Minimum Support Price and Farmers' Income

A Case Study for Wheat Production in Chittorgarh, Rajasthan (India)

CUTS International

Minimum Support Price and Farmers' Income

A Case Study for Wheat Production in Chittorgarh, Rajasthan (India)

Contents

List of Tables

Acronyms

APC   Agricultural Price Commission

CACP   Commission for Agricultural Cost and Prices

COP   Cost of Production

CSO   Civil Society Organisation

MSP   Minimum Support Price

NCF   National Commission on Farmers

NSSO   National Sample Survey Office

OMP   Open Market Price

PDS   Public Distribution System

WTO   World Trade Organisation

ToR   Terms of Reference

Executive Summary

Minimum Support Price (MSP) was introduced by the Government of India to protect farmers against sharp dip of agricultural prices, which was usually observed during the harvest seasons. The harvest seasons are associated with huge supply, which overshadows the demand, and hence, in most cases the commodity prices hit the bottom. This forces the farmers, in necessity of money for repayment of debts, in selling their produce at losses or very little profits. Thus, the government fixes the MSP, as a part of government foodgrain procurement, for a list of about 30 commodities. Selling at MSP ensures profit margins for farmers and avoids distress selling situations.

MSP should ideally, not only cover the cost of production but should also ensure remunerative price for the commodities to the farmers. MSP also seeks to control the volatility of Open Market Price (OMP) by setting a minimum selling price standard. However, the effectiveness of MSP has been a point of debate among the relevant stakeholders. Since MSP focusses on about 30 crops, it is often blamed for catalysing cultivation of the listed crops. Thus, it is claimed that the state where these crops are largely grown, such as Punjab and Haryana are the ones benefitting from the MSP scheme while other states are lagging behind. In other words, it is claimed that MSP is only advantageous for the foodgrain surplus states and not the deficit ones.

Another debate on MSP is associated with the way it is calculated. Calculation of MSP is done on a number of parameters, which tend to influence the cost of cultivation. MSP is determined on the basis of total costs incurred in C2, which includes all actual expenses in cash or kind, rent for leased land, imputed values of cost of family labour, owned capital assets, depreciation of assets, the interest on fixed and variable capital, *et al*. Accordingly over the years, the parameters have been included and excluded from the list of factors, which determine the computation of MSP but the debate remains on for settling in for a perfect mix.

To understand the causes of famer distresses and the rise in farmer suicides, and recommending addressing them through a holistic national policy for farmers, The National Commission on Farmers (NCF) was constituted on November 18, 2004 under the chairmanship of Professor M S Swaminathan. The NCF submitted four reports in December 2004, August 2005, December 2005 and April 2006 respectively. One of the key recommendations on MSP by the committee was that the MSP should be at least 50 percent more than the weighted average cost of production[1].

The correlation between international prices of wheat and MSP of wheat in India, over the years, has also been reviewed in the study. The international price of wheat was higher than the MSP before 1995. After the establishment of World Trade Organisation (WTO), India came under strong pressure to increase the MSP and align it with international price. The researchers and farm groups in India demanded an increase in the MSP to provide fair treatment to the farmers. As a result, the MSP was raised every year, which led to the MSP

---

1   Serving Famers and saving farmers, Fifth and Final Report, 4 October 2006, National Commission on Farmers, Ministry of Agriculture, Government of India

exceeding the international prices after a few years. The price differential between the international and domestic price, thus brought distortions and inefficiencies in the production pattern. It influenced the exports and local consumption of foodgrains and at times even created scarcity of foodgrains in the local markets. While the international prices were much higher, the farmers preferred to export thereby resulting in lower procurements by the government and less wheat coming to the local market. This created a scarcity of foodgrains in the country. Similarly, when the MSP exceeded the international price, it let to more farmers selling their produce to government procurement agencies, leading to decline in exports and a huge foodgrain stock for the government to manage.

Considering all the arguments mentioned above, it is clear that the agricultural price policy impacts the economic condition of farmers. MSP are not just numbers for the farmers, but much more being connected to livelihood and growth of the farmers. Thus, it was imperative to analyse these impacts and the effectiveness of the government agriculture support system framework.

This case study of Chittorgarh district of Rajasthan makes an attempt to analyse the impact of MSP on a farmer's income. Rajasthan is the fifth largest wheat producing State of India and its contribution to the national production of wheat, in 2012, was 10 percent. During the same time, Rajasthan contributed 7 percent to the central pool of wheat. To examine the impact of MSP on the farmers' income in Chittorgarh, a total of 91 farmers in 19 villages in three blocks of Chittorgarh district were identified. Through primary surveys and key informant interviews, the study investigated whether the MSP sufficiently covered the cost of wheat production incurred by farmers and also tried to assess the effectiveness of government agriculture support system on the identified farmers.

The survey provided insights into the socio-economic conditions of the farmers in the study area. All farmers owned some agricultural land, however, the owned land varied a lot on size. Accordingly, the farmers were categorised as marginal, small, medium and large[2]. The data indicated that the share of marginal, small and medium farmers was more than 96 percent and there existed very few large scale farmers. 93 percent of farmers practiced agriculture related activities on their own land, while the remaining 7 percent farmers, in addition to their own land, leased land from others for cultivation. It was interesting to find that most of the farmers (64 percent) were aged above 40 years of which 32 percent were above 60 years of age, which reflected low involvement of youth in agricultural sector in the study region.

In case of wheat cultivation, there were nine types of wheat varieties grown by farmers in the study area. Lokwan was the most popular variety owing to its adaptability to the physio-climatic conditions of the area and being the preferred variety for local consumption. However, the study does not try to assess the productivity of Lokwan or any other variety to comment on the ideal variety of wheat cultivation in the study region. The share of Lokwan varieties grown was 76 percent. Surprisingly, the comparative yield level for small farmers came out to be more than the larger farmers. This might be due to the use of unsustainable agricultural practices by small farmers in order to maximise production. The yield recorded for 74 percent farmers was in the range of 5 to 10 quintals per *bigha*.

---

2   Marginal (0-2 *bigha*), small (2-4 *bigha*), medium (4-8 *bigha*) and large (>8 *bigha*)

The study discovered that a large number of farmers kept a portion of their produce for their own consumption. 33 percent of farmers consumed upto 60 percent of their produce which highlighted the fact that for marginal farmers, agriculture was more about self-sustenance rather than a livelihood option. Marginal farmers tend to produce only enough that gets used up in their own household. The cost of production also varied according to the farm sizes and the agricultural practices. It ranged from Rs5000 per *bigha* for Lokwan cultivation to Rs15000 per *bigha*. The study justified the notion of large farm sizes bringing the average unit cost of cultivation down, as compared to small farm sizes. The per quintal cost of production for wheat ranged from Rs500 to 2000 and it was found that during the same time the MSP and OMP on offer were Rs1500 and Rs1431 per quintal respectively. However, the survey results reflect that 59 percent of farmers sold their produce below MSP, 22 percent at MSP and 18.7 percent at greater than the MSP. Further, out of the famers interviewed for the survey, it was found that for 60 percent of farmers, the OMP offered for their produce was lower than the MSP. All these statistics expose the ground reality of the agricultural sector and the state of farmers.

The survey recognised several reasons for the farmers not selling their produce at MSP. One was due to their low-level of awareness regarding MSP and the advantages of selling their produce at *Mandi* (trading hub for agricultural produce). Since the farmers were debt-ridden to local money lenders/traders, they felt an obligation, either to sell their produce immediately after harvest or selling it to the traders or middlemen at very low prices to pay off their dues. Lastly, the farmers rarely used warehousing services to store their produce due to non-availability and cost. This negated the alternative for them to sell their produce later, at a time, when they could get better prices for their produce. One reason for this was the lack of storage facilities in vicinity and the second was their lack of awareness. While all these factors contributed a lot to the issue, the unavailability of *Mandi* or Government procurement agencies in vicinity, also refrained farmers from selling their produce at reasonable prices. The study revealed that only 10 percent of the farmers surveyed had sold their produce to the government agencies, while 83 percent sold to the unregulated markets, such as to local traders, middlemen and money lenders having a history of exploiting farmers on selling prices.

The survey results highlighted the gap between the farmers and the *Mandi* and MSP framework. The awareness levels found in the survey were so low that 45 percent of farmers acknowledged of not being aware of MSP. For those who knew about MSP initiative had little knowledge on the sources of gathering information about it. On the bonuses over and above about the MSP offered by state governments, only 16.5 percent of farmers were aware. For *Mandi* prices, the situation was little better than MSP and 67 percent of farmers were aware of the prices in the nearest *Mandi*. However, one of the challenges was the frequency at which the farmers updated themselves on the prices prevailing at the *Mandi*. Though there are numerous sources to avail information on *Mandi* prices and MSP, such as local agriculture officers, Non-government Organisations (NGOs), TV, radio, mobile phones, farmers' clubs, *panchayats*, and newspapers *et al*, the farmers were still unaware of the *Mandi* prices. This highlights the voids, which need to be filled in so as to ensure the ease of information being provided to the farmers on agricultural commodity prices.

Finally based on the survey findings, income levels were derived based on OMP and MSP. The income levels from OMP and MSP both came out marginally higher than the cost of

production. OMP accounted for a profit of Rs2714 for the small farmers (0-2 *bigha*), which was approximately 14 percent of the cost of production. Similarly for MSP, the profit came out to be Rs3715, which accounted to 19 percent of the cost of production. This showed that the profit margin from MSP was higher than OMP and as the size of land holdings increased, the profit margin also increased. The average income considering all land holding segments came out to be Rs1.13 lakh and Rs1.20 lakh from OMP and MSP respectively. The average cost of production across all land holding segments came out to be Rs53,000. The income was more than double the cost of wheat production but it was evident that the MSP fares better than the OMP in enhancing income level of the farmers.

Even though the income generated by selling wheat production at OMP and MSP seems sufficient to cover the cost of production but still the income is not sufficient to cover the annual expenditures of farmer's household. MSP can contribute a bit in the enhancement of income of the farmers but there are others factors like quality of seed, irrigation facility, use of fertilisers, availability of labour and technology, which play a significant role in the determination of income.

Considering the low awareness levels of farmers on MSP and the possible role of MSP in raising farmer's income, there is a need to apprise the farmers on MSP. Government can organise awareness drives for this, by pushing the procurement agencies to reach out to the farmers initially rather than the other way round. Since the procurement agencies are located far off from some villages, the farmers are often reluctant to bear the cost of transportation and thus, stay devoid of realising the benefits of government agriculture support system. This awareness drive might be furthered by collaborating with the various NGOs, which can help in increasing the outreach.

It has also been realised that there is no role of farmers or farmers' associations in MSP calculation process. Understanding the total cost incurred by farmers, by taking their inputs, should help in selecting the right mix of parameters for MSP calculation, which will make MSP more effective and helpful. Thus, there should be efforts to create forums for farmers, where the farmers might raise their concerns and suggestions. Moreover, the government should also encourage the farmer bodies and associations to take part on the larger fora of stakeholders, while deciding the contributing factors for MSP.

Another important factor often neglected (or not given due weightage), in agriculture, is the use of technology and hi-tech seeds. Usage of low quality seeds results in low yield and thus, lower income for farmers. This might be resolved with the farmers interacting with the agriculture departments and the NGOs that can suggest them the best variety of seeds, according to the physio-climatic conditions in the area. These organisations might also promote the use of new and efficient technologies for cultivation by the farmers through educating them on the benefits and advising them the government offered subsidies on agricultural equipment.

