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Data Driven Road Map for Doubling Income of Farmers of India

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Abstract

The target of doubling income of farmers of India would be achieved only if inclusiveness of all sections is ensured. Government policies / initiatives, which aim to optimize the 3 factors of "laagat", "upaj" and "mulya", need to be reviewed, restructured and prioritized based on reliable primary and secondary sources. This study aims to analyse the situation of agricultural households based on data of National Sample Survey and other secondary sources as well as review corresponding initiatives / interventions of Government based on existing research works. The study concludes that the 7 areas of digitalization of land records and liberalization of land leasing & tenancy laws, effective Crop insurance, Assured micro irrigation techniques, Timely and regular holistic technical advice, Reforms in APMC act, open market, and Community and cooperative farming can prove to be an effective road map for doubling income of farmers in India.

Key words: NSSO; Kharif season; Agricultural households; Crops; Rabi season.

1 Introduction

During 2017 -18, agriculture employed nearly 50 percent of the total workforce in India and contributed around 17 percent to the country's GDP[1]. This reflects that the contribution of the agricultural half is lower than one fourth of the contribution by the non-agricultural half. Rs. 70,000 crore had been allocated for Fertilizer Subsidy. Economic Survey (2017 -18). Fertilizer subsidy, thus, accounted for 0.42% of total GDP and 2.45% of GDP due to agriculture. Total farm debt waiver amounted to 0.32% of the GDP and 1.88% of agriculture GDP. These facts highlight the ailing condition of agriculture sector in India. If relevant proportions of fuel and food subsidies are also accounted for the economic viability of agriculture might appear even worse.

According to latest data provided by National Crime Records Bureau (NCRB), 11,370 farmers committed suicide in 2016. The figures for 2015, 2014 and 2013 were 12602, 12360 and 11772, respectively. This implies that in India at least 1 farmer is committing suicide per hour. 'Bankruptcy or Indebtedness' and 'Family Problems' were major causes of farmer/cultivator suicides, accounting for 38.7% and 11.7% of total such suicides respectively

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during 2015. The other prominent causes of suicides committed by farmers/cultivators were 'Farming Related Issues' (19.5%) and 'Failure of Crop' (19.4%) Union Budget (2017 – 18, GoI). Between January to June, 2018, Maharashtra recorded 1,307 farmers suicide translating into an average of 7 suicides per day. This is despite the fact that a loan waiver was given last year {National Crime Record Bureau (2015), GoI}.

When one looks at the above facts, policy flaws glare at once face. Populist measures like loan waiver and increase in Minimum Support Prices (MSP) might give temporary relief to a limited segment but do not enhance productivity and competitiveness. Stories of farm distress continue to make headlines every day.

The present government has set a target for doubling farmers' income by 2022. However, there are chances that if the issues of the most vulnerable sections are not focused upon properly, their inclusiveness from the benefits reaped from Governments incentives might at best be partial.

Since the announcement of the Government, a lot of research has been done in the area and road maps have been chalked out. Major works in the direction include "Occasional paper on 'Raising Agricultural Productivity and making farming remunerative for farmers' based on the works of Task force on Agricultural Development constituted by the NITI Aayog", "State of agriculture in India" by Tanvi Deshpande, "Enabling Environment for Doubling Farmers' Income" by Gopalkumaran Nair, R.N. Kulkarni, Enhancing Farmer's Income by K.J.S. Satyasai and Nirupam Mehrotra, etc. The works done so far have amply identified policy issues and suggested actionable plans.

The income of a farmer is mainly a function of 3 factors of "laagat" *i.e.* cost of cultivation, "upaj" i.e. production and "mulya" i.e. price. Government policies / initiatives, which aim to optimize these 3 factors, like input subsidies, infrastructure support (irrigation, storage & transportation), technological interventions, facilitation of fair sale, financial institutional support (credit, insurance), etc. need to be reviewed and restructured from time to time to benefit all. This study aims to analyze the ground situation of agricultural households based on data of NSS's Situation Assessment Survey (Note 1) and other secondary data as well as review of corresponding initiatives / interventions of Government based on existing research works.

The situation assessment survey provides valuable information on various aspects of farming along with socio-economic characteristics of agricultural households. Information areas also include awareness levels, resource availability, indebtedness etc. As such this survey reflects the ground conditions of farmers.

In this paper, first we have discussed the high dependency of rural Indian on agriculture and in the second, financial status of agriculture households (Note 2) in India has been discussed. These 2 sections establish that a lot still needs to be done in making agriculture sustainable in India. In further sections, an attempt has been made to analyze conditions with respect to the parameters of crop insurance coverage, loss and claim, sources of credit to farmers, assured sources of irrigation, technical advice, market linkages and remunerability to provide a data driven road map for doubling income of farmers in India. Tables 1 to 7 are given in Annexure I, while Tables A1 to A12 are given in Annexure II.

