

**Performance Evaluation of Pradhan Mantri Fasal Bima Yojana  
(PMFBY) in Bihar**



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## Preface

In India, agricultural risks can be exemplified by a variety of factors, ranging from weather variability, frequent natural disasters, uncertainties in yields and prices, weak rural infrastructure, imperfect market and inadequate and sub-optimal financial services including limited span and design of risk mitigation instruments, such as credit and insurance. So, it is necessary to protect the farmers from natural calamities and ensure their credit eligibility for the next season. The PMFBY (Pradhan Mantri Fasal Bima Yojana) was launched by the GoI in 2016. The present study entitled “Performance Evaluation of PMFBY in Bihar” is a part of All-India Co-ordinated study and was undertaken by Agro-Economic Research Centre for Bihar & Jharkhand, T M Bhagalpur University, Bhagalpur (Bihar) at the instance of the Directorate of Economics and Statistics, Ministry of Agriculture & Farmers Welfare, Government of India, New Delhi under the Project Co-ordination of Prof. Ranjan Kumar Ghosh, Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad (Gujarat).

The study is related to governance, implementation and uptake behavior of 120 loanee insured and non-uptake behavior of 30 non-insured sample farmers to draw some policy suggestions for its better functioning. It is revealed from the study that the scheme is credible after independence with its underlying assumptions that it would encourage farmers to positively change their farming practices to make it purposeful. But during the initial years of its implementation, it could not be effective due to some structural and procedural complexities. However, the Government of India is gradually removing those complexities, after receiving various complaints and suggestions thereon.

Since this is the outcome of a team work and co-operation of various sources at different levels, so we deem it our duty to appreciate and acknowledge them. First of all, we are grateful to the RAC (Research Advisory Council) of the MoA & FW, GoI headed by the Hon’ble Secretary, DAC & FW for assigning this study under the work plan 2017-18. We express our deep gratitude to Dr. P C Bodh, Advisor (AER Division), GoI for his guidance in successful completion of this study. We are extremely grateful for overwhelming support of the nodal department i.e., State Department of Co-operatives, Govt. of Bihar.

We are particularly indebted to our Hon’ble former Vice-Chancellor, late Prof. Nalini Kant Jha and the present Hon’ble Vice-Chancellor, Prof. Leela Chand Saha for providing all necessary support in completion of the study. We express our sincere thanks to the members of the project team. We will be failing in our duty, if we do not thank the respondents for sparing their valuable time and providing required information and data.

We do hope that the findings of the study will be highly useful to policy makers, professionals and researchers in understanding the complexities inherent in the implementation of PMFBY, and in desirable policy corrections.

Dated: 8<sup>th</sup> December 2018

**Ram Pravesh Singh**  
**Ranjan Kumar Sinha**

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## Executive Summary

### Overview

PMFBY (Pradhan Mantri Fasal Bima Yojana) was launched by the Government of India in 2016 to insure farmers against the vagaries of nature, at highly subsidized rates, starting from kharif crops of 2016. The premium to be paid by farmers is just 2 per cent of the insured value for kharif crops and 1.5 per cent for rabi crops, whereas for annual commercial crops it is @ 5 per cent. The remaining premium charged by the insurance companies is to be shared by the Centre and states in equal measure. PMFBY replaced the NAIS (National Agriculture Insurance Scheme) and MNAIS (Modified National Agricultural Insurance Scheme). It is one of the World's largest crop insurance schemes, wherein all loanee farmers, who availed seasonal crop loans are by default included in the scheme. Other farmers are voluntarily included at the same premium rates. Risks like; crop loss due to climatic factors, damages from pests and diseases, post-harvest losses and localized calamities are covered under the scheme.

Till recently, the scheme operates on the basis of 'Area Approach' for each notified crop and insurance unit is village/village panchayat or any other equivalent unit for major crops and for other crops it may be a unit of size higher than village/village panchayat, to be decided by the states. However, it is interesting to mention that in the light of the demand by different sections of farmers, the Government of India has made some amendments in the provisions of PMFBY. With effect from 1<sup>st</sup> October, 2018 individual farms will be considered as insurance unit.

### Governance in the State

In Bihar, the state department of Co-operatives is the nodal department for implementation of PMFBY. The notified crops for kharif, 2016 & 2017 seasons were paddy and maize, which covered all districts of the state. Wheat, maize, gram, rai-mustard, potato and sugarcane crops were the notified crops for rabi, 2016-17; and in addition to these, lentil crop had also been added w.e.f., rabi, 2017-18 season. The insurance units for paddy (kharif) and wheat (rabi) crops are village/village panchayat and that of for all other notified crops is district.