Since agriculture, in India, is highly dependent on credit, it is critical to identify the sources of credit. The high interest rates charged by local moneylenders and traders, result in farmers falling in a debt trap, which often leads to panic and low price selling by farmers. Thus there is a desperate need of linking farmers with formal credit institutions and also helping farmers to imbibe the savings culture. This is only possible by enhancing the outreach of formal

financial institutions. Then the requirement would be educating the farmers about the benefits of availing credit from these institutions and also highlighting the importance of savings.

As the cost of production has direct implications on a farmer's income, it is imperative to educate farmers in keeping their costs minimum to maximise the profits. The farmers might be assisted by the government on this, by providing them good quality seeds at low prices and also subsidising agriculture technology, which could play a pivotal role in minimising the cost of production. Also, the study highlights the need of expanding the storage facilities for agricultural commodities. The lack of storage facilities results in farmers selling their produce immediately after harvesting, which fetches them lowest prices.

Lastly, improving the accessibility of the farmers for *Mandis* could encourage the farmers to sell their produce either at MSP or a competitive OMP. Since for individual farmers, it is tough to meet the cost of freight to *Mandis*, the procurement agencies might organise joint procurement camps for a cluster of nearby villages. Alternatively, farmers can also pool in for transportation of their agricultural commodities to *Mandis*, which could help in bringing down the unit transportation cost for the farmers.

Chapter 1
Introduction

History of Minimum Support Price in India

The agricultural price support system of India has been a Government of India initiative, since 1965[3], to protect the interests of the farmers/producers against any sharp decline in agricultural prices. The price support system was expected to help the farmers after the harvesting period, which is associated with high probability of the agricultural prices crashing due to surplus stock in the market. For situations like this, the government guarantees a MSP to farmers, which is expected to cover the cost of production as well as ensures certain profit margin to farmers. MSP is fixed and announced every year by the Central Government on the recommendations of the Commission for Agricultural Cost and Prices (CACP).

In addition to the MSP announced by Central Government, the State Governments also declared a bonus, over and above the declared MSP so as to promote agriculture practices in the states. The quantum of this bonus varies from state-to-state and from crop-to-crop.

The Agricultural Price Commission (APC) was established in 1965[4] to advise the Government in following a balanced price structure for agricultural products in India. The price policy was, as a result, revised in 1980 which shifted the focus from maximisation of production to maintaining a balance between the demand and supply of food grains. This was further reflected in the updated Terms of Reference (ToR) for the working of APC. In March 1985, APC's name was officially changed to CACP. The revised objectives tried to synchronise the pattern of production with the need of national economy.

CACP recommends MSP for 28 agricultural crops[5] in India, which includes paddy, wheat, cotton, oilseeds, pulses et al. However, MSP framework, since its inception, has always been accused by experts of favouring foodgrain surplus states, such as Punjab and Haryana[6]. Both of these states are major contributors to the procurement of food grains, under Public Distribution System (PDS). Since foodgrains represent a major part of procurement for PDS, the MSP policy seems to favour food crops as compared to other crops.

As a result throughout India, large land areas shifted from the cultivation of pulses, oilseeds and other commercial crops to paddy and wheat in anticipation of sure profit. This created an imbalance in the demand and supply of other crops, such as pulses and oilseeds. Also, the MSP is ineffective in states where wheat is in deficit whereas, for the wheat surplus States, MSP is found to be more effective[7]. For the wheat deficit states, market prices are lower

---

3   The Commission of Agricultural Costs & Prices Website,
     http://cacp.dacnet.nic.in/content.aspx?pid=32
4   Ibid
5   Minimum Support Prices Recommended by CACP and Fixed by Government(Crop Year),
     http://cacp.dacnet.nic.in/ViewContents.aspx?Input=1&PageId=36&KeyId=0
6   Ali, Shayequa Z, Sidhu, R S and Vatta, Kamal (2012), "Effectiveness of Minimum Support Price
     Policy for Paddy in India with a Case Study of Punjab", Agricultural Economics Research Review,
     Vol. 25(No.2) July-December 2012 pp 231-242
7   Ibid

during post-harvest period and rise in the lean period, which is not the case with the wheat surplus states.

In the past few years, MSP framework of India has drawn criticism by farmers and advocates of free trade. Though, farmers have always demanded a substantial hike in MSP but the supporters of free trade feel that domestic prices are not in line with the international price as well as domestic demand and supply scenario. This price differential has brought distortions and inefficiencies in the production pattern. It has been argued that agricultural price policy has widened the income inequality among farmers. It has also been argued that MSP has lost its original purpose, which was supposed to stabilise the economic standing of farmers and making them less dependent on market fluctuations. It was an economic tool to protect the wider section of farmers in various states but now is increasingly being used as a political tool by the politicians[8].

It was imperative to examine the effectiveness of MSP in different states of India and also its contribution to the farmer's income. The CUTS case study has examined the impact of MSP on wheat production and consumption pattern in Chittorgarh district of Rajasthan. Chittorgarh district was selected for the study due to two key reasons i.e. 1) Chittorgarh forms a huge market for wheat in Rajasthan and thus has a large number of players in trade of agricultural commodities active in this region; 2) CUTS has been working extensively on numerous issues in Chittorgarh for the past 30 years and has developed an expertise in the understanding of the demographics and economics of the area.

---

8   Supra 4

Chapter 2
Relationship between Cost of Production and MSP

Determinants of MSP in India

It is common perception that MSP is fixed by the Government considering the Cost of Production (COP) of crops. In the past few years, there has been a lot of discussion on adding new variables to the MSP calculation matrix, the variables, which influence the cost of production and yet do not form a part of MSP calculation. The MSP is determined, taking into consideration the cost incurred as C2 cost, which includes all actual expenses in cash and kind including rent of leased land, imputed values of the cost of family labour, owned capital assets, depreciation, interest on fixed and variable capital et al. Therefore, 'C2 cost' is considered as a relevant concept for the calculation of MSP.

The MSP based on the cost of production has two major advantages. Firstly, it ensures producers do not suffer any loss and also get commensurate price on selling their produce. Secondly, the cost of production also captures the market trend to the extent that it reflects the changes in the wage rate and input prices. In addition, it also includes price parity, demand and supply, effect on the industrial cost structure, cost of living, international price situation, effects of issue prices and the implication on food subsidy.

Till the year 1998, there was a close relationship between the cost of production and MSP of wheat as the MSP was decided taking in consideration the cost of production. Usually, the MSP remained slightly higher than the cost of production but occasionally went down. However, post 1998, MSP started rising continuously owing to the constant rise in international prices, which developed a large gap between MSP and cost of production. This asymmetry between MSP and cost of production thus, broke the relationship that existed once between the two and MSP was rather based on the prices existing in international market than the cost of production.

When the decision on MSP value was based on the cost of production, the impact of MSP on national foodgrain stocks and net trade followed mild year-on-year fluctuations. Once MSP was delinked from the cost of production and rather based on the international price trend, the impact was felt on the buffer stock and net trade of wheat. In other words, when MSP and cost of production were in line to each other, the nation foodgrain stocks and net trade followed a steady path but when MSP and cost of production were delinked, heavy fluctuations were seen in the stock levels and trade for wheat. The reason behind that might be attributed to the difference in the factors responsible for price change in India and at international level. It is not necessary that rise in international price would mean the cost of production had increased worldwide and thus MSP needs to rise as well and vice versa.

Determinants of MSP and International Price

Table 1 presents the international price and MSP of wheat in India during the years 1992 to 2012. The international price of wheat was seen to be higher than MSP in India during 1992 to 1998. During the financial year 1996-97, the international price of wheat (701) was much

higher than the MSP of wheat (380) in India. The continuous rise in the international prices over the years developed a large gap between the international price and MSP for wheat as the rate of increase in MSP during these years did not match the international pattern.

In 1996, the price disparity between international price and MSP created a strong pressure on the Indian Government to bring price parity between domestic and international prices of wheat. The researcher and various farms groups in India campaigned for the increase in MSP of wheat by the Government in order to align domestic and international prices to provide fair treatment to farmers of India.

Table 1: International Wheat Prices and MSP in India					
Year	International price (INR per quintal)	MSP in India (INR per quintal)	Year	International price (in INR per quintal)	MSP in India (INR per quintal)
1992-93	447	330	2003-04	691	630
1993-94	437	350	2004-05	691	630
1994-95	475	360	2005-06	699	640
1995-96	642	380	2006-07	896	650
1996-97	701	380	2007-08	1241	750
1997-98	560	475	2008-09	1290	1000
1998-99	511	510	2009-10	1017	1080
1999-00	471	550	2010-11	1173	1100
2000-01	548	580	2011-12	1453	1285
2001-02	597	610	2012-13	1762	1350
2002-03	747	620			
Source: International Monetary Fund and Reserve Bank of India					

Subsequently during the year 1997-98, the Government of India raised the MSP by 25 percent from Rs380 to 475 per quintal, even though CACP had recommended hiking MSP by just Rs25 per quintal. In the same period, the international price dropped by 20 percent slashing the prices of wheat from Rs701 to 560 per quintal. The price difference between international and MSP of wheat, which was earlier Rs361, came down to Rs85 per quintal.

After the year 1996 till the end of 1999, the international price was descending but the MSP in India was still on a rise. The net result was that, by the end of year 1999, MSP (550) turned out to be much higher than the international price (471). With the international price on a declining trend and CACP recommending increasing of MSP, the Government had already accumulated more than the required stock in their buffer. During 2000-2001, MSP was raised again and was already too high for CACP to recommend any further hike in MSP. Despite this the Government of India hiked the MSP by five percent to Rs610 per quintal.

Table 1 clearly highlights that after 1996, MSP was raised as the international price was way higher than MSP, which called for MSP upsurge. But despite the international prices falling below the domestic prices, the rise in MSP was not controlled. The domestic price of wheat

was way higher than the international price till 2001-02, which closed the doors any wheat export even when there was surplus wheat in the country.

Continuous increase in MSP while ignoring the cost of production and domestic market price led to increase in buffer stock with the Government[9]. The increase in buffer stock led to a decline in per capita availability of cereals as most of the produce filled up the Government Stock rather than being sold in the open market. This had an adverse impact on the consumption pattern of people as in the market cereals became a scarce commodity. Cereal stocks became an issue for the Government as the financial implications associated with stocking huge amount of cereals were quite high. The Government had to take desperate measures like export subsidy to bring the stock levels down. The impact of export subsidy saw tremendous boost in exports for the next few years, which could only last till the subsidy was in place.

After 2004, the international prices of wheat again started showing an increasing trend while the MSP was not increased in parity. In 2007-08, the international price for wheat reached Rs1241 while the MSP was lagging way behind at Rs750 per quintal. This huge difference between the two prices for wheat again created a strong pressure on the Government to bring price parity between the two. The year 2006 was also associated with the low-level buffer stock with the Government. For the year 2007, the Government raised the MSP by 15 percent (from Rs650 to Rs750) to procure more in order to increase the buffer stock of food grains. But due to huge rise in international price for wheat, the domestic price lagged behind by Rs491. This prompted the CACP to raise the MSP by 33.3 percent, from Rs750 to Rs1000 per quintal, in 2008-09. This increase of 33 percent caused MSP to be 50 percent higher than the cost of production. The increase in MSP was so high that it left little scope for the Government to further give a bonus on the MSP. CACP justified the hike by claiming it to be in line with the international prices.

The international price of wheat peaked during 2008-09, it declined by 21.2 percent in 2009-10 but the MSP of wheat in India was on a rise continuously from 2008. The Government was holding buffer stock of wheat in excess of the maximum norm of 4 mn tonne. The domestic demand was also not in a position for further increase in the MSP. The set price of MSP at Rs1000 per quintal was so high that the market was not able to absorb the price.