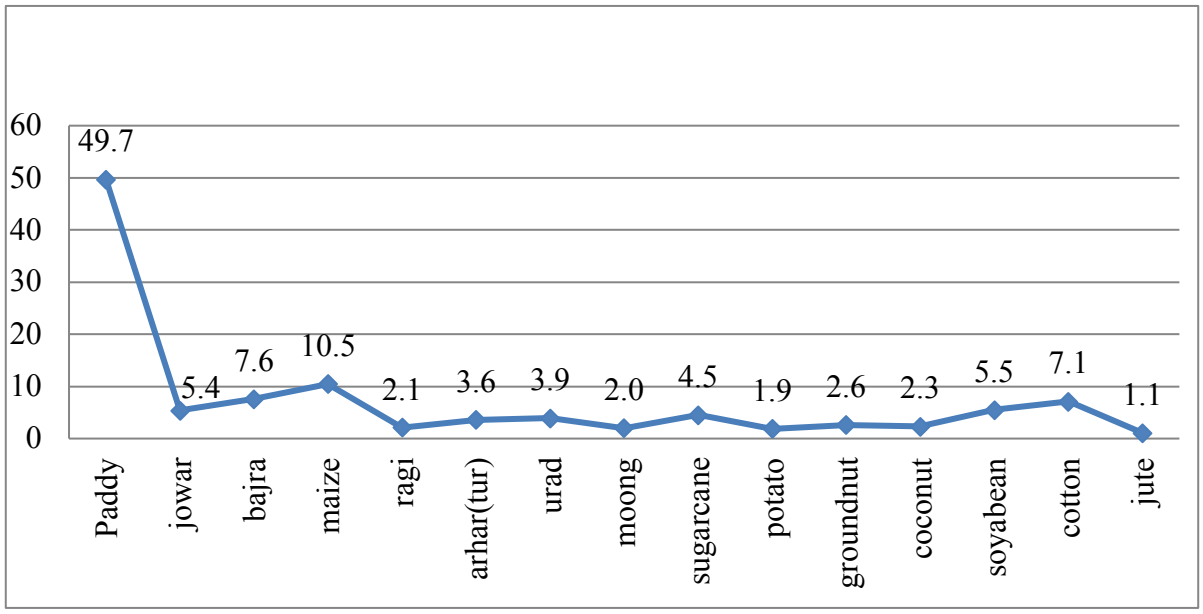
2 High Dependence on Agriculture

Dependence on agriculture in India is still very high. During the agricultural year 2012 -13, there were an estimated number of 90.2 million agricultural households, which were about 58% of the total rural households (Table 1). The percentages were highest for Rajasthan (78.4), Uttar Pradesh (74.8) and Madhya Pradesh (70.8) which are among the largest states of India. An estimated number of 460.23 million persons belonged to agricultural households.

Out of the total agricultural households, 68.3% were principally dependent upon agricultural activities (Note 3) for their income and approximately, 60% of the income of the agricultural households was derived from agricultural activities. Thus, optimizing agricultural income is a pre requisite for inclusive growth of rural India.

Out of the 86.5% of the agricultural households reporting cultivation during kharif, 49.7% reported cultivation of paddy. Out of 71.1% of the agricultural households reporting cultivation during rabi, 39.1% reported cultivation of wheat and 9.4% reported cultivation of rice. The above facts reflect excessive dependence on paddy and rice. This is obvious given the coverage of these two items under food security and export avenues.

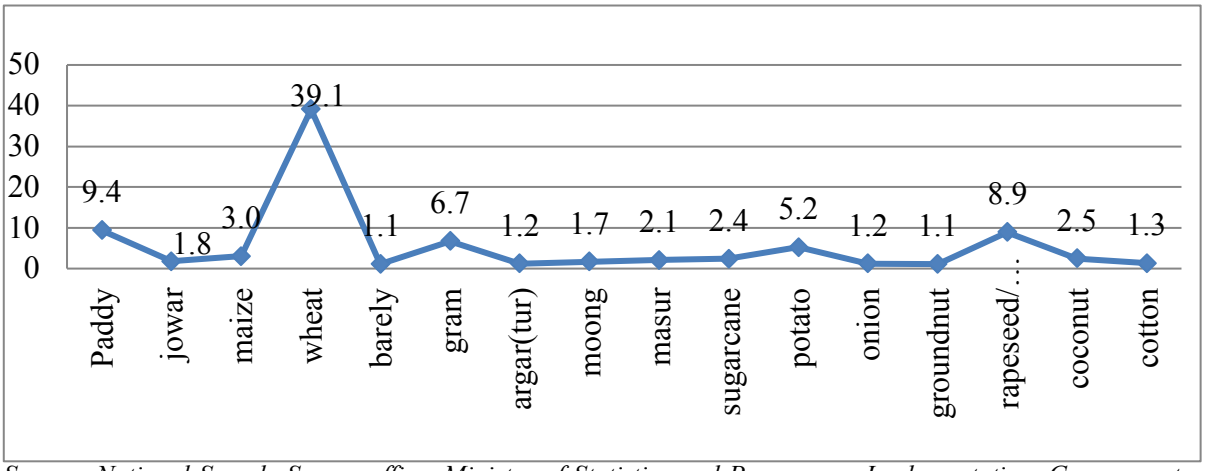
Figure1: Percentage of agriculture households reporting cultivation of different crops during the Kharif season (July 2012- December 2012



Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

As may be seen there is a difference of about 15% between agricultural households reporting cultivation during kharif (86.5%) and rabi (71.1%). If the reasons for this difference (which apparently is the fact that during kharif monsoon rains provide water and the same is unavailable during rabi due to lack of irrigational facilities) are addressed the income of the 15% households which are not cultivating during rabi can be increased. As per the survey, at all India level there were 50 and 51 percent of the members of the agricultural households which were either unemployed or out of labour force. If interested members are trained in allied agricultural activities like fishing, poultry, bee keeping, gur making, etc. additional avenues of income can possibly be generated.

Figure 2: Percentage of agriculture households reporting cultivation of different crops during the rabi season (January 2013- June 2013)



Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

3 Financial Status of Agricultural Households

The difference between the average monthly receipts and expenses from crop production per cultivating household is Rs. 3,350 per month at all India level (Table 2). As per the survey, the average household size (Note 4) of an agricultural household was 5. This implies that per capita net income (receipt – expenses) from cultivation is Rs. 670 per month which alone is not sufficient to keep the agricultural households above poverty levels. Haryana and Punjab were the only 2 States where this difference was more than Rs. Ten thousand per month at household level (Table 3). For the remaining States it was less than Rs. Five thousand per month (except for Karnataka where it was Rs. 5129).

Further, if one looks at the difference between the average monthly income (from all sources) and average monthly consumption expenditure of agricultural households, the scenario is quite grim (Table 4). It is evident that situation is not sustainable for most of the states, particularly Uttar Pradesh, Bihar, Rajasthan, West Bengal, Andhra Pradesh and Jharkhand. Only 3 states have a monthly difference of more than Rs. 2,000 between income and consumption expenditure. This clearly shows that savings and inter alia possibility of investing in productive assets is bleak for most.