- As per the guidelines of PMFBY, the IA (Implementing Agency) has classified the districts in the state into six clusters for kharif, 2016 & 2017 comprising six districts for four clusters and seven districts for two clusters and for each cluster one insurance company was designated to operate. These are Chola Mandalam GIC Ltd., AIC Ltd., SBI GIC Ltd., Tata AIG Ltd; AIC Ltd. and Bajaj Allianz GIC Ltd. respectively for kharif, 2016 and for kharif, 2017, these were Bharti AXA GIC Ltd., AIC Ltd., Chola Mandalam GIC Ltd., Bharti AXA GIC Ltd., AIC Ltd., and AIC Ltd., respectively.
- Similarly for rabi 2016-17, the districts of the state was classified into three clusters, comprising 12 districts, 07 districts and 19 districts respectively and for each cluster one insurance company was designated to operate. These insurance companies were NIC Ltd., United India Insurance Co. Ltd., and NIC Ltd., respectively. In rabi 2017-18, the total districts in the state were classified into six clusters comprising 06 districts for 04 clusters and 07 districts for 02 clusters and for each cluster one insurance company was authorized to operate. These insurance companies were AIC Ltd., Bharti AXA GIC Ltd., United India Insurance Co. Ltd., Bharti AXA GIC Ltd., (for 02 clusters viz., III & IV) and United India Insurance Co. Ltd. respectively.

### **Implementation in the State (2016-17)**

- Total farmers insured under the scheme were 27,13,199 constituting 54.75 per cent in kharif, 2016 and 45.25 per cent in rabi 2016-17. Of the total insured farmers, 98.69 per cent were loanee and only 1.31 per cent non-loanee.
- Total area insured under the scheme was 24.65 lakh hectare, constituting 46.77 per cent in kharif, 2016 and 53.23 per cent in rabi, 2016-17.
- Average area insured per farmer was 0.908 hectare. For kharif, 2016 it was 0.883 hectare and 0.939 hectare for rabi, 2016-17.
- Total sum insured was Rs 11724.98 crores, constituting 55.70 per cent in kharif, 2016 and 44.30 per cent in rabi, 2016-17.
- Average sum insured per farmer was Rs. 43215.
- Average sum insured per hectare was Rs. 47562.
- Total premium collected by insurance companies was Rs. 1420.91 crores, constituting 78.85 per cent in kharif, 2016 and 21.15 per cent in rabi, 2016-17.
- Total premium paid by the farmers was Rs. 203.90 crores, which accounted for 14.45 per cent of total collected premium.
- Average premium paid by per farmer was Rs. 751.51.
- Total number of beneficiaries who claimed, was 2.23 lakh, constituting 67.87 per cent in kharif, 2016 and 32.17 per cent in rabi, 2016-17.
- Total amounts of claims were for Rs. 348.23 crores, constituting 83.10 per cent for kharif, 2016 and 16.90 per cent for rabi, 2016-17.
- Average claims to premium ratio was 24.68 per cent and these were 26.02 per cent in kharif, 2016 and 19.72 per cent in rabi, 2016-17.
- Average amount of claim per farmer was Rs. 15601.

### **Survey Design**

After completion of one year of the implementation of PMFBY, the Ministry of Agriculture & Farmers Welfare, Government of India desired to have a performance evaluation of the program in September, 2017. Accordingly 09 AERCs/Us were assigned the task to study the same in their respective states under the co-ordination of CMA, IIM-Ahmedabad with following specific objectives:

- i. To assess the status of PMFBY implementation for both kharif and rabi seasons in 2016-17, and;
- ii. Study the characteristics of farming households that are beneficiaries of PMFBY (both loanee and non-loanee) and to assess the factors that can lead to better uptake of crop insurance.



