 3.20: India's Share in World Production of Oilseed.**

| Oilseed | Crop Oilseed | Edible Oil |
|---|---|---|
| Groundnut | 24.7 | 33.2 |
| Mustard | 15.1 | 14.1 |
| Soybean | 3.65 | 3.6 |
| Sunflower | 3.78 | 3.5 |
| Sesame Seed | 27.2 | 24.2 |
| Safflower | 50.0 | 49.5 |
| Linseed | 10.8 | 11.7 |
| Cotton Seed | 16.2 | 12.9 |
| Castor Seed | 72.2 | 67.9 |
| Total Oilseed | 8.8 | 7.2 |

Soybean is a food legume originated in China many centuries ago and now it is grown world wide because of its wide geographical adoption, unique chemical composition, good nutrition value, functional health benefits, and versatile end uses. Regular use of about 50 g of Soybean in daily diet enhances and protects human health and thereby resulting in longevity the goal every human wants to achieve. Soybean can be efficiently processed into a wide range of products to realize its astonishing potential as food, feed and industrial products. Since a long time, soybean has been utilized mainly as a human food in various forms; whole bean, sprouts, tofu, sauce, miso, tempeh, oil, milk and flour (Saio, 1999).[1]

Soybean has good adoptability towards a wide range of soil and climate. It also has ability to fix atmospheric nitrogen. It therefore, makes soybean a good rotational crop for use with high N- consuming crop like wheat / maize / paddy. Soybean contains about 45 per cent and 20 per cent oil.[2]

[1] Saio,K (19999) Current development in Processing in East Asia. Proceedings of WSRC_VI held at Chicago, USA Aug.4-7, Pages 372-379
[2] Ali, Nawab ( 2001) Constraints and the remedial measures for an accelerated utilization of Soybean in India, India Soya Forum 2001, held at SOPA, on March 17-18 , 2001 pp 70-79

Soybean (72) has more biological value than corn (54), rice (61), and flour (53) (Table-3.21) and it also has more crop yield (0.72 t/ha) than corn (0.46 t/ha) and flour (0.27t/ha) (Table-3.22)

**Table 3.21: Biological value of Protein from selected commodities.**

| Source | Biological value | Protein score | Net protein utilization |
|---|---|---|---|
| Egg | 96 | 100 | 100 |
| Soybean | 72 | 70 | 56 |
| Corn | 54 | 45 | 55 |
| Wheat flour | 53 | 50 | 52 |
| Rice | 61 | - | 59 |

Source: kaldy, m. s. 1972

**Table 3.22 : Per hectare protein yield of crops. (t/ha)**

| Crop | Crop yield | Crop yield in protein |
|---|---|---|
| Soybean | 0.9 | 0.72 |
| Corn | 5.1 | 0.46 |
| Wheat | 2.3 | 0.27 |

Soybean also has more protein productivity kg/ha/day (6.8) than other legumes and cereals such as peanut (5.6), winged (3.5) chickpea (3.9), moong bean (4.0), rice (2.7), wheat (2.7), maize (3.2) and sorghum (3.2) (Table-3.23).

**Table 3.23: Protein productivity of major cereals and grain legumes.**

| Crops | Estimated yield t/ha | Crop yield in food energy$10^6$k cal | Protein content% | Crop duration days | Protein productivity kg/ ha / day World Average |
|---|---|---|---|---|---|
| Legumes | | | | | |
| Soybean | 1.7*c | 6.9 | 38 | 95 | 6.8 |
| Cowpea | 3.2 | N.A. | 25 | 115 | 7.0 |
| Peanut | 1.8 | - | 25 | 80 | 5.6 |
| Winged | 1.6 | - | 26 | 120 | 3.5 |
| Chickpea | 1.4 | - | 31 | 112 | 3.9 |
| Moong bean | 2.5 | 2.3 | 20 | 125 | 4.0 |
| Cereals | | | | | |
| Rice | 5.0 | 18.1 | 7.5 | 140 | 2.7 |
| Wheat | 2.3 | 7.6 | 11.9 | 100 | 2.7 |
| Maize | 4.0 | 14.0 | 9.5 | 120 | 3.2 |
| Sorghum | 3.5 | 11.7 | 10.1 | 110 | 3.2 |

As soybean is very rich source of protein, carbohydrate, fat, minerals, and fibers so it is a very good source of dietary energy (430K cal/100g). It also contains phosphorus, calcium, magnesium, iron, zinc, manganese, and copper in sufficient quantity. It also has

a reasonable quantity of carotene. The approximate food value of 100 g from edible soybean is given in Table 3.24

**Table 2.24: The approximate food value of 100 g edible Soybean (ASA, 1999[3])**

| Constitutes | Value | Remarks |
|---|---|---|
| Protein | 43 | Soybean is a rich source of good quality protein. It also contain fat, fiber and minerals |
| Carbohydrates | 21 | |
| Fats | 19 | |
| Moistures | 8 | |
| Minerals | 5 | |
| Fibers | 4 | Good source of Dietary energy |
| Energy | 430 K cal | |
| Phosphorus | 690 mg | Soybean is good in phosphorus, calcium and Magnesium |
| Calcium | 240mg | |
| Magnesium | 175mg | |
| Iron | 10 mg | |
| Zinc | 3 mg | |
| Manganese | 2 mg | |
| Copper | 1 mg | |
| Carotene | 426 mg | It is reasonably a good source of carotene |
| Niacin | 3 mg | |
| Thiamine | 1 mg | |
| Riboflavin | 1 mg | |
| Phytochemical | Reasonable amount | It has Photochemical like, is flavones, phytic acids, phyto-steroll, TI etc. |

As soybean contains protein, carbohydrates, minerals, phytochemicals in sufficient quantities, it has several health benefits i.e. it helps in promoting lower blood cholesterol, prevents CVD, relaxes constipation, prevents cancer, and enhance digestibility. (Table. 3.25).

[3] ASA,1999 MCKC. American Soybean Association, New Delhi

**Table3.25: Major Constituents of Soybean and their role /functions (Danji[4] and Liu[5], 1999)**

| Constituents | Role/Functions |
|---|---|
| Protein | Nutritional and health promoting. Lowers blood cholesterol |
| Oil | Nutritional and health promoting. Prevents CVD |
| Carbohydrates | Nutritional and health promoting. Relaxes Constipation. |
| Minerals | Nutritional and health promoting |
| Vitamins | Nutritional and health promoting |
| Oligosaccharides (raffinose and stachyose) | Cause flatulence in some people but now looked upon favorably because it increases the population of bifid bacteria in colon giving a protective effects against pathogenic organism. |
| Phytochemicals: | |
| Isoflavones | Prevents cancer |
| Phytic acid | Lower mineral bio-availability (Ca, Zn, Fe) and Protein solubility |
| Phytosterols | Prevents cancer |
| Trypsin inhibitor | Prevents protein digestion |

Apart from all these qualities and benefits, people of India do not like soybean as source of food material, it has lower consumer acceptance due to several reasons, as; beany flavor, oxidative instability of oil, low quality of soy protein, poor protein digestibility, functional properties of soybean (AA profile of soy products), flatulence, which can easily be removed with some remedial measures as given in (Table-3.26).

Out of all 9 oilseeds cultivated in India, groundnut, and mustard are the major oilseed sharing 28.6% and 24.9% of the area and 36.45% and 22.9% of production, respectively. Soybean cultivation has increased its share during past 15 years and now contributes 23.5% of area and 27.6% of production of total oilseeds in the country. However, its cultivation has remained confined largely to Madhya Pradesh and surrounding areas. Thus, groundnut, mustard, and soybean account for 77% and 86.8% of total oilseed area and production of India.

The importance of soybean in India cannot be ignore anymore particularly in view of its excellent performance in M.P., more over with the present production and availability of edible oil and its future projection in the country. Soybean is a prospective crop and ensures the highest profits among all crops irrespective of season. Soybean can be taken up successfully on paddy bunds and fit well as mixed and intercrops with pigeon pea, cotton, jowar and maize.