4 Sources of credit to farmers

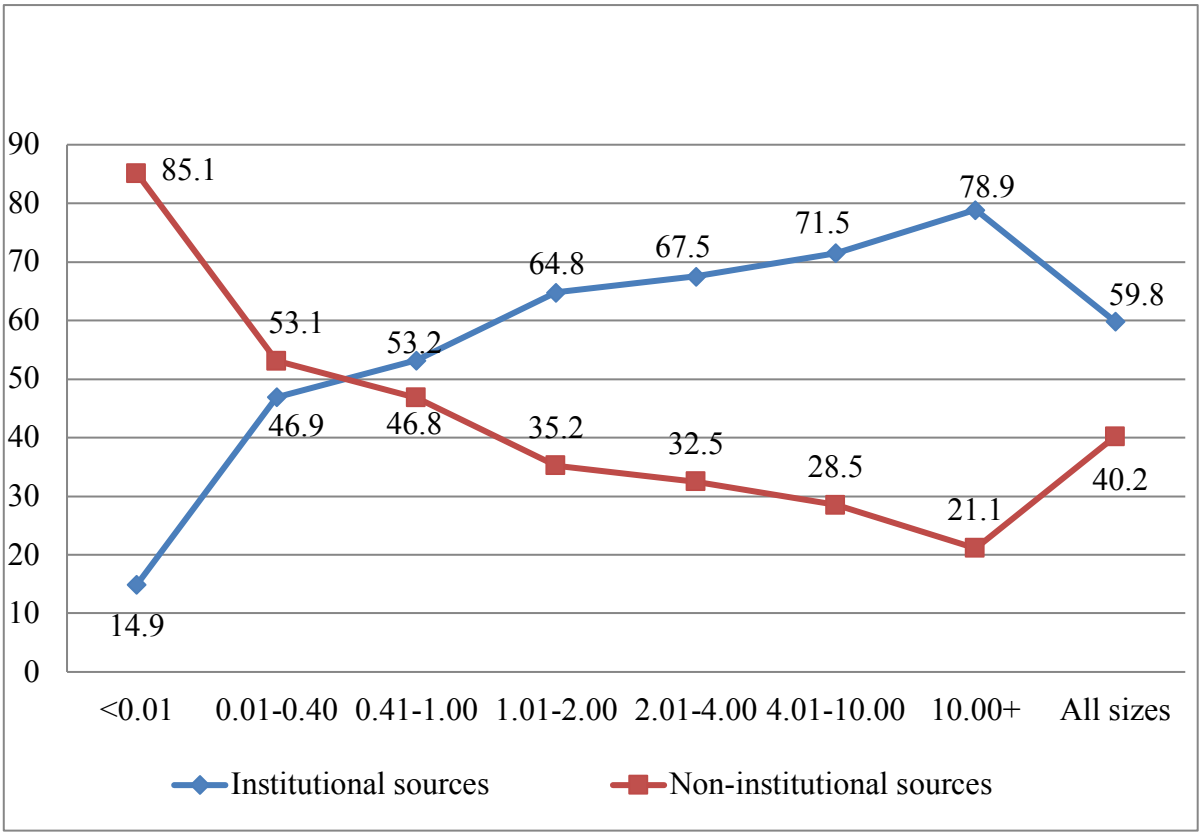
The facts that emerge in the preceding section emphasize the importance of agricultural credit for meeting substantial monetary requirements. The Situation assessment survey collected information on the amount of outstanding loan as on date of survey. Loans included all kinds of outstanding loans irrespective of the purpose for which loans were taken. The average amount of outstanding loan per agricultural household was estimated to be approximately Rs. 47,000.00.

At all India level about 60% of the outstanding loans were taken from institutional sources (Government (2.1%), Cooperative society (14.8%) & banks (42.9%). Among the non – institutional sources, agricultural / professional money lenders had major share (25.8%) in outstanding loans. As per the survey, 85% of the households which had landholding less than

0.01 hectares (which included landless agricultural households also) took loan from non – institutional sources. The proportion taking loan from institutional sources increased with increase in the size of land holding. This clearly indicates that steps like loan waiver will not be able to benefit the really needy farmers who are left in the clutches of traditional moneylenders.

Tanvi Deshpande in her work on State of agriculture in India (March, 2017), has quoted RBI sources and concluded that the trends of short term and long term agricultural credit have reversed in India. In 1990 – 91, majority of crop loans taken were long term credit (which is generally for investing in agricultural machinery and equipment, irrigation, etc.). Short term loans have risen from about a quarter in 1990 – 91 to more than 60% in 2011 -12. She has also concluded that small and marginal farmers were taking more short term loans (which are generally taken for pre harvest & post-harvest activities). Dependence on loan for pre and post-harvest activities can lead to bankruptcy in advent of crop failure or price fall in market and raises apprehensions in a country like India where most of the crop produce is from monsoon / rain fed crops.

Figure 3: Percentage distribution informal credits taken by agriculture households belongs into different land size classes



Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

In India, the land owners mostly give the land to tenants for cultivation, off the records. This can be attributed to the stringent land leasing laws and tenancy acts which vary from state to state. Also there are numerous cases where records of rights (RoRs) have been lost due to informal transfer of land over generations. In the absence of proper document these result in non-percolation of benefits like priority sector lending, direct benefit transfer, disaster relief, etc. to the real farmers. The latter case has also resulted in economically unviable small scale

holdings. The inequitable distribution of land holding (85% of small and medium farmers cultivating only 45% of the area) makes the small and marginal farms the poverty hotspot of the country[5].

There is need to advocate for model liberalized land leasing laws and make the tenancy laws less stringent to encourage land owners to recognize their tenants in turn making them eligible beneficiaries. Further states should also be encouraged to emulate successful projects like E- Bhoomi by Government of Karnataka which has created an easy and transparent platform for transfer of land records and dividing or merging of plots.

Community / cooperative farming are also a way to tackle with the issue of small holdings. By pooling of holdings and acting as a group, the small holders can become less vulnerable. Yield rate would increase with increase in size of operational holdings as farm cooperatives can hire machinery like tractors, threshers much easily. In addition cooperatives can act as Joint Liability Groups for assessing facilities like formal credit and crop insurance).

5 Crop insurance coverage, Loss and Claim

The heavy dependence on monsoon makes agriculture in India uncertain and prone to risk. A weak or untimely monsoon can result in bankruptcy for the smaller cultivators. Insuring crops against various potential threats is important. Table 5 depicts that a very small share of agricultural households was insuring their crops. In case of wheat and paddy it was even less than 5%.

Percentage distribution of agriculture households not insuring their crops by reasons may be seen at Tables A1 and A2. Lack of awareness about crop insurance and unavailability of facility were the top 2 reasons (accounting for about 50% cases) for cultivating households not taking insurance. Unawareness in present times reflects apathy. Intensified insurance drives with the help of locals need to be given focus and priority. There was a wide difference between crop loss experienced and average claim amount received (Tables A3 and A4). As per the survey, more than 75% of the households that had additionally insured their crops did not receive their insurance claim against crop loss experienced in respect of crops harvested during kharif season (July to December, 2012). For pulses like urad, arhar and other crops like groundnut, cotton and soyabean, the non – receipt of claim was almost 100%. The situation was even grimmer in case of rabi season (January to June, 2013), except for masur.