In spite of all these issues, CACP recommended an increase of eight percent to MSP for the year 2009. International price of wheat increased by 23.8 percent from 2010 to 2011 and in the following year increased by 21.26 percent. During 2009-10, the MSP was higher than the international price but in 2011-12 the MSP dropped below the international price. Therefore, the relationship between international price and MSP of wheat over the years, clearly indicate that when MSP was higher than the international price, it lead to increase in buffer stock but when it was lower, there was an increase in export of food grains. Hence, MSP has a direct impact on the export of food grains from the country.

National Sample Survey Office (NSSO), as a part of their survey, on 'Key Indicators of Situation of Agricultural Households in India', also tried to gauge the awareness on MSP

---

9 Chand, Ramesh, (2009) "MSP and Other Interventions in Wheat Market: Are they contributing to the Buffer Stock Cycles and Market Destabilization?

among farmers in India. The study highlighted that majority of farmers sold off their wheat produce to local private traders or *Mandis*, while only 1.9[10] percent of farmers sold their produce to cooperatives or the government agencies. On awareness, the study reflected that only approx. 40 percent farmers knew about MSP and only 16.2 famers sold their produced to the procurement agencies.

In the following sections, the study will describe the MSP scenario for wheat in Rajasthan, followed by a case study of Chittorgarh on MSP. The case study will present number of factors associated with the agricultural support system in the area and its impact on the farmer income levels.

---

10 "Key Indicators of Situation of Agricultural Households in India", NSSO 70th round, Jan-Dec 2013, National Sample Survey Office, Ministry of Statistics and Programme Implementation, Government of India

Chapter 3
Current Status of MSP in Rajasthan (Wheat)

The State of Rajasthan was the fifth largest wheat producing State of India in 2014-15[11]. The MSP of wheat in five major wheat producing states, over the year, is shown in Table 2. The Table shows that the MSP in other states differs from the MSP decided centrally. This is because of the bonus provided by individual State Governments to its farmers, which is added over the centrally declared MSP. Bonus is provided to promote agriculture in states and also to incentivise the cultivation of food grains by the farmers.

Table 2: Minimum Support Price in India and Five Major Wheat Producing States						
Year	**Minimum Support Price**					
	India	**Punjab**	**Haryana**	**UP**	**MP**	**Rajasthan**
2009-10	1100	1540	1250	1500	1400	1300
2010-11	1120	1650	1275	-	1500	1500
2011-12	1285	1500	1500	-	1600	1500
2012-13	1350	-	-	-	-	-
Source: Indiastat, 2014						

Wheat Production in Rajasthan

Wheat is a principle crop and major staple food for the majority of the people in Rajasthan. The area under wheat cultivation, in the state, increased from 2.2mn hectare to 3.1mn hectare between 2000-01 and 2012-13[12]. The percentage share of land contribution in India's total land had increased by 1.53 percent during the same period[13]. In terms of yield, Rajasthan stands fourth, behind Punjab, Haryana and Uttar Pradesh. Wheat yield in Rajasthan increased from 2794 to 3028 kg per hectare during 2003-04 to 2012-13[14]. Figure 1 shows the wheat yield of all major wheat producer states in India for the period of 2012-13. The yield of each state is in kg per hectare.

---

11 Statistics from Indiastat Portal, www.indiastat.com
12 Ibid
13 Ibid
14 Ibid

Figure 1: Wheat Yield of Major Wheat Producing States in 2012-2013
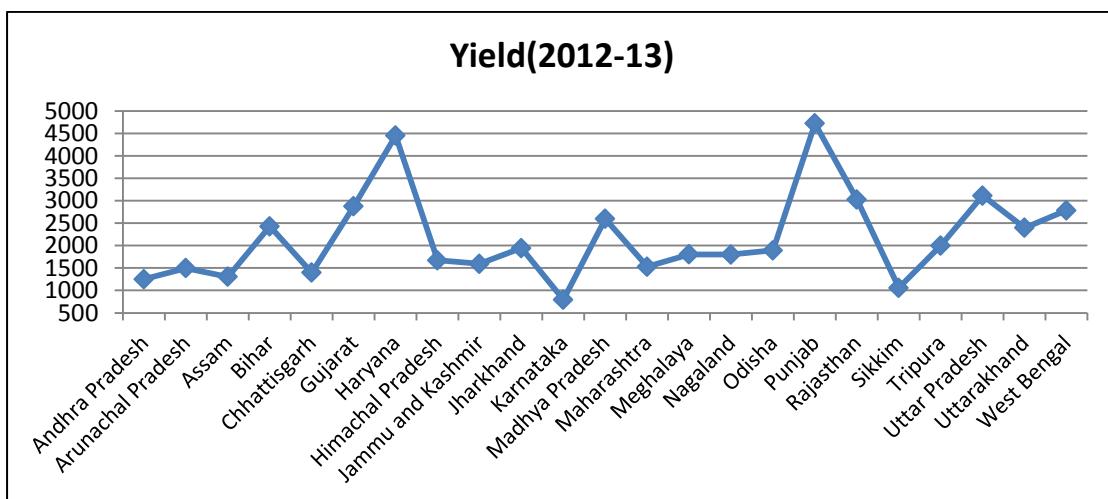
(Source: Indiastat.com)

Production and Procurement of Wheat

Rajasthan is the fifth largest wheat producer in India after Uttar Pradesh, Punjab, Madhya Pradesh and Haryana. State's contribution of wheat in India's production for 2013-14 was highest for Uttar Pradesh (32.41 percent) followed by Punjab (17.74), Madhya Pradesh (14.05), Haryana (11.89), and lastly Rajasthan (9.92 percent). The production of wheat in Rajasthan increased by 1.78 percent from 2003-04 to 2012-13. During 2004 to 2008, its production level was very low and the contribution in India's total production was less than one percent (Table 3).

The contribution of Rajasthan in India's production varied from as low as 0.08 percent to a high of 10.10 percent during 1992 to 2015. The contribution to central pool also varies from state to state. Rajasthan's contribution fluctuated from as low as 0.02 percent in 2006-07 to a high of 7.72 percent in 2014-15. In 2013-14, the highest contribution was of Punjab (43 percent) followed by Haryana (23 percent), UP (3 percent), MP (25 percent) and Rajasthan (5 percent), to the central pool. The contribution of Punjab and Haryana to the central pool declined by 15 and 4 percent respectively, during 2000-01 to 2014-15. The contribution of Uttar Pradesh has been fluctuating over the years. The contribution of Madhya Pradesh to the central pool increased from 2 to 25 percent while the contribution of Rajasthan has also increased in this duration from 3 to 5 percent[15].

---

15 Supra 7

Table 3: Rajasthan's Contribution to National Wheat Production and Central Pool					
	Production (thousand tonnes)			Contribution to the central pool (lakh tonnes)		
	India	Rajasthan	Share of Rajasthan (%)	India	Rajasthan	Share of Rajasthan (%)
1992-93	57210	5148	9.00	63.8	0.2	0.34
1993-94	59840	3460	5.78	128.4	5.0	3.86
1994-95	65767	5613	8.53	118.7	0.7	0.55
1995-96	62097	5493	8.85	123.3	4.5	3.68
1996-97	69350	6782	9.78	81.6	2.3	2.81
1997-98	66345	6701	10.10	92.9	3.2	3.44
1998-99	71288	6880	9.65	126.5	6.7	5.27
1999-00	76369	6732	8.81	141.5	6.4	4.50
2000-01	69681	5547	7.96	163.5	5.3	3.27
2001-02	72766	6389	8.78	206.3	6.8	3.28
2002-03	65096	4878	7.49	190.2	4.6	2.42
2003-04	72156	5876	8.14	158.0	2.6	1.64
2004-05	68637	57	0.08	168.0	2.8	1.66
2005-06	69355	59	0.08	147.9	1.6	1.08
2006-07	75807	71	0.09	92.3	0.0	0.02
2007-08	78570	71	0.09	111.3	3.8	3.45
2008-09	80679	7287	9.03	226.9	9.4	4.12
2009-10	80804	7501	9.28	253.8	11.5	4.54
2010-11	86874	7215	8.30	225.3	4.8	2.11
2011-12	94882	9320	9.82	283.4	13.0	4.60
2012-13	93507	9276	9.92	381.5	19.6	5.15
2013-14	95850	8663	9.04	250.9	12.7	5.05
2014-15	95765	9032	9.43	279.7	21.6	7.72
Source: Indiastat, 2015						

Cost of Wheat Production in Rajasthan

The cost of production for wheat, which is calculated by the Government, has been taken for two years, i.e. 2010-11 and 2011-12 (Table 4)[16]. Cost of wheat production is represented in two ways: 1) per hectare cost of production and; 2) per quintals cost of production. The cost of wheat production reflects an increase of 25 percent in one year (from 32680.70 in 2010-11 to 40890.88 in 2011-12). Per quintal cost of production has displayed an increase of 21.5 percent (from 688.92 to 838.38) while the per hectare income has also increased by 10.4 percent in the same period. Profit on wheat production per hectare was Rs21,000 (including

---

16   Source: Ministry of Agriculture, Government of India

the value of by product) in 2010-11 and it decreased to Rs18,000 in 2011-12. The reason for this might be the increase in per hectare cost of production.

Table 4: Estimate of Cost of Wheat Cultivation in Rajasthan				
Cost	**Cost of cultivation per hectare[17]**		**Cost of production per quintal**	
	2010-11	**2011-12**	**2010-11**	**2011-12**
A1	12581.86	16664.11	264.41	343.09
A2	12906.09	16832.83	271.16	346.17
A2+FL	19595.57	26920.58	411.95	553.12
B1	15858.96	20248.58	333.68	413.68
B2	24941.41	30198.45	525.43	692.92
C1	25548.44	30336.33	475.12	619.71
C2	31630.89	40586.20	666.87	825.94
C2*	32680.70	40893.88	688.92	838.38
C3			757.81	922.22
Yield per ha (Quintal)	39.56	41.34		
Value of the main product per ha (Rs)	44535.77	50244.98		
Value of the by-product per ha (Rs)	9015.45	8909.28		
Implicit price (Rs/Quintal)	1125.78	1215.41		
Material and labour input price				
Seed (Kg)			151.08	146.43
Fertilisers (Kg of nutrients)			132.91	122.08
Manure (Quintal)			3.43	5.87
Human labour (Man hour)			464.34	505.09
Animal labour (Pair hours)			6.48	3.91
Source: http://cacp.dacnet.nic.in/ViewQuestionare.aspx?Input=2&DocId=1&PageId=40&KeyId=479 *Note: Cost A1 = All actual expenses in cash and kind incurred in production by owner. Cost A2 = Cost A1 + rent paid for leased-in land. Cost A2+Fl = Cost A2 + imputed value of Family Labour. Cost B1 = Cost A1 + interest on value of owned capital assets (excluding land). Cost B2 = Cost B1 + rental value of owned land (net of land revenue) and rent paid for leased-in land.* *Cost C1 = Cost B1 + imputed value of Family Labour. Cost C2 = Cost B2 + imputed value of Family Labour. Cost C2*= Cost C2 estimated by taking into account statutory minimum or actual wage whichever is higher. Cost C3 = Cost C2* + 10% of Cost C2* on account of managerial functions performed by farmer.*				

---

17 Per hectare land converted in *bigha* through this process. 1. 1 hectare equal to 2.47 acre and 1 acre equal to 1.5 *bigha*, so 1 hectare will be equal to 3.7 *bigha*

Chapter 4
Minimum Support Price: Case of Chittorgarh

MSP of Wheat and Farmer's Income, Chittorgarh, Rajasthan

This chapter presents the linkage between MSP and income of farmers involved in wheat production in Chittorgarh district of Rajasthan. A survey was conducted by CUTS to gauge the effectiveness of the government agriculture price support system in the identified region and how it affected the farmer's income levels. The study covered issues on wheat production, yield, cost and income of farmers. This section has tried to examine if the MSP offered by the Government is sufficient enough to cover the cost of production or not.