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[4]Danji, Fkushima.2000Recxent progress in Research and Technology for processing and utilization of Soybean . Proceedings of ISPUC_III held at Tsukuba, Japan. Oct 15-20 pp 11-16

[5]Lie,K 1999.Current Constraints in Soybean food Utilization and efforts to overcome them Proceedings of WSRC_VI held at Chicago, USA Aug.4-7, Pages 4-7

**Table 3.26: Constraints associated with food uses of soybean –their causes and possible Remedial measures (liu 1999& worral 1999).**

| Constraints | Causes | Remedial measures |
|---|---|---|
| Beany flavor | High-unsaturated fatty acids. (85%), linolenic (7-8%), Presence of lipoxygenases (Lox's). | Heat inactivation of Lox'sStrip of volatile beany compound in a vacuum.<br>Mask beany flavour with other flavorings agents.<br>Genetic elimination of LOXs |
| Oxidative instability of oil (typical soy oil has 4%stearic, 8% linolenic, 11% palmetic, 23%oleic, and 54%linoleic acids) | High proportion of PUFA, Particularly linolenic (8%) it causes instability during storage, processing and use . | Hydrogenation<br>However it also produces trans fatty acids, which cause health problem.<br>Breeding through genetic modification to reduce C18: 3to 2-2.5%level.<br>Breeding soybean for oleic acid (80%)from the present level of 23%.Increasing stearic acid from 4 to 28% leveland palmitic acid from 11-to20% for better oxidation stability.<br>At refrigetion<br>HS/HP soy oil is solid. |
| Nutritional quality of soy protein | Low in methionine cysteine and threonine | Genetic modification to improve mathionine soy protein. Other AA which could be targeted is cysteine.<br>Molecular strategy may also be adopted. |
| Poor protein digestibility. | Presence of biologically active TI and phytate Tis are of two types – kunitz Ti and bowman –Birk(BB) inhibitor. | Heat treatment but it also affects protein solubility ad EAALower TI by plant breeding.<br>Germination or fermentation reduces phytate level.<br>Breeding soybeanfor low phytate content. |
| Functional properties of soy proteins | AA profile of soy proteins | Processing to impart fibrous texture.<br>Chemical/enzymaticmethod to modifyprotein structure<br>Genetic modification to alter 11s/7 ratio. |
| Flatulence | Linked oligosccharides | Aqueous ethanol extraction. Isoflavones are also lost to soymolasses<br>Enzymatic hydrolysis<br>Genetic removal of oligo saccharids. |
| Low consumer acceptance | Poor consumer awareness Being relatively new food source in other parts of world except East Asia. Poor image of soy food in developed nations | Awareness creation,educationProcessing and /or breeding<br>Health benefits of soyfood<br>Transforming to local taste and products<br>Positive promotion of soy products |

### 3.3.1 Present Status of Soybean in India

In India soybean is being grown in area of 96.73 lakh hectares with, the production of 97.30 lakh tones. The average productivity of the crop is 1020.67 kg/ha, which seems to be lower when compared with the productivity of this crop in other soybean growing countries of the world. However, when the productivity was computed in terms of per day productivity, India's productivity level for soybean is not that much lower as visible in terms of percentage of per unit area, because maturity period is very much lower (90 days) as compared to other countries (180 days). Madhya Pradesh being "Soya-State" accounts for 54.96 per cent of area and 57.62 per cent of production of soybean in the country with an average productivity of 1052 kg/ha. Maharashtra state stands second in terms of soybean production in the country sharing 31.28 per cent of acreage and 28.57 per cent production, Rajasthan the third important state in terms of soybean production (7.02%) in the country. These three states together accounts for more than 95 per cent of area and production of the soybean in the country. (Table 3.27)

**Table 3.27 : Present status of soybean crop in India (Average TE- 2009).**

| Name of State | Area sown (Lakh hacts) | Percentage to Total | Yield (Kg/ ha) | Percentage to Total | Total production (Lakh tones) | Percentage to Total |
|---|---|---|---|---|---|---|
| Madhya Pradesh | 53.17 | 54.96 | 1051.67 | 103.04 | 56.01 | 57.62 |
| Maharashtra | 30.26 | 31.28 | 988.33 | 96.83 | 28.57 | 29.39 |
| Rajasthan | 7.24 | 7.48 | 940.67 | 92.16 | 7.02 | 7.22 |
| A.P | 1.74 | 1.80 | 1055.00 | 103.36 | 1.66 | 1.71 |
| Karnataka | 2.22 | 2.30 | 1021.67 | 100.10 | 2.08 | 2.14 |
| Chattisgarh | 1.23 | 1.27 | 950.00 | 93.08 | 1.27 | 1.31 |
| Rest of India | 0.88 | 0.91 | 936.67 | 91.77 | 0.60 | 0.62 |
| **Grand Total** | **96.73** | **100.00** | **1020.67** | **100.00** | **97.20** | **100.00** |

### 3.3.2 Present Status Soybean Growing Districts of Madhya Pradesh

The area production and productivity of soybean is found highest in Ujjain district among all the major soybean-growing districts of the state. It accounts for 8.30 per cent of area and 5.26 per cent of production of soybean in the state with an average productivity of 1190 Kg/ha. The other important districts in terms of acreage are; Shajapur (6.27 %), Sagor (5.53 %), Dewas (5.71%), Rajgarh (5.46%) and Sehore (5.42 %). In terms of percentage share in production of soybean Dewas (3.49%), Shajapur (3.34 %), Sehore (2.95 %), Dhar (2.91%), Rajgrah (2.73%) and Indore (2.66 %) are the important districts

of the state. The productivity of soybean is found highest in Indore district (1183 kg/ha) followed by Dhar (1167 kg/ha) and Dewas (1147 kg/ha) district.( Table 1.1)

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# CHAPTER –IV

## COMPARISION OF THE BENEFITS AND CONSTRAINTS FOR THE AGENTS TRADING IN THE TRADITIONAL (REGULATED MARKET) AND EMERGING (ITC e - CHOUPAL) MARKET CHANNELS

This chapter deals with the results obtained from the field survey and shown the comparative picture of the different aspects of the sample respondents related to the Traditional Market Channel viz. regulated market (TMC) and the Emerging Market Channel viz. ITC e- Soya Choupal (EMC) i.e. Farmer's profile, cost incurred and returns obtained from the cultivation of soybean, cost of production, post harvest losses, marketing cost, margin, price spread and market efficiency in marketing of soybean. The farmers perception of the transaction costs, services availed and perception of market infrastructure by farmers are taken into consideration while interpretation of data.

### 4.1 Farmers Profile

The profile of the selected farmers includes their religion, caste, house hold characteristics, educational status, farm assets, land holding information and farming methods. The comparative picture of respondents related to TMC and EMC are dealt in detail.

### 4.1.1. Religion and Caste

The majority of the respondents were found to belong to Hindu religion (98%). Only 9.72% of total respondents were found to belong to Muslim community. An approximate 70 per cent of the total respondents were found to be related with General and OBC categories, while only 3 and 7 per cent respectively were found to be related to ST and SC category. There was no significant difference was found in the respondents related to TMC and EMC. (Table 4.1).