The reasons for claim not received were also documented and in majority (70% to 100%) cases, the reason for non – receipt of claim has been reported as others (other than ‘cause being outside coverage’ and ‘loss of documents’). Now in a country where less than 10% of the agricultural households are insuring their crop, a situation where less than 25% receive partial claim and that too with delay, things are definitely not in a direction of improvement. Insurance drives alone would not suffice. Help in making facility accessible, doing paper work and filing of claim also needs to be ensured. Reasons for claim not being given, delay in disbursement of claim and divergence in amount claimed and disbursed need to be detailed and studied.

Pradhan Mantri Fasal Bima Yojana (PMFBY), launched in January, 2016 is a step in the right direction. The scheme aims to provide insurance coverage to farmers in case of crop failure and stabilize their income. However, for a scheme like PMFBY to be a success, intensive awareness and sensitization drives are needed as in most of the insurance schemes it has been seen that it is mostly the loanee farmers who take insurance only due to compulsions levied by banks. Plus, the scheme needs to be technology driven. Information related to

weather forecasts can help in minimizing losses which can be avoided by slightly modifying the sowing and harvesting time.

6 Assured sources of Irrigation

Excessive dependence of monsoon and the risks involved are amply evident from the Table 6. 'Failure of monsoon' has been reported as major reason for crop loss by the cultivating households which have reported crop loss. This loss could have been averted in case assured sources of irrigation were available. Timely advice on exact time for sowing and harvesting based on sound weather forecast can also help in reduction of crop loss.

Assured irrigation has the dual benefit of averting crop loss as well as increasing productivity, which is evident from the Tables A5 and A6. The percentage increase in yield with irrigation for paddy during kharif is more than 32% and during rabi is more than 61%. The increase in yield for wheat is approximately 90%. For some crops, increase can be seen to be more than 100%. Crops like urad, moong and soyabean were found to be less affected due to irrigation. These crops can be promoted in arid areas.

The Tables A5 and A6 clearly highlight the fact that assured irrigation alone has the potential of increasing the yield rate and inter alia the income of farmers by 50% or more. Studies conducted so far suggest that availability of irrigation enables farmers to use more fertilizers also thereby increasing yield.

The focus in recent times has been on "more crop per drop" which is much needed in present times as the present technique of flood irrigation mostly results in wastage of water as well as depletion of top soil thereby reducing soil fertility. Stress should be on revival of micro irrigation techniques and rain water harvesting. Besides reducing wastage of water, micro irrigation techniques would help in increasing ground water levels (by improved percolation). The ground water thus available can be used both in rabi season as well as in case of failure of monsoon during kharif season.

7 Technical Advice

At all India level only 41% of agricultural households accessed technical advice during kharif season and 35% of agricultural households accessed technical advice during rabi season (Table 7). These figures are very low. Moreover, out of those accessing advice, more than 50% were seeking the same from progressive farmer and that too seasonally or based on need.

There is a need to make available technical advice to farmers regularly and free of cost. Areas of advice can include weather forecast based advice on time to sow and reap judicious use of fertilizers, insecticides, micro irrigation techniques, quality of seeds, etc. Advice can also be given on short term crops which can be grown locally in between the seasons of kharif and rabi.

Technical advice needs to be as specific as possible. The soil health card scheme of the Government is a step in the direction to provide specific advice on judicious use of combinational fertilizers and types of crop to grow. However, adequate infrastructure creation and dedicated institutional setup pose a challenge in implementation of the scheme and achievement of desired outcomes.

8 Better market linkages and better remuneration prospects:

Tables A7 and A8 depict that the majority of yield was being sold to the local private traders. The percentage was as high as 60% to 80% in most cases except paddy and wheat where it was about 40% (kharif) and 30% (Rabi), respectively. Except for sugarcane, sale to cooperatives and government agencies was mostly non- existent. Even for paddy and wheat it was less than 20%. The next highest amount of quantity was sold to mandis. Sale to local private traders is mostly unregulated and chances are high that in case of lack of resources for storage and transport, small and marginal farmers may give in to distress sale.

Awareness levels about Minimum Support Price (MSP) and procurement agencies were also at low levels for households cultivating selected crops (except paddy, wheat and sugarcane). Even in case of these 3 crops awareness levels were less than 40 % (Tables A9 and A10).

Unavailability of procurement agency and local purchaser were among the top 3 reasons for aware cultivating households not selling to procurement agencies (Tables A11 and A12). Lack of awareness about MSP / procurement agency coupled with unavailability of procurement facility leaves no option to farmers other than selling locally. In the absence of procurement MSP is more of a symbolic setup. It is also felt that if better linkages to an open and free market are provided it would make agriculture more competitive and reduce the need of subsidies and measures like MSP.

Post-harvest benefits like low cost transport directly to Mandi, reduced per capita warehouse charges and better linkage to market can be attained with farm cooperatives.

In India, the transactions in agricultural commodity are regulated through acts like essential commodities act and Agricultural Produce Market Committee (APMC) act. The administration of APMC act is a state subject. The act restricts the sale of notified agricultural produce outside the market yards or ‘mandis’ implying that the farmers cannot directly sell to processors, exporters, manufacturers, bulk retailers, etc. The APMC system was introduced to prevent distress sale by farmers to in absence of sale platforms and to ensure better prices. However, over a period of time, these markets have become monopolistic markets, harming the farmers rather than helping them to realize remunerative prices.

As per the February, 2018 report of “Expert Committee on Integration of Commodity Spot and Derivatives Markets”, the ‘Mandis’ suffer from many marring factors such as poor infrastructure, involvement of commission agents, non-transparent price discovery process, poor price dissemination mechanisms, restrictive regulations, and non-transparent levies/charges on the sale of farm produce. These factors act as a hindrance in achieving higher realization of the agricultural produce which causes farmers' distress.