Methodology

A total of 91 farmers of 19 villages in three blocks were selected for the survey. Chittorgarh district was selected for the study due to two main reasons. Firstly, CUTS has been working extensively on numerous issues in Chittorgarh for last 30 years and has developed an expertise in the understanding of the demographics and economics of the area. Secondly, Chittorgarh forms a huge market for wheat in Rajasthan and thus has a number of players in trade of agricultural commodities active in this region. Three blocks of the district, namely Chittorgarh, Bhadeshar and Nimbahera were selected and from each block, six villages were identified for the survey to be conducted. From each village, farmers were randomly selected. A multi-stage sampling method was implemented in the study.

The data collected on the usage of land was in local unit, i.e. *bigha*[18]. To maintain consistency throughout the study and considering the variables used, local units were used for the data throughout. The farmers were classified into four categories on size of land holding; marginal (0-2 *bigha*), small (2-4 *bigha*), medium (4-8 *bigha*) and large (more than 8 *bigha*), on the basis of their operational land holdings. Out of 91 farmer respondents, 40 percent were covered in Chittorgarh block and 30 percent each in Bhadeshar and Nimbahera blocks.

The information collected from farmers included total land area possessed, area, under wheat cultivation, production, consumption, sale, storage, varieties used for cultivation, selling price of wheat, mode of sale, mode of payment, MSP awareness, cost incurred in cultivating wheat and the income generated. The survey was conducted during the financial year 2012-13. It is interesting to note that 2012-13 was a good period in terms of production of wheat, which marginally increased as compared to previous four years.

Profile of Interviewed Farmers

The land holding pattern varies from village to village in India. The data collected from the Chittorgarh district, on wheat cultivation in 2012-13, could not be extrapolated to represent average landholding in Rajasthan due to limited sample size and the diversity across regions

---

18 *Bigha* is a measurement unit for land, which is extensively used across many states of India.

in India. Table 5 presents total land holding size, land cultivating one type of wheat variety and land cultivating two types of wheat varieties.[19]

The survey revealed that the percentage of medium-size farmers was highest (35.16 percent) followed by large, small and marginal. The percentage share of farmers cultivating only one type of wheat variety was highest for marginal farmers followed by small, medium and large. When it came to the percentage share of farmers cultivating two varieties of wheat, the share of farmers was highest for the small farmers (36.26) followed by marginal and medium farmers.

Table 5: Classification of Land under Wheat Cultivation			
Size of land holding (in Bigha)	Distribution of land holdings (%)	Area cultivated for one variety of wheat	Area cultivated for two varieties of wheat
0-2 (Marginal)	7.69	36.26	30.77
2-4 (Small)	23.08	35.16	36.26
4-8 (Medium)	35.16	26.37	28.57
>8 (Large)	34.06	2.20	4.40
Note: Bigha is local unit. Value in percent			

Land distribution in India is uneven among farmers (Table 6). Land owners who are not into farming occupation, lease out their lands to other farmers (who either do not have their own land or possess very small land holdings). The lease period is usually for one-year and it might extend beyond depending on the agreement between the land holder and lessee. Table 6 shows that 07 percent of the farmers were undertaking agriculture practice on leased land in 2012-13.

In past few years, before 2012, it was very difficult for large farmers to engage in agriculture due to non-availability of labour on time owing to migration of labourers from rural to urban areas. Even for the farmers with large land holdings, it is not economically viable to adopt or purchase new technologies, like buying a harvesting machine, which can reduce their dependency on labour.

The share of farmers cultivating their own land as well as the leased land was around 6.59 percent. The survey revealed that there were no landless farmers among the respondents. So, for the farmers using leased land for cultivation possessed their own land too. Large farmer, whose land holdings were greater than eight *bighas,* formed only 4.4 percent of the lot. The share of large farmers in India, including in Rajasthan, has declined over the years owing to the fragmentation of land among family members[20].

---

19 The type of wheat varieties represents those farmers who grow only one type of wheat while two types of wheat include those farmers who grow two types of wheat on their land.

20 Foster, A D and Rosenzweig M R, 'Barriers to Farm Profitability in India: Mechanization, Scale and Credit Markets', 2010, http://siteresources.worldbank.org/DEC/Resources/84797-1288208580656/7508096-1288208619603/Rosenzweig_Barriers_to_Farm_Profitability_in_India_P&S_PAPER.pdf

Table 6: Relationship between Land Holding and Ownership Type			
Size of land holding	**Type of land (in percent)**		
	Both rented and self-owned	**Self-owned**	**Total**
0-2	1.1	29.67	30.77
2-4	3.3	32.97	36.26
4-8	2.2	26.37	28.57
>8	0	4.4	4.4
Total	6.59	93.41	100

The information regarding size of land holdings and age is shown in Table 7. It is a common perception that only middle aged farmers are keen on agriculture as an occupation. The survey revealed that 64 percent of farmers were aged 40 years and above whereas only 10 percent were below 30.

The survey also highlighted that 32 percent farmers were above the age of 60. Therefore, the involvement of old age farmers in agriculture in Chittorgarh is noteworthy. One of the issues associated with the old age farmers is that they are reluctant to experiment with the conventional agricultural practices. Agricultural practices vary on a number of factors, such as soil quality, rainfall *et al*. Adoption of more efficient practices like use of newer technologies, better seed varieties and fertiliser can help in enhancing the yield of agricultural crops.

Table 7: Relationship between Land Holding and Farmer's Age						
Size[21] of landholdings	**Age (in percent)**					
	0-20	**20-30**	**30-40**	**40-60**	**>60**	**Total**
0-2	0	2.2	8.79	10.99	8.79	30.77
2-4	0	4.4	6.59	12.09	13.19	36.26
4-8	1.1	2.2	9.89	6.59	8.79	28.57
>8	0	0	1.1	2.2	1.1	4.4
Total	1.1	8.79	26.37	31.87	31.87	100

The linkage between land holdings and types of wheat varieties used by the farmers is shown in Table 8. Selecting a wheat variety forms an important factor in the production of wheat crops as better varieties of wheat can increase the production to a great extent[22]. There were eight types of wheat varieties used by the farmers in the selected areas.

Lokwan was grown majorly by marginal, small and medium farmers and contributed to almost 76 percent of the total wheat varieties that were cultivated. The other seven varieties contributed for the remaining 24 percent share of the gown varieties. The reason for adoption

---

21 Farm category, 0-2: marginal, 2-4: small, 4-8: medium and greater than 8: large. The data of land is in *bigha,* local unit
22 Coventry, D R, Gupta, R K, Yadav, A , Poswal, R S, Chhokar, R S, Sharma, R. K, ... & Cummins, J A (2011). Wheat quality and productivity as affected by varieties and sowing time in Haryana, India. *Field Crops Research*,*123*(3), 214-225.

of *Lokwan* was that it was best suited to the land and the climatic conditions prevalent in Chittorgarh.

Table 8: Wheat Varieties Used by the Farmers					
Types of varieties	**Share of wheat varieties among farmer categories**				
	Marginal	**Small**	**Medium**	**Large**	**Total**
3740	0	1.1	0	0	1.1
3765	3.3	0	1.1	0	4.4
40378	1.1	0	4.4	1.1	6.59
Kota Kurmi	3.3	0	1.1	1.1	5.49
Lokwan	21.98	29.67	21.98	2.2	75.82
Ruchi	0	2.2	0	0	2.2
Sarbati	0	2.2	0	0	2.2
Spriya	1.1	1.1	0	0	2.2
Total	30.77	36.26	28.57	4.4	100

Size of Land Holdings and Yield Level

The relationship between land holding and yield of wheat is presented in Table 9. The wheat yield[23] in the study region varied across different land holding groups. The data gathered from Chittorgarh showed that the yield for most of farmers fell in the range of 5-10 quintals per *bigha.* The yield of only 22 percent farmer lied in the range of 10-15 quintals per *bigha.*

Table 9: Relationship between the Land Holding and Yield of Wheat				
Size of land holdings	**Yield level (value in percent)**			
	0-5 (quintals)	**5-10 (quintals)**	**10-15 (quintals)**	**Total**
0-2	0	20.88	9.89	30.77
2-4	2.2	27.47	6.59	36.26
4-8	2.2	20.88	5.49	28.57
>8	0	4.4	0	4.4
Total	4.4	73.63	21.98	100
Note: Productivity and yield are interchangeably used in the paper				

Production

Size of land holdings and level of production

Wheat production is the primary source of livelihood for the farmers in Chittorgarh district. To analyse the impact and contribution of wheat cultivation on farmer's income and livelihood, the annual production of wheat was classified in different ranges between 0 to 40 quintal (Table 10). This was to ensure that all farmers, especially those with low production, were also covered in the study. The data on size of land holdings and their production levels

---

23   Yield is derived by dividing total production by area under wheat cultivation

is populated in Table 11. The survey revealed that for only 28.5 percent farmers, the production of wheat was greater than 40 quintals. The data also revealed that 27.5 percent of farmers fell in the range of 20-30 quintals. For more than 70 percent of farmers, the production of wheat was less than 40 quintal.

Table 10: Relationship between Land Holding and Production Level						
Size of land holding	Production (in percent)					
	0-10	10-20	20-30	30-40	>40	Total
0-2	7.69	17.58	5.49	0	0	30.77
2-4	1.1	2.2	18.68	8.79	5.49	36.26
4-8	0	1.1	3.3	5.49	18.68	28.57
>8	0	0	0	0	4.4	4.4
Total	8.79	20.88	27.47	14.29	28.57	100

Relationship between Production, Consumption, Sale and Trade

Agriculture is majorly the primary livelihood for the rural population and wheat is the staple food. They meet most of their demands from the income earned from selling agricultural produce. A part of the produced wheat is consumed within the family and the remaining produce is sold or stored by the farmers. The earning from the sales of the produce is spent to meet the financial requirements of the household. Thus, consumption, sale and storage were computed as a percent of production to examine the amount incurred on each activity type. The production level was ranged in 5 categories of 20% each to highlight the percentage of farmers on utilization of their produce.

Table 12 shows that 33 percent of farmers consumed 10-60 percent of their produce. Sale as a percent of production was highest (31.87 percent) in the 40-60 percent bracket. This suggests that wheat produced was majorly consumed by farmers themselves or sold in the market and only a very small fraction of it was stored. There is a crisis of storage facilities and capacities of food grain across India and it may be deduced that this influences the low storage practice among the farmers. Up to 20 percent of the produce was stored by 90 percent farmers for future consumption or sales on right price. Apart from the storage capacity shortage, another reason of less number of farmers storing food grains could have been their debt situation, which forces them to liquidate their produce at the earliest.

Table 11: Relationship between Production, Consumption, Sale and Storage			
Percentage of Production	Consumption (Percentage of farmers)	Sale (Percentage of farmers)	Storage (Percentage of farmers)
0-20	17.58	19.78	90.11
20-40	24.18	16.48	2.20
40-60	32.97	31.87	5.49
60-80	12.09	20.88	1.10
>80	13.19	10.19	1.10
Total	100.0	100	100

Cost of Wheat Production

Cost of production also determines the level of income for farmers. The study classified per *bigha* cost of wheat production in the range of Rs5000 to 15000, with intervals of Rs5000 (Table 12).