**Table 4.1: Religion and Caste of Farm House Holds (%).**

| Particulars | TMC | EMC | Total |
|---|---|---|---|
| Hindu Households | 91.43 | 89.19 | 90.28 |
| Muslim Households | 8.57 | 10.81 | 9.72 |
| SC Households | 11.43 | 2.70 | 6.94 |
| ST Households | 2.86 | 2.70 | 2.78 |
| General/OBC Households | 71.43 | 64.86 | 68.06 |

### 4.1.2 Household Characteristics

The cent per cent households respondents related to TMC and EMC had their owned ration card. On an overall basis the majority of them have a *pacca* and *semi-pacca* house (41.67%) followed by *Kuttcha* (26.39%) house. The majority of respondents those were found to belongs to EMC the majority of them have *pacca* and semi *pacca* house (51.35%), while the majority of respondents belongs TMC have *Kuttcha* house (51.43%). On an overall basis the 63.89% of respondents were found to be have a mobile phone, where as 18.06% have land line connection. Only 19% of the respondents had a computer in their house and the majority of them were found to be belongs to EMC (27.03%). Only 5.56% of the total respondents have a computer with internet connection and here also the majority of them were found to belong to EMC (8.11%). (Table 4.2)

**Table 4.2: House Holds Characteristics (%).**

| Particulars | TMC | EMC | Total |
|---|---|---|---|
| Households Owing a ration card | 100.00 | 100.00 | 100.00 |
| APL Households | 5.71 | 2.70 | 4.17 |
| BPL Households | 11.43 | 0.00 | 5.56 |
| Pacca & Semi Pacca House | 31.43 | 51.35 | 41.67 |
| Kuttcha House | 51.43 | 2.70 | 26.39 |
| Telephone Land line | 25.71 | 10.81 | 18.06 |
| Households owing at least one mobile Phone | 48.57 | 78.38 | 63.89 |
| Households owing a computer | 11.43 | 27.03 | 19.44 |
| Households having a internet connection at home | 2.86 | 8.11 | 5.56 |
| Households owing both Computer & internet Connection at home | 2.86 | 8.11 | 5.56 |

### 4.1.3 Age of the Head & their Educational Status

An overall age of the respondents of the study area was found to be 47 years. The respondents belongs to EMC (42 years) were found to be younger than the TMC (53 years) respondents. This reveals that the younger generation was easily influence with new and emerging type of activities. The average educational status of the respondents of the study area was found to be $8^{th}$ standard. The average educational status of the respondents related to the EMC ($9^{th}$) were found to be more educated than that of TMC ($6^{th}$) respondents. On an overall average basis, it is observed that the 81.94 per cent of the members of the respondents were found to be completed

their primary education, while only 12.50 per cent were completed their college education program. There was no clear cut difference was found in the educational status of the members of TMC and EMC respondents (Table 4.3).

**Table 4.3: Head of the Households & Educational Status (%).**

| Particulars | Regulated Market | e-Choupal | Total |
|---|---|---|---|
| Age of the head of the Household (years) | 53 (13.33) | 42 (12.24) | 47 (13.94) |
| Female headed Households | 0.00 | 0.00 | 0.00 |
| Year of education of the head of the Households ( average) | 6 (2.97) | 9 (3.67) | 8 (3.57) |
| Household members who have completed Primary Education | 74.29 | 89.19 | 81.94 |
| Household members who have completed matriculate Education | 48.57 | 51.35 | 50.00 |
| Household members who are diploma holders | 25.71 | 32.43 | 29.17 |
| Members who have completed Under Graduation | 14.29 | 21.62 | 18.06 |
| Members who have completed Post Graduation | 5.71 | 18.92 | 12.50 |

### 4.1.4 Farm Assets

As regards to the farm assets of the respondents are concerned , it was found that the majority of the sample households had a bicycle ( 91.67%) and motorcycle ( 75.00%) at their home. The majority of households (95.83%) had a pump set at their farm. Only 30.56% per cent of the respondents had their owned tractor, while 22.22% and 29.17% had bullock card and trolley respectively at their farm.

**Table 4.4 : Sample Households Owing different types of Transport, Farm and Storage Assets.**

| Particulars | TMC | EMC | Total |
|---|---|---|---|
| Bullock Cart | 11.43 | 32.43 | 22.22 |
| Tractor | 25.71 | 35.14 | 30.56 |
| Trolley | 22.86 | 35.14 | 29.17 |
| Harvester | 2.86 | 2.70 | 2.78 |
| Bicycle | 88.57 | 94.59 | 91.67 |
| Motor Cycle | 68.57 | 81.08 | 75.00 |
| Four Vehicle | 0.00 | 8.11 | 4.17 |
| Tractor | 0.00 | 0.00 | 0.00 |
| Tiller | 0.00 | 0.00 | 0.00 |
| Pump Sets | 94.29 | 97.30 | 95.83 |

None of the farmers was found to be tiller and combiner at farm at their. Only 4.17% and 2.78% of the total respondents had respectively had a four wheeler and a harvester at their home and farm. The farm assets at TMC and EMC respondents were found to be gave similar figures with minute differences (Table 4.4).

### 4.1.5 Land Holding

The majority of the respondents of the study area were found to be had medium (40.28%) and large (33.33%) size of farms, while 9.72% and 16.67 had respectively belongs to marginal and small size farms categories. None of farmers was found to be done farming purely on leased in land. Cent per cent respondents were found to cultivated their owned land, while only 8.33% of them also obtained leased in land from other cultivators. The 33.00 per cent respondents had no irrigation facilities at their farms, they were found to be doing rain fed farming. It was also observed that the minimum and maximum size of the farms was found to be respectively of 0.26 ha and 9.31 ha with a median size of 3.44 ha (Table 4.5).

**Table 4.5: Land Holding Information of Respondents (%)**

| Particulars | TMC | EMC | Total |
|---|---|---|---|
| Marginal farmers | 17.14 | 2.70 | 9.72 |
| Small farmers | 28.57 | 5.41 | 16.67 |
| Medium Farmers | 31.43 | 48.65 | 40.28 |
| Large Farmers | 22.86 | 43.24 | 33.33 |
| Minimum Size of the Farm | 0.2 | 0.32 | 0.26 |
| Maximum Size of Farm | 8.91 | 9.71 | 9.31 |
| Median Size of the Farm | 2.02 | 4.86 | 3.4 |
| Own land | 100.00 | 100.00 | 100.00 |
| Leased land | 2.86 | 13.51 | 8.33 |
| Dry Land Farmers | 40.00 | 27.03 | 33.33 |
| Irrigated farmers from ground water | 28.57 | 67.57 | 48.61 |
| Irrigated farmers from surface water | 31.43 | 5.41 | 18.06 |

### 4.1.6 Types of Farming Methods

The types of farming methods prevailed by the respondents are presented in Table 4.6. It is observed from the data that none of the farmers was found to be used sprinkler and drip irrigation at their farm, while 95.83% were found to be used pump sets. The 92.22% of the respondents had their owned storage, they were found to be used steel bin or *"katcha banda"* for storage of grains. The 30.50%, 29.17% and 22.22% of the respondents were found to be used tractor trolley and bullock carts

respectively for the transportation of the produce from farm to the market. The 55.56% of the total respondents were also found to be done the primary processing of their produce before sold it in the market. The magnitude of these percentages was found to similar with minute difference in all the items expect the primary processing of the products. The cent per cent farmers related to EMC were found to done primary processing of their product, while only 8.57% of the respondents related to the TMC were found to be practice the primary processing of the product (Table 4.6).

**Table 4.6 Number of Household using types of Farming Methods (%)**

| Particulars | TMC | EMC | Total |
|---|---|---|---|
| Pump sets | 94.29 | 97.30 | 95.83 |
| Sprinkler | 0.00 | 0.00 | 0.00 |
| Drip irrigation | 0.00 | 0.00 | 0.00 |
| Tractor | 25.71 | 35.14 | 30.56 |
| Trolley | 22.86 | 35.14 | 29.17 |
| Bullock Cart | 11.43 | 32.43 | 22.22 |
| Owned Storage | 94.29 | 100.00 | 97.22 |
| Storage | 0.00 | 0.00 | 0.00 |
| Primary processing the produce on the farm | 8.57 | 100.00 | 55.56 |

## 4.2 Cost and Return Structure

The per hectare cost of cultivation and the return obtained from the cultivation of soybean of respondents related to EMC and TMC are dealt in this sub head.

### 4.2.1 Cost of Cultivation

The cent per cent of the respondents were found to be used high yield varieties of seeds, manures and fertilizer, insecticides and weedicides and engaged hired and machines labour at their farms (Table 4.7). The per cent respondents related to EMC found to be invested more in *Rhizobium* culture (79%), seed treatment with fungicides (25%), top dressing of urea in standing crop (26%), micro nutrients (27%) and hormones (16%) than the respondents related to TMC.