The Electronic National Agriculture Market (e-NAM) project is one of the best envisioned projects in agricultural marketing reforms. It is a pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities. The States should be encouraged to join e-NAM. It is also felt that lack of procurement by Government agencies and the frequently changing import and export restrictions deter the farmers to opt for crops like pulses and oilseeds.

9 Conclusions

In India agriculture is a key area which needs to be focused upon if equitable and sustainable growth is to be achieved. More than half of the Indian workforce is in agriculture sector. However, productivity wise it contributes less than one fifth of total GDP. The underlying objectives of the target of doubling income of farmers of India would be achieved in real terms only if the inclusiveness of the most vulnerable sections of farmers is ensured. There is a need to identify the areas of vulnerability and review/prioritize the Government initiatives/policies like infrastructure support (Irrigation, storage and transportation), technological interventions, fair sale facilitation, financial institutional support (Credit, insurance, subsidies), etc. which aim to optimize the 3 factors of farmers income viz "laagat" that is cost of cultivation, "upaj" that is quantity produced and "mulya" that is price. In this study, the primary data of NSS's situation assessment survey and secondary data available from various sources has been studied to identify the bottlenecks/areas of vulnerability which exist. Review of corresponding initiatives/interventions of Government based on existing research work has also been undertaken to suggest areas which require policy prioritization.

Net receipts from crop cultivation, alone are not sufficient to keep agriculture households above the poverty levels. Agriculture credit is required by small and marginal farmers for carrying out pre and post-harvest activities. 85% of small land holders are still dependent on non-institutional sources of credit in the absence of record of rights. Digitalization of land records and liberalization of land leasing and tenancy laws in present context can help small holders and land less tenants access institutional credit and also other benefits like loan waiver. Crop insurance is an area which needs to be revamped, reasons for low coverage, delayed, partial and zero claim disbursements need to be addressed. Assured micro irrigation techniques can help enhance productivity, increase production under rabi as well as reduce crop losses.

Timely and regular technical advice comprising of wide areas like crops to be sown, seed quality preservation, right use of fertilizers, time for sowing and harvesting will definitely improve productivity. Dedicated network of krishi mitras can be laid, use of Krishi Vigyan Kendras should be restricted to technology transfer. Reforms in APMC act and encouragement to states to join e-Nam can provide better market linkages and fair price assurance. Community and cooperative farming can help improve productivity due to enabled mechanization; simultaneously it can help access institutional sources of credit. Facilities & benefits of Government schemes like fasal bima yojana, fasal sinchai yojana, and soil health card etc. Post-harvest benefits like reduced cost of storage and transportation can also be achieved through cooperative farming. Farm cooperatives can also explore possibility of contract farming to assure their income. If modelled properly, farm cooperatives can well follow the path of dairy cooperatives.

Together the 7 areas of digitalization of land records and liberalization of land leasing and tenancy laws, effective Crop insurance, Assured micro irrigation techniques, Timely and regular holistic technical advice, Reforms in APMC act, open market, and Community and cooperative farming can prove to be an effective road map for doubling income of farmers in India.

The study has certain limitations due to the fact that information like the purpose of taking loan has not been recorded in the survey. The period of loan (short term/long terms) has also not been collected. As such all the loans availed by agricultural households have been treated as agricultural loans which may not be true. NSSO also conducts a survey on Debt and

Investment. The data of this survey can also be utilized to study the situation of farmers on certain other parameters as well.

Notes

1. **Data source:** The Situation Assessment Survey of Agricultural Households was conducted in NSS 70th Round (January, 2013- December, 2013) aimed at capturing the condition of agricultural households in the country in the context of policies and programmes of Government of India. The survey schedule was designed for collection of information on various aspects relating to farming and other socio-economic characteristics of agricultural households. Along with information on consumer expenditure, income and productive assets, their indebtedness, farming practices and preferences, resource availability, their awareness of technological developments and access to modern technology in the field of agriculture, information on crop loss, crop insurance and awareness about Minimum Support Price (MSP) was also collected during 70th round. The information was collected in two visits from the same set of sample households with a view to collect relevant information separately for the two major agricultural seasons in a year. The first visit was made during January to July 2013 and the second during August to December 2013. Geographical coverage was rural area only. It was ensured that all the crops, whether principal or not, harvested during agricultural year 2012-13 were duly considered in either visit 1 or visit 2.

2. **Agricultural Household:** An agricultural household for this survey was defined as a household receiving some value of produce more than Rs.3000/- from agricultural activities (e.g., cultivation of field crops, horticultural crops, fodder crops, plantation, animal husbandry, poultry, fishery, piggery, bee-keeping, vermiculture, sericulture etc.) and having at least one member self-employed in agriculture either in the principal status or in subsidiary status during last 365 days. For recording the agricultural expenditure, SAS 2013 (70th Round) followed the actual expenditure (out of the pocket expenditure) in order to simplify the data collection. Accordingly, imputed figures in respect of consumption of input out of home stock or out of free collection as well as received in exchange or borrowed were not considered.

3. **Agriculture Activities**

   Cultivation: All activities relating to production of crops and related ancillary activities were considered as cultivation. Growing of trees, plants or crops as plantation or orchards (such as rubber, cashew, coconut, pepper, coffee, tea etc.) were not considered as cultivation activities for the purpose of this survey.

   Livestock: Livestock are those animals which are used for food, fibre, labour, etc. Animals kept as pets, snakes, reptiles, frogs, fishes are excluded from the coverage of livestock.

   Other agricultural activity: Other agricultural activities included all the activities in the agricultural sector, except cultivation and livestock farming activities, like activities of growing of plantation, orchard, forestry, logging, fishery, etc.

   Farm business: Farm business comprises household economic activities like cultivation, including cultivation of plantation and orchard crops, and processing of produce on the farm, e.g. paddy hulling and gur making. Although gur making is a manufacturing activity, this is covered under farm business for the purpose of this survey only when such activity is carried out in the farm by indigenous method. Such activities when they are carried out in non-household enterprises are to be excluded from the

purview of the farm business. Farm business also includes activities ancillary to agriculture, like livestock raising, poultry, fishing, dairy farm activities, bee keeping and other allied activities.

4. **Household size:** The size of a household is the total number of persons, normally living together in the household.