This section makes an attempt to establish a relationship between types of wheat varieties used by farmers and their cost of production during 2012-13. Table 12 indicates that there were eight types of wheat varieties grown by the farmers and amongst them *Lokwan* was the most dominant variety in the region. A wide variation in the cost of *Lokwan* production was observed in the survey. *Lokwan* variety is good in terms of yield, as compared to other varieties and is also suitable to the physiographical conditions of the region. Consumption data showed an inclination of farmers towards the *Lokwan* variety for their household consumption. The cost incurred in the production of *Lokwan* variety per *bigha* varies from Rs5000 to Rs15,000 per *bigha*. The share of 53 percent farmers cost of cultivation is less than Rs10,000. This variety is economical for all types of farmers to grow.

Table 12: Relationship between Wheat Varieties and Respective Cost Cultivation					
Types of varieties	**Percentage of farmer in the range of cost cultivation**				
	0-5000	**5000-10000**	**10000-15000**	**>15000**	**Total**
3740	0	1.1	0	0	1.1
3765	1.1	1.1	1.1	1.1	4.4
40378	4.4	0	1.1	1.1	6.59
Kota Kurmi	1.1	1.1	3.3	0	5.49
Lokwan	26.37	27.47	10.99	10.99	75.82
Ruchi	0	2.2	0	0	2.2
Sarbati	1.1	0	1.1	0	2.2
Spriya	0	1.1	1.1	0	2.2
Total	34.07	34.07	18.68	13.19	100

The information regarding cost of wheat cultivation among different size of land holdings is shown in the Table 13. For more than 68 percent farmers, the cost of wheat production was below 10,000 per *bigha* and the same for 32 percent farmers was greater than 10,000 per *bigha*. It also validated the widespread perception that larger the farm size, lower is the cost of production. The cost of wheat cultivation for larger farmers was below 5 thousand per *bigha*. The lower cost of production makes them more profitable than the marginal and small farmers.

Table 13: Relationship between Land Holding and Cost of Wheat Cultivation					
Size of land holding	**Percentage of farmer in the range of cost cultivation**				
	0-5000	**5000-10000**	**10000-15000**	**>15000**	**Total**
0-2	1.1	9.89	9.89	9.89	30.77
2-4	10.99	14.29	7.69	3.3	36.26
4-8	17.58	9.89	1.1	0	28.57

>8	4.4	0	0	0	4.4
Total	34.07	34.07	18.68	13.19	100

The information on per quintal cost of cultivation is presented in Table 14. The survey data calculated the average cost per quintal of wheat cultivation as Rs1272, which was below MSP as well as OMP. The MSP was Rs1500 per quintal, fixed by the Government of Rajasthan, for 2012-13 including bonus. The average OMP or market price, i.e. the price at which farmers sold their wheat to the local trader or middle man was Rs1431, which was above the per quintal cost of production. It was found that the per quintal cost of wheat production was recorded in the range of Rs500 to Rs1000 by 36 percent of farmers and per quintal income from MSP was marginally higher than the cost of wheat production. The data recoded was for the normal period as the production of wheat was good in Rajasthan during the study. Table 14 also indicates that there were 17.5 percent farmers whose cost of production per quintal is either less than or equal to Rs500. One interesting observation was that there were 11 percent marginal farmers whose cost of production per quintal was even greater than Rs2000. This shows a wide variation in cost of production recorded from the survey.

Table 14: Relationship between Land Holding and Cost of Wheat Cultivation Per Quintal						
Size of land holdings	Per quintal cost of production (in percent)					
	0-500	500-1000	1000-1500	1500-2000	>2000	Total
0-2	1.1	5.49	8.79	4.4	10.99	30.77
2-4	4.4	15.38	10.99	2.2	3.3	36.26
4-8	9.89	14.29	3.3	0	1.1	28.57
>8	2.2	1.1	0	0	1.1	4.4
Total	17.58	36.26	23.08	6.59	16.48	100

Size of Land Holdings and Income from MSP

MSP is decided by the Government in order to facilitate the sale of their produce at a price that covers the cost or production as well as provide additional revenue to the sustenance of lives of farmer households. Over the years agriculture has become less profitable occupation for farmers, which is driving them away from keeping agriculturist as a profession. To retain, for farmer households, agriculture as a livelihood, MSP concept came into picture.

Unpredictability in agriculture business has also increased over the years because of a number of factors. In past few years, the input prices of agricultural products have increased[24]. The impact of climate change could be clearly felt on the productivity[25]. Increase in temperature and uneven rainfall patterns have reduced the yield of agricultural crops. Decrease in yield directly impacts the income levels of farmers making the farmers more vulnerable to reduced incomes. Thus, initiatives by the Government are very important in order to support farmer incomes and existence of agriculture as an occupation.

---

24 Tripathi, Ashutosh Kumar. *Agricultural Prices and Production in Post-reform India*. Routledge, 2014.

25 Asseng, S, *et al.* 'Uncertainty in simulating wheat yields under climate change'. *Nature Climate Change* 3.9 (2013): 827-832.

The survey highlighted that most of the farmers sold their produce below the MSP while only some of them could sell at prices equivalent to MSP or even greater. If farmers were able to sell their wheat produce at MSP, it might have added to their income levels, which could have been better than selling it off on OMP through local trader. One of the reasons why farmers could not sell their produce at MSP was the unavailability of government agencies purchasing wheat at MSP in the study area. The procurement agencies were located far off from the villages covered in the study and these agencies rarely made efforts of visiting these villages to procure foodgrains directly from farmers. The income of farmers can only increase with proper implementation of MSP framework throughout the region.

Table 15 shows that if farmers had sold their output at MSP then what would have been the impact on their income levels. The income of farmers was classified in the range of Rs5000 to Rs15000 per *bigha,* among the various categories on land holdings. Table 15 indicates that more than 64 percent farmers' income fell in the range of 10 to 15 thousand per *bigha* and 22 percent farmers' income was more than 15 thousand per *bigha*. This income was calculated in *bigha* because the data recorded from farmers was in *bigha* as well. There were only one percent farmers whose income was below five thousand.

Table 15: Relationship between Land holding and Income of Farmers through MSP					
Size of land holdings	Level of income (value in percent)				
	0-5000	5000-10000	10000-15000	>15000	Total
0-2	0	1.1	19.78	9.89	30.77
2-4	0	5.49	24.18	6.59	36.26
4-8	1.1	5.49	16.48	5.49	28.57
>8	0	0	4.4	0	4.4
Total	1.1	12.09	64.84	21.98	100

The survey results showed that most of the farmers had sold their wheat below MSP. The farmer's income level was computed from the actual price on which farmers sold their produce. The survey recorded a minimum price Rs1100 and a maximum price Rs1750 per quintal during 2012-13 (Table 16). For the study, income of farmers was classified into groups of 5000 from a range of Rs0 to Rs15000 per *bigha*. The average price of wheat was Rs1431 per quintal during the study period. There was a variation in the OMP of wheat offered to farmers by the local trader. Most of the famers had to sell their produce below MSP but there were some who could sell at a price even higher than the MSP. The farmers, who had sold their produce at a price higher than the MSP, might have sold their produce during the lean periods. Since it was observed that about 10 percent of farmers stored their produce, they might have sold it during the lean period, which could have fetched them higher prices.

The study clearly shows that only few percent of farmers could sell their wheat produce at a price greater than MSP. It is evident that MSP can provide a better and stable selling price, than the fluctuating and non-rational OMP (which is usually lesser than the MSP), to a major section of farmers population. The percentage share of farmers whose income was less than 10 thousand was marginally higher for OMP than MSP.

Table 16: Relationship between Land Holding and Income of Farmers through OMP					
Size of land holdings	Level of income (value in percent)				
	0-5000	5000-10000	10000-15000	>15000	Total
0-2	0	3.3	16.48	10.99	30.77
2-4	0	5.49	23.08	7.69	36.26
4-8	1.1	8.79	13.19	5.49	28.57
>8	0	0	4.4	0	4.4
Total	1.1	17.58	57.14	24.18	100

The information on types of varieties grown by the farmer and income generated is shown in the Table 17. The income level for each of the wheat variety was computed from the actual price of wheat per quintal, at which farmers sold their produce.

Table 17 indicates the popular varieties of wheat which were identified in the survey. The farmer's per *bigha* income falls in the range of 10 to 15 thousand. The income for 57 percent farmers came in the range of 10 to 15 thousand. Per *bigha* income for *40378* variety was the minimum at Rs4,267 and highest income recorded was for the *Lokwan* variety at Rs24000. The average income of farmers came out as Rs13,059. The yield too was the least for 40378 variety at 3 quintals per *bigha* while the yield of *Ruchi* variety was the highest among all eight varieties identified for survey.

Table 17: Relationship between Wheat Varieties and Income Levels per *Bigha* (Actual selling price)					
Types of varieties	Level of income (value in percent)				
	0-5000	5000-10000	10000-15000	>15000	Total
3740	0	0	1.1	0	1.1
3765	0	1.1	2.2	1.1	4.4
40378	1.1	1.1	3.3	1.1	6.59
Kota Kurmi	0	1.1	3.3	1.1	5.49
Lokwan	0	13.19	43.96	18.68	75.82
Ruchi	0	0	1.1	1.1	2.2
Sarbati	0	0	1.1	1.1	2.2
Spriya	0	1.1	1.1	0	2.2
Total	1.1	17.58	57.14	24.18	100

Table 18 presents the income of farmers associated with the produce sold at MSP (Table 18). Awareness level for MSP was very low among farmers, which was highlighted from the fact that approx. 10 percent of farmers sold their wheat to procurement agencies. The survey also revealed that had the farmers sold their produce at MSP, they might have earned revenue than what they did by selling their produce otherwise. Apart from lack of awareness, a reason behind farmers not selling at MSP, there was also no government agency working in the study area to procure wheat from farmers[26]. Therefore, proper implementation of MSP was required

---

26 Derived from the survey conducted for the study

in order to enable farmers to sell their produce at MSP and in process increase the income and improving their standard of living.

Table 18: Relationship between Wheat Varieties and Income Levels with MSP					
Types of varieties	**Level of income with MSP (Value in percent)**				
	0-5000	**5000-10000**	**10000-15000**	**>15000**	**Total**
3740	0	0	1.1	0	1.1
3765	0	1.1	2.2	1.1	4.4
40378	1.1	1.1	3.3	1.1	6.59
Kota Kurmi	0	1.1	3.3	1.1	5.49
Lokwan	0	7.69	51.65	16.48	75.82
Ruchi	0	0	1.1	1.1	2.2
Sarbati	0	0	1.1	1.1	2.2
Spriya	0	1.1	1.1	0	2.2
Total	1.1	12.09	64.84	21.98	100

Relationship between OMP and MSP

India, despite being an agriculture-based economy, farmers always face the dilemma of remaining in agricultural occupation while taking into consideration their production levels. The price of agricultural crops in open market fluctuates a lot and is basically determined by the local traders. The areas where the awareness of MSP among farmers is low or its proper implementation lacks behind, the local trader tend to influence market prices below MSP. Though the OMP ideally should depend on the demand and supply balance of the agricultural crops, it is rarely the case. Farmers find it very difficult to get good prices for their crops in the harvesting period as the supply of crops is more than the demand. Since the traders want to purchase at lowest possible prices, harvesting period is often associated with farmers selling their crops at lowest prices.