As regards to the total cost of cultivation incurred in the production of soybean by the respondents of related TMC and EMC. There was found remarkable positive gap of 9.97% in average respondent's farm related to EMC (Rs.18639.76/ha) as compared to TMC (Rs.16949.69/ha) in the total cost of cultivation of soybean, revealed that the

**Table 4.7 : Cost of Cultivation of Soybean (Rs/ha)**

| Particulars | TMC | | | | EMC | | | | Difference | % Diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | % Respon-dents | Qty | S.D. | Value | % Respon-dents | Qty | S.D. | Value | | |
| Hired Human labour | 100.00 | 30.61 | 9.44 | 3673.35 | 100.00 | 21.81 | 9.01 | 2617.60 | -1055.75 | -28.74 |
| Bullock Labour | 7.00 | 1.10 | 1.48 | 518.38 | 3.00 | 0.76 | 2.70 | 265.61 | -252.77 | -48.76 |
| Machine Hrs. | 100.00 | 4.87 | 5.78 | 2190.40 | 100.00 | 10.63 | 4.91 | 4783.13 | 2592.73 | 118.37 |
| Total Labour | | | | 6382.13 | | | | 7666.34 | 1284.21 | 20.12 |
| Input Used | | | | | | | | | | |
| Seed | 100.00 | 90.69 | 22.93 | 2040.57 | 100.00 | 92.46 | 32.06 | 2080.35 | 39.78 | 1.95 |
| Culture | 29.00 | 0.73 | 1.15 | 10.89 | 79.00 | 4.91 | 2.81 | 73.70 | 62.81 | 576.77 |
| Seed Treatment | 3.00 | | 15.53 | 7.62 | 25.00 | | | 7.73 | 0.11 | 1.44 |
| Manures | 100.00 | 139.75 | 109.01 | 69.88 | 100.00 | 225.37 | 244.24 | 112.68 | 42.80 | 61.25 |
| Fertilizers | | | | | | | | | | |
| DAP | 100.00 | 30.81 | 23.88 | 301.99 | 100.00 | 66.91 | 31.22 | 675.72 | 373.73 | 123.76 |
| Urea | | 0.00 | 0.00 | 0.00 | 26.00 | 1.09 | 3.67 | 5.87 | 5.87 | |
| SSP | 29.00 | 29.10 | 94.38 | 98.95 | 58.00 | 35.75 | 57.97 | 121.56 | 22.61 | 22.85 |
| Total Fertilizer | | | | 400.94 | | | | 803.15 | 402.21 | 100.32 |
| Insecticides | 100.00 | 0.42 | 0.38 | 161.32 | 100.00 | 0.91 | 0.05 | 345.75 | 184.43 | 114.33 |
| Weedicides | 100.00 | 0.24 | 0.19 | 352.61 | 100.00 | 0.75 | 0.32 | 1087.51 | 734.90 | 208.42 |
| Micro-nutrients | 9.00 | | 3.29 | 1.62 | 27.00 | | 187.95 | 31.77 | 30.15 | 1861.11 |
| Hormones | 1.00 | | 25.17 | 24.18 | 16.00 | | 249.80 | 60.11 | 35.93 | 148.59 |
| Total Input | | | | 4555.56 | | | | 4602.75 | 47.19 | 1.04 |
| Depreciation | | | | 54.76 | | | | 119.58 | 64.82 | 118.37 |
| Interest on Working Capital | | | | 45.56 | | | | 46.03 | 0.47 | 1.04 |
| Total variable Cost | | | | 11038.01 | | | | 12434.70 | 1396.69 | 12.65 |
| Fixed Cost | | | | | | | | | | |
| Imputed value of Family Labour | | 9.39 | 5.64 | 1126.48 | | 5.61 | 5.21 | 673.77 | -452.71 | -40.19 |
| Interest on fixed capital | | | | 120.40 | | | | 130.77 | 10.37 | 8.61 |
| Rental value of owned land | | | | 4664.78 | | | | 5400.52 | 735.74 | 15.77 |
| Total Fixed Cost | | | | 5911.66 | | | | 6205.06 | 293.40 | 4.96 |
| Total Cost of Cultivation | | | | 16949.67 | | | | 18639.76 | 1690.09 | 9.97 |

respondents related to EMC were found to be used more or qualited input in their farms as compared to respondents related to TMC farms. The respondents related to EMC were invested 1861.11%, 208.42%, 148.59%,114.33%, 123.76% and

118.37% more in the application of micronutrients, weedicides, harmones, insecticides, DAP and machines labour at their farms as compared to the respondents related to the TMC. They were also found to be invested less in hired human labour (-28.74%) and bullock labour (-48.76%) and family labour (-40.19%) than that of TMC respectively.

It is also clear from the data the respondents related to TMC had invested more in labour as compared to EMC, while respondents related to EMC were found to be invested more in input as compared to TMC farms revealed that the respondents related to EMC had capital oriented farms while the respondent related to TMC had labour oriented farms.

### 4.2.2 Profitability of Soybean

Soybean crop was found to be profitable in the area under study on an average farmer respectively related to TMC and EMC obtained 2.96 and 1.98 on investment of Rs.1.00 in the total cultivation of soybean.

**Table 4.8: Returns obtained from Cultivation of Soybean ( Rs. /ha)**

| Particulars | TMC | | | EMC | | | Difference | % Difference |
|---|---|---|---|---|---|---|---|---|
| Gross Income | Yield | Rate | Value | Yield | Rate | Value | | |
| Product | 16.81 | 1850 | 31098.5 | 18.85 | 1910 | 36003.5 | 4905.00 | 15.77 |
| Byproduct | 24.95 | 30 | 748.5 | 27.85 | 30 | 835.5 | 87.00 | 11.62 |
| Gross Income | | | 31847 | | | 36839 | 4992.00 | 15.67 |
| Total variable Cost | | | 11038.01 | | | 12434.7 | 1396.69 | 12.65 |
| Total Cost | | | 16949.67 | | | 18639.76 | 1690.09 | 9.97 |
| Net Income | | | | | | | | |
| Over Total variable Cost | | | 20808.99 | | | 24404.30 | 3595.31 | 17.28 |
| Over Total Cost | | | 14897.33 | | | 18199.24 | 3301.91 | 22.16 |
| Benefit Cost Ratio | | | | | | | | |
| Over Total variable Cost | | | 2.89 | | | 2.96 | 0.08 | |
| Over Total Cost | | | 1.88 | | | 1.98 | 0.10 | |
| Production Cost per quintal | | | 1008.31 | | | 988.85 | -19.46 | -1.93 |

The respondents related to EMC got more gross return (Rs.4992.00/ha), net return at variable cost (Rs.3595.31/ha) and net return at total cost of cultivation (Rs.3301.91) as compared to the respondents related to TMC. There was found

15.67%, 17.28%, 22.16% respectively increased in gross income, net income at variable cost and net income at total cost of cultivation of soybean of an average respondent related to EMC as compared to an average respondents related to TMC. (Table 4.8) The cost of production of soybean was found to be less (-1.93%) at an average farmer related to EMC (Rs.988.85/q) as compared to an average farmer related to TMC (Rs.1008.31/q) (Table 4.8).

## 4.3 Marketing of Soybean

This sub head deals with the disposal of soybean from the farms, disposal of soybean in different months , post harvest losses in the marketing of product , marketing cost, price spread and marketing efficiency and reason for preferring the particular channel . The information regarding the price of the product and perception of the producer regarding the market facilities in the particular market are also considered in this sub head.

### 4.3.1 Disposal of Soybean

Out of the total production (67.00 q.) at farm of an average soybean farmer was found to be sold 56.82 quintals of soybean grains in the market and retained 8.94 q of soybean only for seeds for next season for sowing the crop. The producer of soybean has not been found to be consumed soybean at their farm this revealed that soybean was found to be a cash crop in the study area (Table 4.9).

**Table 4.9: Disposal of Soybean in Markets (q).**

| Particulars | TMC | | EMC | | Average | |
|---|---|---|---|---|---|---|
| | Per ha | Per Farm | Per ha | Per Farm | Per ha | Per Farm |
| Production | 16.81 | 51.44 | 18.85 | 82.56 | 17.83 | 67.00 |
| Wastage on Farm | 0.51 | 1.56 | 0.67 | 2.93 | 0.59 | 2.25 |
| Local Sell | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Home Consumption | 2.02 | 6.18 | 2.67 | 11.69 | 2.35 | 8.94 |
| Marketable Surplus | 14.28 | 43.69 | 15.97 | 69.96 | 15.12 | 56.82 |
| Total Production Cost of Marketed Product | 26412.64 | 80822.66 | 30505.66 | 133614.79 | 28459.15 | 107218.73 |

There was no remarkable variation was found in the data related to respondents of TMC and EMC. The findings were found to be similar in case of the respondents belongs to TMC and EMC with minute difference.