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ANNEXURE I

Table.1: Percentage share of agriculture households in rural households, Percentage of Agriculture households reporting agricultural activities as a principal source of income and Percentage of income from Agriculture sectors in the major states during the agriculture year July 2012- June 2013

States	Agriculture households as percentage of rural households	Percentage of Agriculture households reporting agricultural as a principal source of income	Percentage of income from Agriculture sectors
Andhra Pradesh	41.5	65.4	51.80
Assam	65.2	82.5	74.83
Bihar	50.2	72.9	56.06
Chhattisgarh	68.3	81.1	64.28
Gujarat	66.9	68.1	61.36
Haryana	60.7	69.1	72.83
Jharkhand	59.5	73.4	56.01
Karnataka	54.8	76.5	62.61
Kerala	27.3	39.0	34.54
Madhya Pradesh	70.8	77.9	76.47
Maharashtra	56.7	74.9	59.51
Odisha	57.5	62.4	54.68
Punjab	51.1	55.6	69.33
Rajasthan	78.4	52.8	55.86
Tamil Nadu	34.7	66.1	43.22
Telangana	51.5	89.1	72.90
Uttar Pradesh	74.8	68.5	69.01
West Bengal	45.0	58.7	30.25
All-India	*57.8*	*68.3*	*59.81*

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table 2: Difference between average monthly receipts and expenses (input cost) for crop production per cultivating agriculture household during July 2012-June 2013

Land size possessed (Hectares)	Average monthly expenses(Rs.)	Average monthly receipts(Rs.)	Difference(Average monthly receipts - Average monthly expenses)
<0.01	666	1094	428
0.01-0.40	639	1435	796
0.41-1.00	1435	3624	2189
1.01-2.00	2652	6944	4292
2.01-4.00	4859	12308	7449
4.01-10.00	9834	25369	15535
10.00+	25942	63613	37671
All Size of land	2192	5542	3350

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table 3: Difference between average monthly receipts and expenses (input cost) for crop production per cultivating agriculture household for the major states during the agriculture year July 2012- June 2013

State	Average monthly expenses(Rs.)	Average monthly receipts(Rs.)	Difference(Average monthly receipts - Average monthly expenses)
Andhra Pradesh	6191	8482	2291
Assam	788	5197	4409
Bihar	1454	3358	1904
Chhattisgarh	1128	4551	3423
Gujarat	2250	5773	3523
Haryana	6228	17144	10916
Jharkhand	571	2049	1478
Karnataka	2779	7908	5129
Kerala	2270	5872	3602
Madhya Pradesh	2284	6538	4254
Maharashtra	2654	6675	4021
Odisha	1001	2438	1437
Punjab	11768	28117	16349
Rajasthan	1730	5192	3462
Tamil Nadu	2538	5012	2474
Telangana	4267	8666	4399
Uttar Pradesh	1790	4912	3122
West Bengal	1819	2836	1017
All India	2192	5542	3350

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table 4: Gap between Average monthly income and expenditure for agricultural households in the major states during the agriculture year July 2012- June 2013

States	Average monthly income of agriculture households(Rs.)	Average monthly expenditure of agriculture households(Rs.)	Difference(Average monthly income - Average monthly consumption expenditure)
Andhra Pradesh	5979	5927	52
Assam	6695	5766	929
Bihar	3558	5485	-1927
Chhattisgarh	5177	4489	688
Gujarat	7926	7672	254
Haryana	14434	10637	3797
Jharkhand	4721	4688	33
Karnataka	8832	5889	2943
Kerala	11888	11008	880
Madhya Pradesh	6210	5019	1191
Maharashtra	7385	5762	1623
Odisha	4976	4307	669

States	Average monthly income of agriculture households(Rs.)	Average monthly expenditure of agriculture households(Rs.)	Difference(Average monthly income - Average monthly consumption expenditure)
Punjab	18059	13311	4748
Rajasthan	7350	7521	-171
Tamil Nadu	6980	5803	1177
Telangana	6311	5061	1250
Uttar Pradesh	4923	6230	-1307
West Bengal	3980	5888	-1908
All-India	6426	6223	203

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table 5. Percentage of agriculture households insuring their crops in two seasons of the agriculture year 2012-13

Crops	July-December, 2012	January-June, 2013
Paddy	4.8	3.9
Jowar	7.9	3.4
Bajra	6.2	1.6
Maize	4.6	3.1
Ragi	0.2	0.0
Wheat	4.7	4.1
Barley	0.0	4.9
Gram	8.9	9.6
Arhar(tur)	8.2	2.8
Urad	6.9	1.1
Moong	10.2	5.2
Masur	0.0	5.4
Sugarcane	1.3	1.3
Potato	0.3	4.1
Onion	0.6	3.0
Groundnut	24.5	10.0
Rapeseed/Mustard	0.9	5.1
Coconut	4.8	0.2
Soyabean	14.0	0.0
Cotton	10.4	14.9
Jute	0.9	1.8

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table 6: Percentage of agriculture households experience crops loss due to monsoon failure during different seasons of crops

July, 2012- December, 2012		January, 2013- June 2013	
Crops	Percentage	Crops	Percentage
Paddy	53.9	Paddy	40.9
jowar	76.0	jowar	93.5
bajra	62.6	maize	42.7
maize	49.7	wheat	29.0
ragi	66.6	barley	36.4
arhar(tur)	77.4	gram	32.6
urad	39.4	arhar(tur)	19.0
moong	59.1	moong	48.4
sugarcane	47.9	masur	7.1
potato	43.3	sugarcane	33.4
groundnut	80.3	potato	14.0
coconut	39.8	onion	41.4
soyabean	47.0	groundnut	58.7
cotton	76.0	rapeseed/mustard	22.5
jute	39.0	coconut	29.3
		cotton	56.4

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table 7: Percentage of accessing agriculture households adopted technical advice during the two different seasons of agriculture year

States	Percentage of cultivating agriculture households accessed technical advice		Percentage of accessed agriculture households adopted technical advice	
	July - December, 2012	January - June 2013	July - December, 2012	January - June 2013
Andhra Pradesh	67.8	42.9	89.7	84.4
Assam	57.2	53.2	90.2	89.4
Bihar	33.0	53.0	75.2	83.8
Chhattisgarh	55.6	16.0	98.3	99.2
Gujarat	49.6	34.0	89.1	89.4
Haryana	44.5	41.7	96.8	92.3
Jharkhand	26.3	30.9	45.3	28.3
Karnataka	65.2	36.6	83.6	80.5
Kerala	64.9	66.2	82.0	83.5
Madhya Pradesh	37.9	42.4	77.9	83.2
Maharashtra	42.3	20.1	79.5	85.3
Odisha	35.9	19.2	80.3	74.9
Punjab	49.0	44.8	90.2	92.6
Rajasthan	26.9	25.5	94.6	89.5