The information regarding the OMP and MSP (Table 19), collected from farmers revealed that only 18 percent of the OMP was greater than the MSP. Most of farmers sold their produce to either the local trader or at local *Mandi* to private buyers. The survey disclosed that for 20 percent of farmers, the harvest price was equal to MSP while for 62 percent farmers, the harvest price was less than MSP. The share of farmers getting lower prices than the MSP, for their produce, was the highest among the farmers surveyed. To judge the awareness levels for MSP among farmers, the farmers were asked about the actual MSP, which was being provided by the government for wheat. Only few of them were able to provide exact amount but most of them were unaware about the actual value. Hence, the farmers had very little knowledge about the prevailing MSP to draw comparison with the OMP being offered because of which they ended up selling at a price below MSP.

Table 19: Relationship between OMP and MSP (in number)			
Size of land holdings	OMP>MSP	OMP=MSP	OMP<MSP
0-2	4	8	21
2-4	9	5	18
4-8	4	7	13
>8	-	-	2
Total	17(18.7)	20(22)	54 (59.3)
Note: figure in bracket shows the percentage share *OMP-Open Market Price*			

Storage of Foodgrains by the Farmers

Table 20 shows the survey information on storage of wheat. Farmers in India have limited storage capacity for agricultural crops. Moreover, the facility is not available everywhere and where it is, there are challenges associated to accessibility. This might not be the case only in Rajasthan but also across other states of India as well.

The share of small and marginal farmers has increased due to bifurcation of land in small pieces amongst family members. Majority of the farmers sell their produce immediately after the harvesting, keeping aside the foodgrains required for their own consumption as well as the expected future requirements. The reason for immediate selloff stems from the fact that the storage facilities are scarce and hence the farmers, in many cases, do not even have an option to store. Immediately after the harvest, the prices of wheat reach the lowest level because of the high supply of wheat in the market which exceeds the demand. This means that lack of storage facilities impact the famers by making them sell their produce at the minimum possible price.

While, storage capacity is one reason, the storage practice among farmers might also be attributed to other factors as well. The survey revealed that 35 percent farmers do not store wheat owing to monetary issues they face. 18 percent famers cited the reason as repayment of debts, the money they had borrowed from money lenders for cultivation of crops or other important reasons. Out of these, 11 percent farmers did not respond to these questions. Only eight percent of the farmers surveyed, stored a part of their wheat produce. This means that the practice of storing produce among farmers is not widespread.

Table 20: Reason of Not Storing Wheat and Land Holding						
Reason for not storing	**Size of land holdings (in percent)**					
	0-2	**2-4**	**4-8**	**8-12**	**>12**	**Total**
Domestic expenditure	2.2	5.5	2.2	0	0	9.9
Not Aware	3.3	3.3	4.4	0	0	10.99
Family consumption	2.2	1.1	0	0	1.1	4.4
Less productivity	4.4	1.1	0	0	0	5.49
Monetary problems	9.89	10.99	12.09	2.2	0	35.16

No storage facility	0	1.1	0	0	0	1.1
Production for consumption	1.1	0	0	0	0	1.1
Repayment of debts	4.4	13.19	5.5	0	0	23.08
Produce Stored	3.3	0	4.4	0	1.1	8.79

Mode of Sale by Farmers

The information on various modes of selling the wheat produced by surveyed farmers is shown in Table 21. The Table indicates that 65 percent of farmers sold their wheat to the local middle men/traders/money-lenders/large farmers. These local middle men and trader form the unregulated market[27] for food grains. The share of farmers, who sold their produce to middle men and private purchasers, was approximately 83 percent. This meant that 83 percent of the famers had sold their produce in the unregulated market.

Furthermore, only 9.8 percent farmers had sold their produce to government procurement agencies. The share of large farmers was only about 4.9 percent, out of which, 3.7 percent sold their wheat at government procurement agencies. The procurement scenario highlighted that the share of wheat procured at MSP was very low in the study region owing to constraints, such as accessibility to procurement agencies and the credit dependency on local traders, which influenced the mode of sales. It indicated that due to the lack of regulated market, most of the farmers had only one option available, i.e. selling to local trader or the middle men constituting the unregulated market.

Table 21: Relationship between Land Holding and Mode of Sale							
Size of land holding	**Types of trader and sale made to (value in percent)**						
	Local middle man /trader/ money lender/ large farmers	**Local Mandi-govt procurement**	**Local Mandi-private purchasers**	**Contractual sale**	**Direct sales to local household / grocery shops**	**Direct sale to millers or other business etc.**	**Total**
0-2	20.73	1.22	2.44	0	2.44	1.22	28.05
2-4	26.83	1.22	7.32	0	1.22	0	36.59
4-8	18.29	3.66	6.1	1.22	1.22	0	30.49
>8	0	3.66	1.22	0	0	0	4.88
Total	65.85	9.76	17.07	1.22	4.88	1.22	100

The information on the number of days in receiving payment by farmers is given in Table 22. It indicates that the number of days in receiving payment from the local trader (since local traders were most dominant in the selected area) were very less. Data analysis revealed that almost 75 percent of farmers got their payment on the same day. Around 90 percent received their payment within three days of selling their wheat. As mentioned before, most of the

---

27 Unregulated markets: Here business is conducted without ant set of rules and regulations. Traders frame rules and conduct business. These markets suffer from various defects in functioning.

farmers sold their produce for the repayment of debt and they are always under the pressure of the money lenders to repay their loan as soon as possible. Thus, they sell the produce and get the money from the local trader on the same day to ensure early repayment of debts and also to avoid high interest rates applicable on daily basis.

Table 22: Relationship between Land Holding and Number of Days in Receiving Payment							
Size of land holdings	Number of days in receiving of payment from traders by farmers (value in percent)						
	0	**15 days**	**next day**	**same day**	**within 3days**	**within a week**	**Total**
0-2	1.15	3.45	1.15	21.84	1.15	1.15	29.89
2-4	1.15	2.3	0	25.29	5.75	2.3	36.78
4-8	0	1.15	2.3	22.99	2.3	0	28.74
>8	0	0	0	2.6	0	0	2.6
Total	2.3	6.9	3.45	74.71	9.2	3.45	100

The information on the number of days taken by traders in releasing payment to farmers is given in the Table 23. The Table indicates that out of 75.6 percent traders, the share of local middle man and trader was 41.5 percent, who pay famers the same day. Except local middle man and local trader, all other traders took into consideration the mode of sale by farmers and made payments on the same day to them. The major share of payments made by traders to farmers was done on the same day and rest of the amount was paid after a few days.

Table 23: Types of Traders and Payment Released to Farmers						
Types of Traders	Number of days in payments of types of traders to the farmers (value In percent)					
	15	**Following day**	**Same day**	**Within 3 days**	**Within a week**	**Total**
Local middle man /trader/money lender/large farmers	7.32	3.66	41.46	9.76	3.66	65.85
Local *Mandi*-govt procurement	0	0	9.76	0	0	9.76
Local *Mandi*-private purchasers	0	0	17.07	0	0	17.07
Contractual sale	0	0	1.22	0	0	1.22
Direct sales to local household/grocery shops	0	0	4.88	0	0	4.88
Direct sale to millers or other business *etc.*	0	0	1.22	0	0	1.22
Total	7.32	3.66	75.61	9.76	3.66	100

Farmer's awareness on MSP

The survey information on the awareness levels on MSP among farmers indicated that more than 45 percent farmers were not aware of MSP or its determinants (Table 23). TV accounted for the maximum dissemination of information on MSP followed by information provided by local agricultural officer to the farmers.

It was also observed that due to lack of awareness on MSP, most of the farmers sold their wheat at prices lower than MSP. Apart from the low awareness levels among farmers on MSP, another reason of selling the produce below MSP might be because of loans undertaken by farmers from local traders and money lenders for cultivation, which includes buying of inputs, hiring equipment, *et al*. The rate of interest is fixed in advance, while taking loans, which is mutually decided between farmer and trader. Farmers tend to offset their loans and interest payments by selling off their produce directly to local traders and money lenders at agreed prices, which are usually lower than MSP. Hence, in numerous cases the produce never reaches *Mandi* and is sold beforehand, that too at prices lesser than the MSP.

Table 24: Relationship between Land Holding and Awareness on MSP							
Size of land holdings	Sources of awareness on MSP (in percent)						
	Not aware	Local Agriculture offices	Cooperative offices	NGOs	TV	Radio	Mobile	Total
0-2	15.38	2.2	0	0	12.09	1.1	0	30.77
2-4	19.78	3.3	1.1	0	10.99	1.1	0	36.26
4-8	8.79	3.3	0	1.1	12.09	2.2	1.1	28.57
>8	1.1	2.2	0	0	1.1	0	0	4.4
Total	45.05	10.99	1.1	1.1	36.26	4.4	1.1	100

MSP is fixed by the Central Government (Table 25). But state government declares bonus on agricultural crops to promote production and to ensure remunerative price to farmers. The quantum of bonus differs in states and according to the type of crops as well. Another reason of declaring bonus is to arrest the shifting of farmers to commercial crops from cereal crops. Commercial crops fetch higher prices in the market, which tempts the farmers to cultivate commercial crops rather than cereal crops. Declaring bonus ensures that the farmers keep cultivating cereal crops.

Table 25 indicates that only 16.5 percent farmers were aware about the bonus, on MSP, declared by the state government. 26 percent farmers did not reply to the question. The share of farmers "hardly ever" and "sometimes" known about the bonus declared by the government was 32 and 25 percent respectively. This shows that the awareness level on bonuses on MSP among all farmer categories, except the large farmers, was very low. The awareness of large farmers on the bonus on MSP was 100 percent.

Table 25: Relationship between Land Holding and Awareness of MSP Bonus					
Size of land holdings	Awareness of bonus declared by the government (value in percent)				
	Not Available	Always	Hardly Ever	Sometimes	Total
0-2	10.99	3.3	9.89	6.59	30.77
2-4	7.69	3.3	15.38	9.89	36.26
4-8	6.59	6.59	6.59	8.79	28.57
>8	1.1	3.3	0	0	4.4
Total	26.37	16.48	31.87	25.27	100

Farmers were asked on the ease of obtaining information on MSP (Table 28). It was observed that 28.5 percent farmers did not respond to the questions and 34 percent of farmers stated that it was easy to obtain the information on MSP. About 33 percent farmers said that it was difficult to get information on MSP.

The survey data highlighted that there were numerous sources of availing information on MSP by farmers but there was still low awareness level among farmers to avail this information. However, even if the information on MSP is available at ease, the implementation channel still needs improvement. The MSP system needs a more robust implementation at grassroot-level in terms of availability and accessibility. This would ensure more farmers linking to the Government initiative, which stands at less than 10 percent farmers selling through MSP route.

Table 26: Relationship between Land Holding and Obtaining Information on MSP					
Size of land holdings	Level of Obtaining Information (in percent)				
	Not Available	Very easy	Easy	Difficult	Very difficult	Total
0-2	9.89	0	8.79	2.2	9.89	30.77
2-4	14.29	1.1	9.89	5.49	5.49	36.26
4-8	3.3	1.1	14.29	4.4	5.49	28.57
>8	1.1	2.2	1.1	0	0	4.4
Total	28.57	4.4	34.07	12.09	20.88	100

The survey revealed that most the farmers were completely unaware of the sources of MSP information (Table 27). 82 percent of the farmers did not know the name of local organisations/institutions, which could provide them information on MSP. Only 18 percent provided the name of sources from which the information on MSP could be availed. The names taken by farmers included sources, such as the State Government, local farmers' association, TV, radio and mobile phones. The share of the State Government and TV in providing information to farmers on MSP was 6.6 percent each. Hence, TV is not only a source of entertainment to farmers but also a way of getting information on MSP.