### 4.3.2 Month wise Disposal

The 95% of the total disposal of soybean was found to be disposed off only in 4 months after the harvesting of the product (Table 4.10). Their was found that none of respondent disposed of their soybean in the month '0' (just after the harvest of the produce) in the EMC, as their was found specific standards / norms of grading at the EMC. The EMC not starts to purchase of soybean when there was higher percentage of moisture in the grain. They start purchasing the produce after one month of harvesting with specific norms. Hence, a respondent, who wants to disposed off the soybean just after the harvest of soybean, not preferred this particular market channel. Where as 12.06% of the produce of the respondents related to TMC (Regulated market) disposed off their produce to the whole sellers at lower rate with high moisture content.

**Table 4.10: Month wise Disposal of Produce q/farm.**

| Particulars | TMC | | EMC | |
|---|---|---|---|---|
| | Quantity | % | Quantity | % |
| Month 0 | 5.27 | 12.06 | 0.00 | 0.00 |
| Month 1 | 15.76 | 36.07 | 14.29 | 20.43 |
| Month 2 | 13.50 | 30.90 | 21.83 | 31.20 |
| Month 3 | 2.60 | 5.95 | 17.32 | 24.76 |
| Month 4 | 4.39 | 10.05 | 13.04 | 18.64 |
| Not Sold | 2.17 | 4.97 | 3.48 | 4.97 |
| Total | 43.69 | 100.00 | 69.96 | 100.00 |

Near about 80 per cent of the total marketable produced was brought out by the producers just after the 3 months of harvesting related to TMC, while only 36% of marketed surplus was found to brought by the respondent related to EMC in same period reveals that the respondents related to EMC were found more conscious towards the marketing of the products. They not only graded their produce but also stored their products for gaining time utility of the price.

### 4.3.3 Post Harvest Losses:

The post harvest losses incurred per farm in the respondents of TMC and EMC are presented in Table 4.11. It is observed from the data that the total post harvest losses was found to be incurred in an average farm was 0.59 q /farm , which was estimated to Rs. 1111.60/farm. The quantity losses incurred in on farm (40.48%) was found to be found maximum followed by spoiled in the storage (24.64%), damages during transportation due to improper packing (18.86%) and damages

during transportation due to long travel from farm to the market (13.52%). The magnitude of these losses was found to be similar in TMC and EMC with minute differences.

**Table 4.11: Post Harvest Losses (q) & Reason for the Losses (%).**

| S.NO. | Particulars | TMC | | EMC | | Average | |
|---|---|---|---|---|---|---|---|
| | | Quantity | % | Quantity | % | Quantity | % |
| 1 | Quantity of the farm produce that were lost post harvest ( On Farm ) | 0.2 | 38.26 | 0.29 | 42.69 | 0.25 | 40.48 |
| 2 | Damaged during transportation due to improper packing (q) | 0.08 | 15.86 | 0.15 | 21.85 | 0.12 | 18.86 |
| 3 | Damaged /Rotted during transportation due to long travel from the farm yard to market(q) | 0.1 | 18.82 | 0.06 | 8.22 | 0.08 | 13.52 |
| 4 | Got spoiled as storage facilities are inadequate | 0.14 | 27.06 | 0.15 | 22.21 | 0.15 | 24.64 |
| 5 | Was not accepted as good quality | 0 | 0 | 0.03 | 5.03 | 0.02 | 2.52 |
| **6** | **Total Losses** | **0.51** | **100** | **0.67** | **100** | **0.59** | **100.00** |
| 7 | Total value of losses from farm to sale point (Rs.) at imputed cost | 943.5 | | 1279.7 | | 1111.60 | |
| Reasons for the Losses (% of Respondents) | | | | | | | |
| 1 | Lack of storage | | 42.86 | | 71.79 | | 57.33 |
| 2 | Perishable nature of the commodity | | 0 | | 0 | | 0.00 |
| 3 | Long distance to the market | | 40 | | 66.67 | | 53.34 |
| 4 | Waiting for the better price | | 25.71 | | 5.13 | | 15.42 |
| 5 | Others | | 0 | | 0 | | 0.00 |

### 4.3.4 Marketing Cost borne by Producers

Producers were found to borne less marketing cost (-27.73%) when they brought their products to EMC (Rs.22.21/q) as compared to the producers who were preferred TMC (Rs.30.73/q). Amongst the different cost items which were expenses by the producer of TMC. The transport cost (52.96%) was found to highest followed by wastage (17.55%), loading and unloading (13.02%) and storage cost (9.60%)

while in EMC transport cost (75.62%) was also found the major item of marketing cost borne by the producer followed by storage (10.63%) and sampling of produce (9.19%).

**Table 4.12: Marketing Cost borne by Producer to Sell the Produce per farm.**

| S.No. | Particulars | TMC | Percentage to Total | EMC | Percentage to Total | Difference | % Difference |
|---|---|---|---|---|---|---|---|
| 1 | Quantity Sold (q) | 43.69 | | 56.82 | | 13.13 | 30.05 |
| 2 | Loading & Unloading Cost | 174.75 | **13.02** | 0.00 | **0.00** | -174.75 | -100.00 |
| 3 | Transport Cost | 711.14 | **52.96** | 954.33 | **75.62** | 243.19 | 34.20 |
| 4 | Commission Charges | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | |
| 5 | Storage Cost | 128.88 | **9.60** | 134.09 | **10.63** | 5.21 | |
| 6 | Mandi Tax | 4.00 | **0.30** | 0.00 | **0.00** | -4.00 | -100.00 |
| 7 | Development Cess | 43.69 | **3.25** | 0.00 | **0.00** | -43.69 | -100.00 |
| 8 | Weighing Cost | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | |
| 9 | Brokege Expenses | 0.00 | **0.00** | 0.00 | **0.00** | 0.00 | |
| 10 | Sampling of Produce | 0.00 | **0.00** | 116.01 | **9.19** | 116.01 | |
| 11 | Wastage | 235.69 | **17.55** | 0.00 | **0.00** | -235.69 | -100.00 |
| 12 | Other Fees Paid | 0.83 | **0.06** | 0.74 | **0.06** | -0.09 | -10.84 |
| 13 | Total farmers marketing cost | 1342.67 | **100.00** | 1261.99 | **100.00** | -80.68 | -6.01 |
| 14 | Marketing Cost /q | 30.73 | | 22.21 | | -8.52 | -27.73 |
| 15 | Total Cost of Production /Quintal | 1008.31 | | 988.85 | | -19.46 | -1.93 |
| 16 | Total Farmer's Cost / ql ( 14+15) | 1039.04 | | 1011.06 | | -27.98 | -2.69 |

### 4.3.5 Marketing Cost Borne by the Wholesaler

The e-choupal was found to be one of wholesaler of the produce, who was not performing the activities in the regulated market area but performed these activities else where in the same town. Hence, here e-choupal as also treated is one of the wholesalers in the area under study. The market cost borne by the wholesaler is presented in Table 4.13; it is observed from the data that there was found a difference between -56.27 % in the cost incurred in EMC (ITC- e-Soya choupal) as compared to TMC (wholesaler in regulated market). Here, also the transportation cost (30.43 %) was found to be a major item of marketing cost in TMC followed by mandi tax (22.73 %), cost of bags (15.39%) and development cess (11.37%). In EMC also, transportation (36.28 %) of the produce was found to be a major term of the cost

incurred in marketing of soybean followed by cost of bags (33.19%), administrative charges (14.75%) and loading and unloading (10.66%).