States	Percentage of cultivating agriculture households accessed technical advice		Percentage of accessed agriculture households adopted technical advice	
	July - December, 2012	January - June 2013	July - December, 2012	January - June 2013
Tamil Nadu	52.1	38.2	86.2	89.7
Telangana	36.8	23.5	68.6	73.0
Uttar Pradesh	27.4	32.1	84.4	88.3
West Bengal	50.6	44.7	85.9	91.0
All India	40.6	35.0	83.8	85.1

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

ANNEXURE II

Table A1: Percentage distribution of agriculture households not insuring their crops by reasons for major crops during July, 2012- December, 2012

Crops	Not Aware About Crop Insurance	Not Aware About Availability of Facility	Other Reasons
Paddy	43.2	18.5	38.3
Jowar	43.5	12.9	43.6
Bajra	51.2	17.5	31.3
Maize	46.4	18.6	35.0
Ragi	45.1	12.2	42.7
Arhar (Tur)	41.1	16.3	42.6
Urad	52.2	19.2	28.6
Moong	48.0	14.5	37.5
Sugarcane	38.8	21.1	40.1
Potato	40.9	9.5	49.6
Groundnut	48.9	17.9	33.2
Coconut	33.6	11.4	55.0
Soyabean	44.8	16.0	39.2
Cotton	39.6	14.0	46.4
Jute	64.2	12.4	23.4

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round - 70th (2013).

Table A2. Percentage distribution of agriculture households not insuring their crops by reasons for major crops during January, 2013- June 2013

Crops	Not Aware About Crop Insurance	Not Aware About Availability of Facility	Other Reasons
Paddy	41.5	12.4	46.1
Jowar	29.0	12.5	58.5
Maize	45.7	15.7	38.6
Wheat	39.4	22.8	37.8
Barley	32.2	19.1	48.7
Gram	35.9	22.0	42.1
Arhar (Tur)	34.4	23.0	42.6
Moong	49.9	13.0	37.1
Masur	37.5	20.7	41.8
Sugarcane	43.8	12.0	44.2
Potato	41.5	20.9	37.6
Onion	26.3	12.1	61.6
Groundnut	26.6	26.7	46.7
Rapeseed/Mustard	43.7	19.9	36.4
Coconut	23.7	11.9	64.4
Cotton	43.8	17.0	39.2

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A3: Difference in average total loss and average claim received for major crops during July, 2012- December, 2012

Crops	Average Total Loss (Rs.)	Average Claim Amount (Rs.)	Difference (Average Total Loss – Average Claim Amount)
Paddy	7363	3025	4338
Jowar	12252	5166	7086
Bajra	7832	2157	5675
Maize	7323	1000	6323
Ragi	8366	0	8366
Arhar (Tur)	9695	500	9195
Urad	5907	0	5907
Moong	10014	2000	8014
Sugarcane	42887	500	42387
Potato	2605	0	2605
Groundnut	28721	0	28721
Coconut	4026	0	4026
Soyabean	18034	30000	-11966
Cotton	43046	2000	41046
Jute	4525	0	4525

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A4: Difference in average total loss and average claim received for major crops during Januarys, 2013- June 2013

Crops	Average Total Loss (Rs.)	Average Claim Amount (Rs.)	Difference (Average Total Loss – Average Claim Amount)
Paddy	12798	16612	–3814
Jowar	13005	737	12268
Maize	17309	0	17309
Wheat	6353	0	6353
Barley	3147	0	3147
Gram	10986	2545	8441
Arhar (Tur)	5022	0	5022
Moong	4372	0	4372
Masur	3688	2500	1188
Sugarcane	36290	1200	35090
Potato	3623	0	3623
Onion	18860	0	18860
Groundnut	12492	0	12492
Rapeseed/Mustard	5516	0	5516
Coconut	5075	0	5075
Cotton	22785	0	22785

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A5: Difference in yield rate (Kg/Ha) between irrigated and un-irrigated land for major crops during July, 2012- December, 2012

Crops	Irrigated Land	Unirrigated Land	Percentage Increase With Irrigation
Paddy	3549	2691	31.9
Jowar	5884	886	564.1
Bajra	2262	767	194.9
Maize	2645	1696	56.0
Ragi	1279	1046	22.3
Arhar (Tur)	754	571	32.0
Urad	516	541	–4.6
Moong	388	359	8.1
Sugarcane	55568	28840	92.7
Potato	10806	6200	74.3
Groundnut	1272	531	139.5
Coconut	5923	4443	33.3
Soyabean	1225	1123	9.1
Cotton	1543	1085	42.2
Jute	2314	1894	22.2

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A6: Difference in yield rate (Kg/Ha) between irrigated and un- irrigated land for major crops during January, 2013- June 2013

Crops	Irrigated Land	Unirrigated Land	Percentage Increase With Irrigation
Paddy	4816	2985	61.3
Jowar	2524	679	271.7
Maize	4924	2860	72.2
Wheat	2951	1558	89.4
Barley	1937	711	172.4
Gram	985	616	59.9
Arhar (Tur)	798	504	58.3
Moong	457	281	62.6
Masur	906	749	21.0
Sugarcane	57650	35491	62.4
Potato	17800	4951	259.5
Onion	9928	2716	265.5
Groundnut	1497	1267	18.2
Rapeseed/Mustard	1364	735	85.6
Coconut	5563	5748	-3.2
Cotton	1332	627	112.4

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A7: Percentage distribution of quantity sold to different agencies during July, 2012-December, 2012

Crops	Local Private Trader	Mandi	Corporative and Govt. Agency	Others
Paddy	41.0	29.0	17.0	13.0
Jowar	76.0	16.0	1.0	7.0
Bajra	43.0	49.0	1.0	7.0
Maize	46.0	39.0	2.0	13.0
Ragi	67.0	23.0	0.0	10.0
Arhar (Tur)	31.0	61.0	1.0	7.0
Urad	63.0	32.0	1.0	4.0
Moong	47.0	51.0	0.0	2.0
Sugarcane	18.0	4.0	50.0	28.0
Potato	39.0	56.0	0.0	5.0
Groundnut	44.0	30.0	3.0	23.0
Coconut	84.0	10.0	2.0	4.0
Soyabean	36.0	59.0	1.0	4.0
Cotton	48.0	26.0	8.0	18.0
Jute	77.0	19.0	0.0	4.0