The first objective was addressed using the secondary data and primary information based on one year data i.e., 2016-17. The second objective relied on primary survey with the help of a duly structured schedule administered on 150 sample farm households distributed equally across three sample districts; categorized as high, medium and low uptake districts. These districts are Samastipur, Jamui and Saharsa respectively and from each districts, 40 loanee insured farmers and 10 non-insured farmers (control group) were randomly selected from the available list of insured-loanee farmers and non-insured farmers respectively. The reference period was kharif, 2016 and rabi, 2016-17. PMFBY profile of sample districts is as below:

#### PMFBY Profile of Sample Districts

SN	Particulars	Name of the Districts		
		Samastipur	Jamui	Saharsa
<b>Kharif, 2016</b>				
i.	No. of loanee insured farmers	141266 (99.91)	61392 (99.86)	9249 (99.64)
ii.	No. of Non-loanee insured farmers	127 (0.09)	86 (0.14)	33 (0.36)
iii.	Total No. of insured farmers	141393(100.00)	61478 (100.00)	9282 (100.00)
iv.	Avg. Area insured per farmer (ha)	0.712	1.002	0.868
v.	Avg. Sum insured per farmers (Rs.)	31718	47596	37700
vi.	Avg. Sum insured per hectare (Rs.)	44549	47497	43406
vii.	Avg. premium paid per farmer (Rs.)	8289.21	12112.44	4652.70
viii.	Total amount of registered claims (In lakh Rs.)	2587.84	0.00	605.03
ix.	Total number of Beneficiary	8606	0.00	4631
x.	Avg. amount of claim per farmer (Rs.)	30070.18	0.00	13064.78
xi.	Claims-to-premium ratio (%)	22.08	---	140.12
<b>Rabi, 2016-17</b>				
i.	No. of loanee insured farmers	122326(100.00)	61537 (100.00)	7296 (100.00)
ii.	No. of Non-loanee insured farmers	0.00	0.00	0.00
iii.	Total number of insured farmers	122326(100.00)	61537 (100.00)	7296 (100.00)
iv.	Avg. area insured per farmer (ha)	0.656	0.981	0.841
v.	Avg. sum insured per farmer (Rs.)	33721	45086	35234
vi.	Avg. sum insured per hectare (Rs.)	51363	45937	41884
vii.	Avg. premium paid per farmers (Rs.)	688.29	7736.78	2798.66
viii.	Total amount of registered claims (In lakh Rs.)	127.19	7.10	160.72
ix.	Total number of beneficiary	3122	138	2114
x.	Avg. Amount of claim per farmer (Rs.)	4074	5144.93	7602.65
xi.	Claims-to-premium ratio (%)	15.10	0.15	78.71
<b>Combined (Kharif, 2016 + Rabi, 2016-17)</b>				
i.	No. of loanee insured farmers	263592 (99.95)	122929 (99.93)	16545 (99.80)
ii.	No. of non-loanee insured farmers	127 (0.05)	86 (0.07)	33 (0.20)
iii.	Total number of insured farmers	263719	123015	16578
iv.	Avg. area insured per farmer (ha)	0.686	0.991	0.856
v.	Avg. sum insured per farmer (Rs.)	32647	46340	36615
vi.	Avg. sum insured per hectare (Rs.)	47573	46724	42748
vii.	Avg. Premium paid per farmers (Rs.)	4763.52	9923.56	3836.35
viii.	Total amount of registered claims (In lakh Rs.)	2715.03	7.10	765.75
ix.	Total number of beneficiary	11728	138	6745
x.	Avg. Amount of claim per farmer (Rs.)	23150.0	5144.93	11352.85
xi.	Claims-to-premium ratio (%)	21.61	0.06	120.40

Note: Compiled by Author on the basis of data made available by the Department of Co-operatives, Govt. of Bihar. In brackets percentage figure is shown.

### **Farm Level Characteristics**

Followings are the overview of surveyed farmers:

- Per household land owned by loanee insured households was 2.25 acres, while for non-insured households, it was 1.80 acres.
- Per household NOA (Net Operated Area) for loanee-insured sample farm households was 2.65 acres, while for non-insured sample households, it was 2.22 acres.
- Bore well was the major source of irrigation for loanee-insured sample households (66.67%) and non-insured sample households (73.33%).
- Sample households, irrespective of loanee-insured or non-insured largely grew paddy in kharif; wheat, maize, pulses, oilseeds, vegetables etc. in rabi and maize, moong in zaid seasons.
- Cropping intensities were 148.9 per cent and 144 per cent for loanee-insured households and non-insured households respectively.
- Per farm annual value of total production for loanee-insured households was estimated at Rs. 72715.27 while for non-insured households it was Rs. 52081.67.