**Table 4.13: Marketing Cost borne by Merchant to Sell the Soybean to Processor per q.**

| S. NO. | Particulars | TMC | Percentage to Total | EMC | Percentage to Total | Difference | % Difference |
|---|---|---|---|---|---|---|---|
| 1 | Cost of Bags | 29.96 | **15.39** | 28.26 | **33.19** | -1.70 | -5.67 |
| 2 | Loading & Unloading Cost | 13.12 | **6.74** | 9.08 | **10.66** | -4.04 | -30.79 |
| 3 | Transport Cost | 59.26 | **30.43** | 30.89 | **36.28** | -28.37 | -47.87 |
| 4 | Administrative Charges | 7.16 | **3.68** | 12.56 | **14.75** | 5.40 | |
| 5 | Storage Cost | 1.86 | **0.96** | 1.85 | **2.17** | -0.01 | |
| 6 | Mandi Tax | 44.26 | **22.73** | 0.00 | **0.00** | -44.26 | -100.00 |
| 7 | Development Cess | 22.13 | **11.37** | 0.00 | **0.00** | -22.13 | -100.00 |
| 8 | Weighing Cost | 4.95 | **2.54** | 1.77 | **2.08** | -3.18 | |
| 9 | Brokege Expenses | 1.03 | **0.53** | 0.00 | **0.00** | -1.03 | |
| 10 | Wastage | 10.16 | **5.22** | 0.00 | **0.00** | -10.16 | -100.00 |
| 11 | Other Fees Paid | 0.83 | **0.43** | 0.74 | **0.87** | -0.09 | -10.84 |
| 12 | Whole Seller Marketing Cost | 194.72 | **100.00** | 85.15 | **100.00** | -109.57 | -56.27 |
| 13 | Price At Which Product Was Buy From The Farmer | 1850.00 | | 1910.00 | | 60.00 | 3.24 |
| 14 | Whole Seller's Margin | 306.89 | | 246.89 | | -60.00 | -19.55 |
| 15 | Total Whole Salers Sale Price Or Processor's Price /q | **2351.61** | | **2242.04** | | **-109.57** | **-4.66** |

### 4.3.6 Price Spread and Marketing Efficiency

The price spread and marketing efficiency of the soybean in these two different channels in presented in table 4.14. It is observed from the data that producer got 13.35 % more when he brought his produce to EMC (82.62 %) as compared to TMC (72.89%). The EMC (1:4.75) was also found to 76.58 % more efficient than the TMC (1:2.69) as the price spread in marketing of soybean was found to be -33.81% less in EMC (17.38 %)as compared to TMC (27.11 %).

**Table 4.14: Price Spread in Marketing of Soybean per q.**

| S. NO. | Particulars | TMC | EMC | Difference | % Difference |
|---|---|---|---|---|---|
| 1 | Production Cost | 1008.31 | 988.85 | -19.46 | -1.93 |
| 2 | Marketing Cost Borne by Producer | 30.73 | 22.21 | -8.52 | -27.73 |
| 3 | Total Producer Cost | 1039.04 | 1011.06 | -27.98 | -2.69 |
| 4 | Farmer's Sale Price / Whole Seller's Purchase Price | 1850.00 | 1910.00 | 60.00 | 3.24 |
| 5 | Marketing Cost borne by Wholesaler | 194.72 | 85.15 | -109.57 | -56.27 |
| 6 | Wholesaler's Market Margin | 306.89 | 246.89 | -60.00 | -19.55 |
| 7 | Wholesaler's Sale Price Or Processor's Purchase Price Or Consumer's Price | 2351.61 | 2242.04 | -109.57 | -4.66 |
| 8 | Price Spread | 501.61 | 332.04 | -169.57 | -33.81 |
| 9 | Percentage Price Spread | 27.11 | 17.38 | -9.73 | -35.88 |
| 10 | Producer’s share In Consumer's Rupee's | 72.89 | 82.62 | 9.73 | |
| 14 | Net Price Received | 1850.00 | 1910.00 | 60.00 | 3.24 |
| 15 | Value Added | 501.61 | 332.04 | -169.57 | -33.81 |
| 16 | Marketing Efficiency | 2.69 | 4.75 | 2.06 | 76.58 |

### 4.3.7 Reason for Preferring the Market Channel

A critical view was also drawn to find out the reason for preferring a particular channel for marketing the produce from farm to the ultimate market and found that respondents related to regulated market (TMC) were sold their produce due the reason that they were found to be habitual for that (100%), their were found to be assured sale (100%). same what higher price or fair price (80%) and proximity (68.57%) of market they also reported during the course of investigation that they had to faith over this government organization and they have no confidence over the emerging market channel like ITC e-choupal as they have bitter experience in the

past. They told that these types of organizations are befooling us and gone away in future by creates profit for them. (Table. 4.15)

**Table 4.15: Reason of Preferring the Marketing Channel**

| S.NO. | Particulars | TMC | EMC |
|---|---|---|---|
| | | % | % |
| 1 | Habit | 100.00 | 24.32 |
| 2 | Influence of friends/Sanchlak | 0.00 | 70.27 |
| 3 | Assured Sale | 100.00 | 100.00 |
| 4 | Higher/Fair Price | 80.00 | 100.00 |
| 5 | Low cost of marketing | 42.86 | 100.00 |
| 6 | Proximity | 68.57 | 70.27 |
| 7 | Logistical Support | 31.43 | 32.43 |
| 8 | Access to input | 0.00 | 62.16 |
| 9 | Hidden cost/Bribes | 65.71 | 0.00 |
| 10 | Longer waiting time | 74.29 | 0.00 |
| 11 | Superior Services | 0.00 | 100.00 |
| 12 | Superior infrastructure | 0.00 | 100.00 |

The respondents related to the EMC reported that they were sold their product in ITC e-choupal as there was a influence of *sanchalak* of ITC e- choupal, who have a computer and internet facilities at his home in the village. He told them the rate of the next day, a day before with all the grading standard of the ITC-e-choupal. They brought the produce as they got superior services (100%), superior infrastructure (100%) low cost of marketing (100%), higher price/ fair price of the product (100%), proximity (70.27%), no hidden charges or bribe (100%) and no waiting time (100%). A part from these reasons the ITC-e-choupal also facilitated them to assess the input (62.16%). As in the ITC Sagar mall, where they purchased all sorts of consumable goods, branded input, petrol etc.

### 4.3.8 Perception of the Producer Regarding Market Infrastructure

Perception of the producer regarding market infrastructure was also observed and presented in table 4.16 it is observed from the data that the condition of roads reached the in both the market are found good (100%) both the market were found to be in the reached of the respondents (100%) and the market have good banking facilities ( 100%).

**Table 4.16: Perception of Farmers toward the Marketing Channels (%).**

| S.NO. | Particulars | | Regulated Market | e-choupal |
|---|---|---|---|---|
| 1 | Condition of Road to the market | | | |
| | a | Bad | | |
| | b | Average | | |
| 2 | c | Good | 100.00 | 100.00 |
| | Proximity of the market | | | |
| | a | With the village | | |
| | b | With in 10 Kms | | |
| | c | Between 10-25 Kms | 100.00 | 100.00 |
| | d | more than 25 Kms | | |
| | e | Less than 50 Kms | | |
| 3 | Godown Facilities | | | |
| | a | Not Available | | 100.00 |
| | b | Bad | | |
| | c | Average | 74.29 | |
| | d | Good | 21.62 | |
| 4 | Cold Storage | | 0.00 | 0.00 |
| 5 | Action Arrangements | | | |
| | a | Bad | | |
| | b | Average | 74.29 | |
| | c | Good | 21.62 | |
| 6 | Supervision of sale | | | |
| | a | Bad | | |
| | b | Average | 91.43 | |
| | c | Good | 8.57 | |
| 7 | Loading Facilities | | | |
| | a | Bad | | |
| | b | Average | 100.00 | |
| | c | Good | | |
| 8 | Sorting Facilities | | 0.00 | |
| | A | Bad | 0.00 | |
| | B | Average | 0.00 | |
| | C | Good | | |
| 9 | Weighing Facilities | | | |
| | A | Bad | | |
| | B | Average | 100.00 | |
| | C | Good | | 100.00 |
| 10 | Packing Facilities | | | |
| | A | Bad | | |
| | B | Average | 100.00 | |
| | C | Good | | 100.00 |
| 11 | Internal Telephone | | | |
| | A | Bad | | |
| | B | Average | 100.00 | |
| | c | Good | | |
| 12 | Banking Facilities | | | |
| | a | Bad | | |
| | b | Average | 100.00 | |
| | c | Good | | 100.00 |
| 12 | Computer Faculties | | | |
| | a | Bad | | |
| | b | Average | | |
| | c | Good | | |
| | d | Not Available | 100.00 | 100.00 |
| 13 | Internet Facilities | | | |
| | a | Bad | | |
| | b | Average | 100.00 | |
| | c | Good | | |
| | d | Not Available | | 100.00 |

The majority respondents related to the TMC (Regulated market) reported that their was found average godown facilities, average action arrangement , average supervision of sale, average loading facilities, average parking facilities, average internal telephone internet facilities, where as all the respondents belongs to EMC report that these all facilities are found good in ITC e-choupal. Hence, it is proved that the EMC were found to be more technical efficient than the TMC.