Table 27: Sources of Information on MSP	
Source of information for MSP	**Value in percent**
Not Available	82.42
State Government	6.59
Local farmer's associations	1.1
TV	6.59
Radio	1.1
Mobile	2.2
Total	100

On the local initiatives, providing information on MSP, the farmers were asked on the names of such initiatives. Table 28 indicates that there was scarcity of sources for getting information on MSP, as more than 83 percent farmers could not mention the names of any local initiative.

Only 17 percent farmers could provide names of local initiatives from which information on MSP could be gathered. Majority of the farmers surveyed were above 40 years of age and were reluctant to update themselves on the government programmes on MSP and hence this showed that there was lack of awareness.

Table 28: Sources of Information on MSP to Farmers	
Sources	**Value in percent**
Agriculture officer	5.49
Camp organised by the *Gram Panchayat*	1.1
Kisan Vani	1.1
Kisan club	1.1
Mobile phone	1.1
Newspaper	3.3
Local Politician	1.1
Telephonic contact with traders	1.1

Farmer's Awareness on *Mandi*

The market is an integral part of supply chain process of agricultural commodities. As agricultural commodities are perishable, it requires proper measures to protect it from going waste. The reason for these may be because of moisture, rodents, pests, *et al*. Earlier sections have also highlighted the lack of proper infrastructure for storage of food grain in India.

In India, the regulated market for agricultural crops is known as *Mandi,*, which is governed by APMC Act. *Mandi,* as a market, is successful only in a few states while in most of the states it is either closed or not functioning properly. *Mandis,* in crop deficit states, are beyond the reach of marginal and small farmers either due to lack of infrastructure, accessibility or unawareness of *Mandi* market among farmers. In the absence of *Mandis*, the market is

controlled by local traders and middlemen, who try to maximise their own profit margins. This impacts the farmer income levels as they, in absence of *Mandis*, sell their produce at lower prices than what a competitive marketplace could offer. The prices in markets controlled by traders and middlemen are often less than the MSP, which reduces the profit margins for farmers substantially.

The information on selling prices of wheat (Table 29) existing in the *Mandi* was enquired from the farmers in the survey which disclosed that 67 percent farmers were aware of the wheat prices prevailing in the *Mandi*. About 26 percent were not aware of the rates while 6.5 percent did not reply to the question. This reflects that, as far as the rate of wheat in the *Mandi wa*s concerned, awareness level among farmers was very high but still a large percentage of farmers did not sell their produced wheat at *Mandis,* which could have offered them higher prices.

Table 29: Relationship between Land Holding and Wheat Prices at *Mandi* (in Percent)				
Size of land holdings	Not Available	Yes	No	Total
0-2	2.2	23.08	5.49	30.77
2-4	3.3	21.98	10.99	36.26
4-8	1.1	18.68	8.79	28.57
>8	0	3.2	1.1	4.4
Total	6.59	67.03	26.37	100

Survey also asked a question on the frequency of updating on *Mandi* price by farmers, in number of days (Table 30). Out of 91 farmers, 24 percent did not reply to the question. Only 6.5 percent said that they checked the prices daily. Approximately, 21 percent of farmers said that they updated themselves on the *Mandi* prices on a regular basis. Despite the prices changing every day at the *Mandi*, farmers do not check on the updated prices regularly and this was seen with more than 34 percent farmers updating themselves on prices after a week's interval or more.

Absence of efficient *Mandi* or lack of awareness among farmers on MSP, paves way for the local trader to maximise the gap between *Mandi* and OMP. OMP is a price at which local trader purchases wheat or any other agricultural commodity from farmers. The OMP offered to farmers is way less than *Mandi* prices or the MSP. This gap is exploited by the traders and increases the income levels of traders instead of farmers. This is not only limited to Rajasthan but the influence of local trader on farmers is more prominent in regions where the awareness level of farmers on *Mandi* and MSP is low.

This gap is even wider in States where the literacy rate among farmers is low like Bihar, Uttar Pradesh, Odisha *et al*. The farmer income levels may only be maximised by bridging the information gap among farmers. Farmers need to be educated about the *Mandi* and MSP, and they should keep themselves updated on the latest prices to avoid them being exploited by traders offering them low prices for their produce. There is no dearth of agricultural programmes in India but their efficient and effective implementation is clearly lacking throughout the country.

Table 30: Relationship between Land Holding and Average Days for *Mandi* Price Update by the Farmers (in percent)							
Size of land holdings	Not available	Daily, many times a day as the trading progress	Daily, in the morning as the last day's trading	Every two-three days	Weekly	Even lower frequency	Total
0-2	6.59	2.2	3.3	6.59	3.3	8.79	30.77
2-4	10.99	1.1	4.4	8.79	2.2	8.79	36.26
4-8	5.49	3.3	3.3	5.49	4.4	6.59	28.57
>8	1.1	0	3.1	0	0	0	4.4
Total	24.18	6.59	14.29	20.88	9.89	24.18	100

The information on different types of sources of *Mandi* price is presented in Table 32. The source of information for farmers, on *Mandi* prices was the highest for TV at 64.84 percent and around 30 percent of farmers were not aware of any information on *Mandi*. Information share contributed by local agricultural and cooperative officers was less than three percent.

The results indicated that the awareness level on *Mandi,* among the farmers, was very high. Despite this, the farmers were selling their produce to the local trader. This might be because of the lack of infrastructure and transportation facilities available to them to carry their produce to *Mandi* to sell. Moreover, it is difficult for small/marginal/individual farmers to visit *Mandi* every time to sell their wheat product due to time and cost constraint. Distance is also an important factor in farmers selling their wheat produce to local traders. The *Mandis* are located far away from villages which in some cases might be more than 20 Km. This defers the farmers to reach the *Mandis* in order to sell their wheat produce.

Table 31: Relationship between Land Holding and Source of Information on *Mandi* Prices						
Size of land holdings	Sources of information on Mandi (in percent)					
	NA	Local Agri officer	Cooperative offices	TV	Mobile	Total
0-2	8.79	0	1.1	20.88	0	30.77
2-4	13.19	1.1	0	20.88	1.1	36.26
4-8	6.59	0	0	20.88	1.1	28.57
>8	1.1	1.1	0	2.2	0	4.4
Total	29.67	2.2	1.1	64.84	2.2	100

A similar question was asked on the ease of obtaining information on *Mandi,* the responses of which are shown in Table 32. Around 48 percent farmers said that it was easy to obtain the information while 22 percent did not reply to question, 31 percent admitted that it was very difficult to get information on *Mandi*. Since, the survey data was collected from 19 villages hence, the responses from each village varied and so did the sources of information available in each village. The high level of information among farmers on *Mandi* in the study region may be attributed to Rajasthan not being a deficit state in foodgrains.

Table 32: Relationship between Land Holding and Ease of Obtaining Information on *Mandi* Prices						
Size of land holdings	Level of obtaining information (in percent)					
	Not Available	Very easy	Easy	Difficult	Very difficult	Total
0-2	6.59	1.1	12.09	5.49	5.49	30.77
2-4	10.99	0	14.29	3.3	7.69	36.26
4-8	3.3	3.3	13.19	5.49	3.3	28.57
>8	1.1	2.2	1.1	0	0	4.4
Total	21.98	6.59	40.66	14.29	16.48	100

Survey asked the farmers on the sources of getting information on *Mandi* (Table 33). Though 77 percent farmers did not reply to questions, 23 percent quoted the name of sources from which they availed information on *Mandi*. It was observed in the survey that the major source of getting information on *Mandi* was TV. State and Local Government also provided information to farmers on *Mandi* but contributed for less than seven percent.

Table 33: Sources of the Information on *Mandi* Prices	
Types of local sources	**Value in percent**
State Government	5.49
Local Government	1.1
Local cooperatives	2.2
Local farmers associations	5.49
TV	6.59
Mobile	2.2

The survey asked the farmers about the local initiatives, they knew about, to disseminate information on the *Mandi*. The results are shown in Table 34. The Table indicates that 82 percent farmers did not reply to the questions. Farmers knew that the information on *Mandi* could be gathered from agricultural officers and newspapers which accounted for 6.5 and 5.5 percent respectively. Farmers, thus, not only lacked knowledge on MSP but were also not much familiar with the role and functions of *Mandi*.

Table 34: Local Initiatives to Provide Information to Farmers on *Mandi*	
Types of sources	**Value in percent**
Agriculture officer	6.59
Internet	1.1
Krishi Darsan	1.1
Member of *kisan* club	1.1
Message on mobile from bank	1.1
Newspaper	5.49
Telephonic contact with the traders	1.1

Income Analysis through MSP and OMP

The information on area, production, consumption, sale, storage, and cost was computed as per different land holding sizes. Income of the farmers was computed in two different ways. One was based on MSP while the other was based on OMP per quintal.

To arrive at the average cost of production of wheat, various costs associated, such as cost of hired labour, value of bullock labour, cost of own bullock, machinery and hired machinery; value of seeds, insecticides and pesticides, manure and fertiliser; depreciation on farm buildings, irrigation charges, including electricity, land revenue and cesses, interest on working capital, interest on own fixed capital asset, and imputed value of own family labour were included in the calculation matrix. All these costs were classified as per the land holding groups used in the study. Further, the average value was calculated for all farmers groups, to derive the average cost of cultivation incurred by farmers of different land holding groups.

To calculate the average income of farmers, the quantum of production for each farmer was multiplied to the OMP of wheat per quintal. Another way of calculating the income level was multiplying the production with the MSP of wheat. The purpose of adopting two ways to calculate the farmer's income was to see the relationship between the cost of production and income generated associated with each price. It was found that MSP was not very effective in the study area. Had MSP been properly implemented then the situation could have been much different in the farmer's income perspective.

The income levels derived from OMP and MSP both came out marginally higher than the cost of production (Table 35). Using OMP for calculations, the profit of small farmers (0-2 *bigha*) was Rs2714, which was approximately 14 percent of the cost of production. Similarly for MSP, the profit came out to be Rs3715, which accounted to 19 percent of the cost of production. This showed that the profit margin from MSP was higher than OMP and as the size of land holdings increased, the profit margin also increased. The average income considering all land holding segments came out to be Rs1.13 lakh and Rs1.20 lakh from OMP and MSP respectively. The average cost of production across all land holding segments came out to be Rs53,000. The income is more than double the cost of wheat production but it is evident that MSP fares better than OMP in enhancing income level of farmers.

Even though the income generated by selling wheat production at OMP and MSP seems sufficient to cover the cost of production but still the income is not sufficient to cover the annual expenditures of farmer's household. MSP can contribute a bit in the enhancement of income of the farmers but there are others factors like quality of seed, irrigation facility, use of fertilisers, availability of labour and technology, which play a significant role in the determination of income.

Table 35: Relationship between Cost of Wheat Production and Farmer's Income					
Particulars	Farm categories				Average
	0-2 (bigha)	2-4 (bigha)	4-8 (bigha)	>8 (bigha)	
Average Area	1.6	3.33	5.6	27.5	9.5
Average Production	15.5	31.11	44.8	230	80.4
Average Consumption	7.9	13.15	16.4	25	15.6
Average Sale	7	14.84	29	180	57.7
Average Storage	0.3	1	3.7	25	7.5
Average Cost	19558.9	27519.17	31315	135684.2	53519.3
Average Income with actual price	22273	44438	63794	322000	113126.3
Average Income with MSP	23274	46664	67250	345000	120547.0
Profit with OMP	2714.1	16918.83	32479	186315.8	59607
Profit with MSP	3715.1	19144.83	35935	209315.8	67027.7
Profit as a percent of cost for OMP	13.88	61.48	103.72	137.32	111.37
Profit as a percent of cost for MSP	18.99	69.57	114.75	154.27	125.24
OMP-Open Market Price					

The study computed per *bigha* cost of production and also per *bigha* income considering OMP and MSP as the base (Table 36). Even for the calculation of average cost of production and income per *bigha*, the same procedure was used. The Table indicates that per *bigha* cost of production was higher for the marginal, small and medium size farmers but it was less for the large size farmers. As the size of land holdings increased, the cost of production decreased, which showed an inverse relationship between cost of production and size of land holdings.