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A8: Percentage distribution of quantity sold to different agencies during January, 2013 - June 2013

Crops	Local private Trader	Mandi	Corporative and Govt. Agency	Others
Paddy	64.0	17.0	6.0	13.0
Jowar	51.0	43.0	0.0	6.0
Maize	63.0	16.0	15.0	6.0
Wheat	29.0	44.0	19.0	8.0
Barley	35.0	62.0	0.0	3.0
gram	30.0	64.0	1.0	5.0
Arhar(tur)	44.0	49.0	1.0	6.0
Moong	79.0	18.0	3.0	0.0
masur	50.0	38.0	0.0	12.0
Sugarcane	16.0	2.0	57.0	25.0
Potato	73.0	21.0	0.0	6.0
onion	57.0	37.0	3.0	3.0
groundnut	53.0	34.0	2.0	11.0
Rapeseed/mustard	32.0	63.0	1.0	4.0
Coconut	78.0	18.0	1.0	3.0
Cotton	51.0	16.0	1.0	32.0

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A9: Percentage of agriculture households reported sale of particular crops having awareness about the MSP and Procurement agency during July, 2012- December, 2012

Crops	Aware of MSP	Aware of Procurement Agency	Sold to Procurement Agency
Paddy	32.2	25.1	13.5
Jowar	8.3	6.3	1.7
Bajra	16.0	10.2	3.0
Maize	10.6	7.6	4.2
Ragi	2.5	2.5	0.4
Arhar (Tur)	4.6	3.8	1.3
Urad	5.7	3.7	1.6
Moong	9.8	7.2	1.8
Sugarcane	39.8	36.1	31.0
Potato	4.2	3.2	0.2
Groundnut	6.4	4.5	1.1
Coconut	22.8	8.6	1.9
Soyabean	7.9	5.7	3.6
Cotton	20.4	15.4	6.9
Jute	15.4	9.1	0.6

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A10: Percentage of agriculture households reported sale of particular crops having awareness about the MSP and Procurement agency during January, 2013- June 2013

Crops	Aware of MSP	Aware of Procurement Agency	Sold to Procurement Agency
Paddy	31.5	18.7	10.0
Jowar	21.3	20.7	19.2
Maize	11.8	6.1	2.9
Wheat	39.2	34.5	16.2
Barley	11.0	10.5	1.6
Gram	12.6	9.7	3.9
Arhar (Tur)	14.2	13.1	4.7
Moong	9.1	3.7	1.9
Masur	18.1	15.5	2.0
Sugarcane	45.4	40.7	36.6
Potato	12.1	9.0	0.6
Onion	15.3	9.8	0.6
Groundnut	8.9	8.2	1.3
Rapeseed/Mustard	15.5	12.8	2.9
Coconut	21.5	11.0	1.7
Cotton	22.6	17.7	8.4

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A11: Percentage of agriculture households having awareness about MSP but did not sell to procurement agency by reasons during July, 2012- December, 2012

Crops	Procurement Agency Not Available	No Local Purchaser	Poor Quality of Crop	Crop Already Pre-pledged	Received Better Price Over MSP	Others
Paddy	16.6	9.6	2.1	1.1	6.4	62.6
Jowar	9.1	12.1	0.0	0.0	25.8	51.5
Bajra	16.9	9.2	0.8	0.0	8.5	60.8
Maize	12.5	28.1	1.6	1.6	15.6	39.1
Ragi	14.3	9.5	0.0	9.5	19.0	47.6
Arhar (Tur)	6.1	15.2	3.0	0.0	45.5	33.3
Urad	4.9	31.7	2.4	0.0	9.8	48.8
Moong	8.9	7.6	0.0	0.0	20.3	63.3
Sugarcane	10.2	2.3	3.4	2.3	6.8	72.7
Potato	10.0	2.5	0.0	0.0	2.5	42.5
Groundnut	41.5	3.8	0.0	1.9	15.1	37.7
Coconut	28.7	6.2	13.4	1.4	3.8	46.4
Soyabean	20.9	4.7	2.3	0.0	20.9	48.8
Cotton	25.4	13.4	3.0	0.7	24.6	33.6
Jute	50.3	10.2	0.0	0.0	2.7	36.7

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).

Table A12: Percentage of agriculture households having awareness about MSP but did not sell to procurement agency by reasons during January, 2013- June 2013

Crops	Procurement Agency Not Available	No Local Purchaser	Poor Quality of Crop	Crop Already Pre-pledged	Received Better Price Over MSP	Others
Paddy	24.7	8.8	2.3	3.3	6.0	54.4
Jowar	9.5	57.1	0.0	0.0	0.0	38.1
Maize	20.0	23.3	0.0	4.4	7.8	44.4
Wheat	7.8	7.8	1.3	0.9	5.2	74.3
Barley	41.5	3.2	0.0	0.0	8.5	47.9
Gram	10.3	8.0	2.3	0.0	17.2	63.2
Arhar (Tur)	0.0	2.1	0.0	0.0	76.8	21.1
Moong	33.3	1.4	0.0	0.0	2.8	62.5
Masur	1.2	61.5	0.0	0.0	13.7	23.6
Sugarcane	13.6	1.1	3.4	0.0	4.5	59.1
Potato	19.1	25.2	0.0	0.0	16.5	37.4
Onion	25.2	4.8	0.0	0.0	16.3	53.1
Groundnut	21.1	30.3	0.0	0.0	5.3	42.1
Rapeseed/Mustard	13.6	3.2	0.8	0.0	6.4	76.0

Crops	Procurement Agency Not Available	No Local Purchaser	Poor Quality of Crop	Crop Already Pre-pledged	Received Better Price Over MSP	Others
Coconut	24.2	4.5	0.5	2.5	10.1	58.1
Cotton	17.6	14.1	1.4	0.0	33.8	32.4

Source: National Sample Survey office, Ministry of Statistics and Programme Implementation, Government of India, Round- 70th (2013).