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# CHAPTER – V

## SUMMARY CONCLUSIONS AND POLICY IMPLICATIONS

Competition can have both beneficial and detrimental effects. Some agricultural economists claimed that competition serve as a mechanism for determining the best-suited group politically, economically and ecologically. On the negative side: - competition can cause injury to the organism involved and drain valuable resources and energy.

In the present era of liberalization, the agricultural marketing are liberalized to create an opportunity for the alternative marketing channels for selling the agricultural produce to the consumers. Private companies, co-operatives or any legal entity was establish and operate the agricultural marketing infrastructure and supporting services as competitive measures with the markets established by APMCs. Direct purchase of agricultural produce from the farmers' field by individuals as well as companies, societies, co-operatives is encouraged to reduce the number of intermediaries thereby providing opportunity in increasing the share of farmer in consumer rupee. Producer or Consumer markets are established for the direct sale to the processors or consumers. Contract farming is popularized for the assured sale at the predetermined price before sowing. Specialized market yards for special commodities also are developed to provide a commodity specific modern market infrastructure for the particular crops grown in a particular area. Public-Private participation for establishment and management of markets for agricultural produce to encourage the private investment and professionalism in agricultural marketing including post harvest handling of agricultural produce and encouraging value addition to share the burden and provide healthy competition with APMC's, e-market, e-marketing, and e-trading for speedy and distance transactions are also established. Market Stabilization is also found to be created at State level to safeguard the interests of the producers in the wake of sudden and anticipated fall in the prices of agricultural produce. Marketing extension cell is also found to be established for market driven extension service to farmers to adopt the improved practices of marketing to fetch the better price. Agricultural Produce Marketing Standards Bureau is also set up for grading, standardization and quality certifications of all the agricultural produce. The producer be helped and provided all technologies to produce hygienic and provided all better qualities for export to other countries to fetch better prices. Now, the States are also initiated the steps for farmers organizations to produce in collective manner for reduction

in the production costs by pooling the resources, assemble produce at one point to sell in bulk to the main buyer on spot payment and also to use the free time for other earning activities created by those farmer organizations. The other areas related to agriculture and horticulture as such animal husbandry and products of live stocks, forestry, apiculture and sericulture are also well equipped and provided a suitable platform to increase the farm income as a subsidiary occupation.

ITC is emerged as a new marketing channel in field of farm products. The company "e-choupal" initiative is enabling Indian agriculture significantly enhance it's competitiveness by empowering Indian farmers though the power of internet. How far this particular emerging market channel ( EMC) benefited to the farmers as compared to the traditional market channel i.e. regulated market ( TMC) in Madhya Pradesh is the subject matter of intend study. This study is formulated to compared these two channels under following specific objectives:

a) To analyze the economics of soybean production.
b) To identify the post harvest losses in the marketing of soybean.
c) To determine the price spread in the marketing of soybean.
d) To analyze the marketing efficiency of soybean marketing.
e) To identify the services availed by the Farmers and their perception of Market Infrastructure
f) To suggest the ways and means and policy implication for effective marketing of soybean in the state

Amongst different districts of the state (50), Sehore have been selected purposively for the study, as the district has not only has a remarkable position in soybean acreage but also the first district, where the ITC e-soya choupal was introduced by the ITC in the year 2004. The Sehore block of Sehore district has also been selected purposively for the study as the block have the maximum area under the cultivation of crop in the district and the e- soya choupal was also established in this block. A list of all the villages in the jurisdiction of the ITC e- soya choupal was prepared and 3 villages in which the concentration of the soybean area was found to be remarkable has been selected for the study.

A list of all the soybean growers of the selected villages was prepared and 50 soybean growers who were sold their produce to ITC e-soya choupal were selected for the study. An equal number of soybean growers (50) who marketed their produce to regulated

market have also been selected to the study for compared these two marketing channels. The primary data collections were done by the personal interview method for the reference year 2008-09. The study was confined to Madhya Pradesh states of India and for oilseed crop soybean as the Government of Madhya Pradesh; Bhopal gave permission to ITC for purchasing of soybean from the soybean growers. In the marketing of vegetables and fruits there was found no emerging channel like ITC e-soya choupal in Madhya Pradesh and in Chhattisgarh. Hence, the study confined to only Soybean and for Madhya Pradesh state.

The study was based on both primary and secondary data. The primary data of the study were collected from the selected respondents by personnel interview with the help of interview schedule provided by the coordinating centre i.e. institute of economic growth (IEC), New Delhi. The required secondary data were collected on the different aspects of the study from the all the institutions who were found to be engaged themselves in productive and marketing of soybean in the state(The primary data were classified and tabulated in light of stated objectives of the study. The SPSS (Statistical Package for Social Science) was used for classification, tabulation and analysis of collected data. The collected data were analyzed with compare means, percentage etc.

**The major findings of the study are as follows:**

**1.** There was no significant difference was found in the respondents related to TMC and EMC related to their caste, religion, , household's characteristics, farm assets etc. But the respondents related to EMC were found to be younger that that of TMC respondents. The average educational status of the respondents related to the EMC ($9^{th}$) were found to be more educated than that of TMC ($6^{th}$) respondents. The 19% of the respondents had a computer in their house and the majority of them were found to be belonged to EMC (27.03%). Only 5.56% of the total respondents have a computer with internet connection and here also the majority of them were found to belong to EMC (8.11%). The majority of households (95.83%) had a pump set at their farm. Only 30.56% per cent of the respondents had their owned tractor while 22.22% and 29.17% had bullock card and trolley respectively at their farm. None of the farmers was found to be had tiller and combiner at farm at their. Only 4.17% and 2.78% of the total respondents respectively had a four wheeler and a harvester at their home and farm.

**2.** The majority of the respondents of the study area are found to be had to medium (40.28%) and large (33.33%) size of farms, while 9.72% and 16.67% had respectively belongs to marginal and small size farms categories. None of farmers was found to be done farming purely on leased in land. Cent per cent respondents were found to cultivate their owned land, while only 8.33% of them also obtained leased in land from other cultivators.

**3.** None of the farmers was found to be used sprinkler and drip irrigation at their farm, while 95.83% were found to be used pump sets. The 92.22% of the respondents had their owned storage, they were found to be used steel bin or "katcha banda" for storage of grains. The 30.50%, 29.17% and 22.22% of the respondents were found to be used tractor trolley and bullock carts respectively for the transportation of the produce from farm to the market.

**4.** There was found remarkable positive gap of 9.97% in average respondent's farm related to EMC (Rs.18639.76/ha) as compared to TMC (Rs.16949.69/ha) in the total cost of cultivation of soybean, revealed that the respondents related to EMC were found to be used more or quality inputs in their farms as compared to respondents related to TMC farms.

**5.** The respondents related to EMC were invested 1861.11%, 208.42%, 148.59%,114.33%, 123.76% and 118.37% more in the application of micronutrients, weedicides, hormones, insecticides, DAP and machines labour at their farms as compared to the respondents related to the TMC. They were also found to be invested less in hired human labour (-28.74%) and bullock labour (-48.76%) and family labour (-40.19%) less than the respondents related to the TMC.