The profit margin for small farmers is lower than the other classes of farmers. As the size of land holdings increases then the profit margin of farmers also increases. The income of large farmers was higher than that of the medium and small farmers. Moreover, per *bigha* profit margin for large farmers was also greater than the medium and small farmers.

Table 36: Relationship between Cost of Wheat Production and per *Bigha* Income				
Particulars	Farm categories			
	0-2 (bigha)	2-4 (bigha)	4-8 (bigha)	>8 (bigha)
Per Bigha production	9.6	9.35	7.9	8.5
Cost per Bigha	10716	8314	5730	3220
Income with MSP per Bigha	14435.5	14022.88	11871.7	12750
Income with OMP per Bigha	13835.5	13320.94	11211	11825
profit with OMP	3719.5	5708.88	6141.7	9530
profit with MSP	3119.5	5006.94	5481	8605
OMP-Open Market Price				

Chapter 5
Conclusion and Policy Recommendations

Even though the Government's intervention to support agriculture and farmers of India by introducing MSP has been lumbering on for decades, there are no evident signs of it doing adequately enough. The case study has tried to examine the effectiveness of MSP on income of farmers of Chittorgarh district of Rajasthan. The study found that MSP for wheat did not affected much the farmers of the study areas. Farmers were neither not aware of the support system and the way it worked and nor the prices of wheat at which the government procured wheat, the MSP. The awareness on *Mandi* was also low. These are clear indication of the persisting lacunas in the overall structure of the government agriculture support system and especially in its implementation.

The study shows glimpses of possible positive impacts of MSP on farmer's income, had the MSP framework been implemented properly. Farmers affirmed on selling their produce at prices much lower than MSP or fair prices at *Mandi* due to lack of information and awareness. Although many more factors contributed to the farmer's decisions, a lot of them could have been avoided if MSP framework was designed efficiently and effectively to reach the last mile.

Recommendations

Building awareness levels on MSP among the farmers
There is clear evidence on the awareness level on MSP, among farmers in the study area, being low. Further, the study also proves that the MSP could have positive impacts on farmer income levels. The farmers, due to numerous factors, end up selling their produce at prices below MSP, which either mean losses or very low profits. Thus, it is imperative to link MSP and farmers most realistically. There is a need to raise awareness levels on MSP among farmers and explaining them on how it works to their benefit. This could be made possible by organising awareness drives, initially pushing the government agencies to foray into the non-serviced villages to procure foodgrains directly from farmers rather than the farmers coming to the agencies. This is because few villages are situated far off from these agencies, which make it difficult for the farmers to access. Agencies reaching out to farmers should also help in the trust building on government schemes among the farmers. Moreover, Civil Society Organisations (CSOs) might also play a vital role in educating farmers on MSP. Once a strong MSP and farmer linkage is firmed up, it ought to make famers realise the benefits of the government support system for agriculture produce and in turn raising their income levels.

Role of farmers in MSP calculation
CACP decides on the MSP of about 30 agricultural commodities based on a number of parameters linked to demand and supply, cost of production, price trends in the market, both domestic and international, inter-crop price parity, terms of trade between agriculture and non-agriculture *et al*.

These parameters form a part of a calculation matrix for MSP. Though, over the years the parameters have been added and deleted from the matrix as deemed necessary by the Government, but still the transparency in the calculation of MSP is completely lacking. Moreover, the farmers have no direct participation in the determination and selection of parameters which should form a part of calculation matrix. Since, it is not practically possible to hear the say of every farmer on MSP calculation process, the Government should encourage the larger farmer bodies and associations to take part on larger fora of stakeholders on deciding the contributing factors for MSP. Other than this, there is a need to create a platform where farmers might be able to voice their concerns and suggestions.

Use of optimal wheat varieties for cultivation
One of the serious problems faced by farmers on wheat production is the low yield or productivity. Yield levels have direct implications on income levels of farmers and they reflect the production per unit area, so the more the better. Selection of appropriate wheat variety for cultivation plays a primary role in determining the productivity levels. It is often seen that some regions are cultivating wheat varieties, which are not suitable to the conditions prevalent in the area, such as climate, soil, rainfall et *al*. This often results in low quality produce and low productivity, which diminishes the farmer income levels. Thus, the farmers should interact more with NGOs or government organisations, which might guide them on the best wheat varieties to be sown and promote them on using newer and more efficient technologies for cultivation.

Moreover, India is still largely dependent on conventional farming techniques, and the farmers are sceptical in adopting newer technologies and scientific ways of farming. One reason for this might be associated to the average age of farmers which is 40 years plus and is also linked to their low risk taking or experimenting capacity. Other may be linked to the capital requirement to adopt these technologies and the lack of technical knowhow for an efficient use of technology. Cultivation of better wheat varieties and assessment of optimal cultivation techniques considering the physio-climatic conditions existent in different areas of India shall help in increasing the yield levels and in turn the income levels of farmers.

Credit linkages with formal financial institutions
Agriculture sector is highly dependent on credit. Farmers need credit for cultivation, which they tend to set off by selling their produce and then dwell on net revenue. Conventionally, the farmers in India have been dependent for credit on local money lenders and agricultural traders. The farmers had historically fallen prey to high interest rates and ever increasing debts, which, for them, became a vicious cycle to come out from. Though, the scenario has bettered a bit now, but not enough to portray a convincing scenario. Farmers are turning towards formal financial institutions to meet their credit requirements, but there is still large proportion of farmers who are still dependent on conventional money lending sources due to limitation of the existing network to cater to the entire population.

Implications of sourcing credit from local money lenders are many. Apart from charging high interest rates, the moneylenders also get into informal contracts with the farmers, where the farmers are obliged to sell their produces at prefixed prices. These prefixed prices are often way lower than OMP and MSP and hence the income levels of farmers are severely impacted. Thus, there is a desperate need to link formal financial institutions directly to farmers to safeguard their interests. This is a part of the on-going financial inclusion mission and the

outreach is increasing with time. While, there is a definite need to increase the rate of outreach, there is also a need to promote other financial products such as crop insurance, savings, *et al*, to the farmers to ensure their long term sustenance.

Partnerships with local NGOs and other community associations
Strengthening of the government agricultural support system, such as MSP would need more than just the efforts of the Government. The support needs to come from the other end as well like the farmer bodies, *gram panchayats* and civil societies. Partnership between various governmental and non-governmental agencies at the district-level could be fostered to further the implementation of government schemes, especially the MSP. This will also ensure the holistic coverage of all categories of farmers. These associations and linkages would not only help in driving the efficiency of the system but would also help in sharing of knowledge and technology, which can influence the productivity levels across.

Create awareness among the farmers to minimise cost of production
Cost of production is an important factor that determines farmer income levels. Agriculture input costs are not static and depend on various factors like price of seeds, fertiliser, fuel, electricity, labour wages et al. The fluctuation in price of any of these factors has direct implications on the cost of production of wheat. Thus, it is imperative to keep the cost of production down in order to maximise the income levels of famers. This might be propelled by the Government by providing support on adoption of efficient technologies by farmers, providing good quality seeds at reasonable prices and subsidising the basic elements required for cultivation, which can help minimise the cost of production.

Increased investment in infrastructure facility, especially in storage facility
Storage facility for agricultural commodities, in India, is insufficient to cater to the overall requirement. The lack of storage facilities compel the farmers to sell their produce immediately after harvesting which fetches them the lowest possible prices for their produce. Since, the supply of wheat exceeds the demand during harvesting period, it results in a drastic fall of wheat prices, sometimes bringing it to even lower than the cost of production. The improvement in a storage facility network shall provide an option to the farmers to store at least a part of their produce. This would enable them to sell their produce during the period when the prices are high enough to offer them fair price for their produce and thus helping them with remunerative incomes.

Accessibility to Mandi
Another obstacle faced by the farmers selling their produce in an open market or MSP is the accessibility to *Mandi*. Often the *Mandis* are located far off from villages, which causes a reluctance among farmers to lumber their produce to the *Mandi* and thus they often end up selling their produce locally i.e. to middlemen and local traders. The cost of freight becomes burdensome for the already indebted farmers seeking to liquidate their produces, at the earliest in order to pay off debts and meeting the household demands. This problem could be met by forming cluster of closely falling villages and organising a procurement camp by the government agencies to ease the transportation costs on farmers. Alternatively, the farmers could also pool in for transportation of commodities to the *Mandi,* which considerably reduces the per head transportation costs.

References

- Ali, Shayequa Z
- +, Sidhu, R S and Vatta, Kamal (2012), "Effectiveness of Minimum Support Price Policy for Paddy in India with a Case Study of Punjab", Agricultural Economics Research Review, Vol. 25(No.2) July-December 2012 pp 231-242
- Chand, Ramesh, (2009) "MSP and Other Interventions in Wheat Market: Are they contributing to the Buffer Stock Cycles and Market Destabilization?
- Commission for Agriculture Cost and Prices, 2014
- Economic survey of Rajasthan, statistical appendix (2012-13)
- Hooda S, Yadav, Manoj and Kalubarme, M H (2010) 'Wheat production estimation using remote sensing Data: An Indian Experience' ISPRS Archives XXXVI-8/W48 Workshop proceedings: Remote sensing support to crop yield forecast and area estimates.
- Indiastat.com, 2014
- IRADe Report (2007), 'Extension of MSP: Fiscal and Welfare Implications, A study for the Planning Commission'
- Ministry of Agriculture, Government of India,
- Murthy, R V Ramana and Misra, Rekha (2012), 'Pricing of Paddy: A Case Study of Andhra Pradesh" Department of Economic and Policy Research, Reserve Bank of India, Mumbai
- Sidhu, M S and Singh, Gaganjot (2010), "A Study on Staggered Public Procurement of Wheat in Punjab' Agricultural Economics Research Review Vol. 23 July-December 2010 pp 325-334
- Serving Famers and saving farmers, Fifth and Final Report, 04 October 2006, National Commission on Farmers, Ministry of Agriculture, Government of India
- 'Key Indicators of Situation of Agricultural Households in India', NSSO 70th round, Jan-Dec 2013, National Sample Survey Office, Ministry of Statistics and Programme Implementation, Government of India
- Coventry, D R, Gupta, R K Yadav, A Poswal, R S, Chhokar, R S, Sharma, R K & Cummins, J A (2011). Wheat quality and productivity as affected by varieties and sowing time in Haryana, India. Field Crops Research, 123(3), 214-225.
- Foster, A D and Rosenzweig M R, 'Barriers to Farm Profitability in India: Mechanization, Scale and Credit Markets', 2010, *http://siteresources.worldbank.org/DEC/Resources/84797-1288208580656/7508096-1288208619603/Rosenzweig_Barriers_to_Farm_Profitability_in_India_P&S_PAPER.pdf*
- Tripathi, Ashutosh Kumar. Agricultural Prices and Production in Post-reform India. Routledge, 2014.
- Asseng, S, *et al*. 'Uncertainty in simulating wheat yields under climate change' . Nature Climate Change 3.9 (2013): 827-832