**6.** The respondents related to TMC had invested more in labour as compared to EMC, while respondents related to EMC were found to be invested more in input as compared to TMC farms revealed that the respondents related to EMC who had capital oriented farms while the respondent related to TMC had labour oriented farms.

**7.** Soybean crop was found to be profitable in the area under study on the average farmer respectively related to TMC and EMC obtained Rs. 2.96 and Rs. 2.89 on investment of Rs.1.00 in the total cultivation of soybean. The respondents related to EMC got more gross return (Rs.4992.00/ha), net return at variable cost

(Rs.3593.31/ha) and net return at total cost of cultivation (Rs.3301.91) as compared to the respondents related to TMC. There was found 15.67%, 17.28%, 22.16% respectively increased in gross income, net income at variable cost and net income at total cost of cultivation of soybean of an average respondent related to EMC as compared to an average respondents related to TMC. The cost of production of soybean was found to be less (-1.93%) at average farmer related to EMC (Rs.988.85/q) as compared to an average farmer related to TMC (Rs.1008.31/q).

**8.** An average respondent retained 8.94 q of soybean only for seeds for next season for sowing the crop. The producer of soybean has not been found to be consumed soybean at their farm this revealed that soybean was found to be a cash crop in the study area.

**9.** None of respondent disposed of their soybean in the month '0' (just after the harvest of the produce) in the EMC, as there was found specific standards / norms of grading at the EMC. The EMC not starts to purchase of soybean when there was higher percentage of moisture in the grain. Purchasing start from the produce after the one month of harvesting with specific norms. Hence, a respondent, who wants to disposed off the soybean just after the harvest of soybean, not preferred this particular market channel. Where as 12.06% of the produce of the respondents related to TMC (Regulated market) disposed off their produce to the whole sellers at lower rate with high moisture content.

**10.** The total post harvest losses was found to be incurred in a average farm was 0.59 q /farm , which is estimated to Rs. 1111.60/farm. The quantity losses incurred in on farm (40.48%) was found to be maximum followed by spoiled in the storage (24.64%), damages during transportation due to improper packing (18.86%) and damages during transportation due to long travel from farm to the market (13.52%). The magnitude of these losses was found to be similar in TMC and EMC with minute differences.

**11.** The producers were found to borne less marketing cost (-27.73%) when they brought their products to EMC (Rs.22.21/q) as compared to the producers who were preferred TMC (Rs.30.73/q). The transport cost (52.96%) was found to highest followed by wastage (17.55%), loading and unloading (13.07%) and storage cost (96.07%) , while in EMC, transport cost (75.62%) in total marketing cost borne by the producer

followed by storage (10.63%) and sampling of produce (9.19%), were found to be main components of this particular cost.

**12.** There was found a difference between -56.27 % in the cost incurred in EMC (ITC- e-Soya choupal) as compared to TMC (wholesaler in regulated market). Here, also the transportation cost (30.43 %) was found to be a major item of marketing cost in TMC followed by mandi tax (22.73 %), cost of bags (15.39%) and development cess (11.37%).

**13.** The producer got 13.35 % more when he brought his produce to EMC (82.62 %) as compared to TMC (72.89%). The EMC market (1:5.75) was also found to 76.58 % more efficient than the TMC (1:2.69) as the price spread in marketing of soybean was found to be -33.81% less in EMC (17.38 %)as compared to TMC (27.11 %).

**14.** The respondents related to regulated market (TMC) were sold their produce due the reason that they were found to be habitual for that (100%), assured sale (100%). Somewhat higher price or fair price (80%) and proximity (68.57%) of markets. They were also reported during the course of investigation that they had to faith over this government organization and they have no confidence over the emerging market channel like ITC e-choupal as they have bitter experience in the past. They told that these types of organizations are befooling us and gone away in future by creates profit for them

**15.** The respondents related to the EMC reported that they were sold their product in ITC e-choupal as there was a influence of *sanchalak* of ITC e- choupal, who have a computer and internet facilities at his home in the village. He told them the rate of the next day, a day before with all the grading standard of the ITC-e-choupal. They brought the produce in EMC as they got superior services (100%), superior infrastructure (100%) low cost of marketing (100%), higher price/ fair price of the product (100%), proximity (70.27%), no hidden charges or bribe (100%) and no waiting time (100%). A part from these reasons the ITC-e-choupal also facilitate them to assess the input (62.16%). As in the ITC Sagar mall, where they purchased all sorts of consumable goods, branded input, petrol etc.

**16.** The condition of roads reached the in both the market are found good (100%) both the market were found to be in the reached of the respondents (100%) and the market have good banking facilities ( 100%). The majority respondents related to the TMC (Regulated market) reported that their were found average godown facilities,

average action arrangement , average supervision of sale, average loading facilities, average parking facilities, average internal telephone and internet facilities, where as all the respondents belongs to EMC report that these all facilities are found good in ITC e-choupal.

Hence, it is clear from the above discussion that ITC e- choupal is found to be more technical viable, economical feasible and efficient channel than that of regulated market for soybean marketing in the state. Therefore, the efforts should be made to facilitate the producers, traders and regulated markets in the lines of the ITC e-choupal.

Further, it is also found during the course of investigation that the farmers who were related to the TMC were lacking in the technical knowledge, quality inputs and information technology. These functions are carried out by the government of Madhya Pradesh by their Department of Farmers' Welfare and Agricultural Development to some extent as there is still found a yield and adoption gap in the recommended package of practices of soybean in the farmers' fields due to the lack of field staff. These functions are effectively carried out by the processors of the soybean by providing extra incentives and motivation to them. As, it is clear in the investigation that the processor is the ultimate profit maker of the soybean in the state. Whatever the soybean grower produce in their field was found to be reached in door step of the processor. Therefore, it is his ultimate duty that he provides the full package of quality inputs at subsidized rate to the producers and purchased all the production of the producer at fair price. If the government provides special motivation and facilities to processor they will be come forward to do this effectively. This will also become an effective measure for removal of production well as marketing constraints prevailed in the marketing of soybean.

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# EXCECUTIVE SUMMARY

Competition can have both beneficial and detrimental effects. Some agricultural economists claimed that competition serve as a mechanism for determining the best-suited group politically, economically and ecologically. On the negative side: - competition can cause injury to the organism involved and drain valuable resources and energy.

In the present era of liberalization, the agricultural marketing is liberalized to create an opportunity for the alternative marketing channels for selling the agricultural produce to the consumers. Private companies, co-operatives or any legal entity was establish and operate the agricultural marketing infrastructure and supporting services as competitive measures with the markets established by APMCs. Direct purchase of agricultural produce from the farmers' field by individuals as well as companies, societies, co-operatives is encouraged to reduce the number of intermediaries thereby providing opportunity in increasing the share of farmer in consumer rupee. Producer or Consumer markets are established for the direct sale to the processors or consumers. Contract farming is popularized for the assured sale at the predetermined price before sowing. Specialized market yards for special commodities also are developed to provide a commodity specific modern market infrastructure for the particular crops grown in a particular area. Public-Private participation for establishment and management of markets for agricultural produce to encourage the private investment and professionalism in agricultural marketing including post harvest handling of agricultural produce and encouraging value addition to share the burden and provide healthy competition with APMC's, e-market, e-marketing, and e-trading for speedy and distance transactions are also established. Market Stabilization is also found to be created at State level to safeguard the interests of the producers in the wake of sudden and anticipated fall in the prices of agricultural produce. Marketing extension cell is also found to be established for market driven extension service to farmers to adopt the improved practices of marketing to fetch the better price. Agricultural Produce Marketing Standards Bureau is also set up for grading, standardization and quality certifications of all the agricultural produce. The producer be helped and provided all technologies to produce hygienic and provided all better qualities for export to other countries to fetch better prices. Now, the States are also initiated the steps for farmers organizations to produce in collective manner for reduction in

the production costs by pooling the resources, assemble produce at one point to sell in bulk to the main buyer on spot payment and also to use the free time for other earning activities created by those farmer organizations. The other areas related to agriculture and horticulture as such animal husbandry and products of live stocks, forestry, apiculture and sericulture are also well equipped and provided a suitable platform to increase the farm income as a subsidiary occupation.

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