### **Insurance Behaviour**

The perceptions about the crop insurance and experiences with PMFBY of the **surveyed uptake households** are:

- Nearly 77.50 per cent sample households heard about the PMFBY.
- 7.50 per cent sample households availed other insurance schemes prior to the PMFBY.
- 20.58 per cent sample households were sure for uptake of PMFBY.
- 20.83 per cent sample households were insured by default under PMFBY.
- 54.17 per cent sample households were voluntarily enrolled under PMFBY.
- 36 per cent sample households reported that they had been informed about the PMFBY by the concerned Banks followed by media (28%), villagers (20%), and through government awareness programmes (16%).
- Of the total insured households, 44 households (36.67%) were covered by Bank of India, followed by 36 households (30%) by Gramin Banks, 24 households (20%) by Allahabad Bank and 16 households (13.33%) by Punjab National Bank.
- Per household average annual premium was reported at Rs. 1744.68 in the year 2016-17. It was Rs 943.09 (54.06%) for kharif, 2016 and Rs. 801.59 (45.94%) for Rabi, 2016-17.
- 52.50 per cent of the sample households were never insured earlier, 20.83 per cent sample households could not say, 18.33 per cent sample households said that PMFBY

was better than earlier schemes and 8.33 per cent sample households said that PMFBY was the same as any other farm insurance schemes.

- Only 5.83 per cent sample households said that they had reported to the authorities in event of loss and those informed to the concerned Banks only.
- Nearly 42.86 per cent of loss incurred to sample households claimed about the event of loss within one month while 57.14 per cent reported within three months.
- No one have paid visit to the loss-claimant sample households in their farms for CCE (Crop Cutting Experiment).
- All the sample households were unaware of any yield assessment through CCE method taking place in their respective villages.
- All the sample households reported that there was no role of panchayat in the process of claims.
- Only 7.50 per cent sample households were satisfied with the implementation of PMFBY.

The perceptions about PMFBY of **surveyed non-uptake households** are:

- 80 per cent of sample households did not heard of PMFBY.
- Those who heard (20%) were informed by villagers (13.33%) and media sources (6.67%).

### **Policy Recommendations**

On the basis of suggestions obtained from the surveyed households, discussions with other stakeholders and field observations/perceptions, followings are suggested for policy interventions:

- i. The average **claims-to-premium ratio** in the state for the year 2016-17 was 24.68 per cent. But in some districts (04 districts in kharif, 2016 and 02 districts in rabi, 2016-17) it was more than 100 per cent. Under such circumstances also, farmers must not be left to suffer.
- ii. The awareness at the insurance level is **extremely poor** right from its enrolment, CCEs, processing and settlement of claims to all other stages, so a help desk (to be jointly ventured by the IA and Insurer) at least at the Block/Tehsil level should be constituted before long apart from undertaking massive awareness campaign.
- iii. Bataidari (50:50) and oral patta (cash or grain) are common practices of farming in the state. These share croppers or tenant farmers mostly belonging to lower social and economic strata are involved who have no enrolment in PMFBY whereas the real land owners only are covered under the scheme. So in case of any loss, the compensation in the form of claims directly benefits the land owners and not to the real sufferers. So, exclusion of tenant farmers is required to be reduced by **legalizing share cropping/tenancy farming** for wider coverage under the programme by the state government.

- iv. **Damages caused by wild animals** (like blue bulls, boars etc.), fire, long cold spell (>10 days of below normal temperatures) and frost to crops should also be considered at individual or group of individuals' farm level.
- v. **Involvement of panchayat** need to be effectively ensured by involving PRIs at different stages of PMFBY implementation in general and at CCEs level in particular.
- vi. **Capacity building** of functionaries with standard protocol for development of technology and usage should be necessarily and urgently devised for successful implementation of the program.
- vii. **SLCC and DLMC should be regularly involved in implementation** of the programme including in assessment of damages, CCEs, claims and compensation process at least at random basis so that justice to the sufferers could be appropriately and timely provided.
- viii. In majority of the cases, it was found that enrolled farmers were not aware about their enrolment mainly due to non-issuance of **insurance bond paper**, which should be issued among the insured farmers with their folio/unique ID numbers for further implications.
- ix. There is need of close **co-ordination between the Agriculture Department and the Nodal agency** for implementation of the programme (in case of Bihar, the IA is Department of Co-operatives) for minimizing the risks in cultivation and maximizing the necessary investments (such as in irrigation, quality of inputs and cash contingent grant).
- x. Disbursal in totality should be in **camp mode** for winning the confidence of the farmers and hassle free implementation of the programme.
- xi. **Sharing of data** is also very essential so as to make this ambitious scheme in more effective manner.
- xii. Since PMFBY is a marvelous, unique and incredible agricultural insurance scheme after Independence with its underlying assumptions that the scheme would encourage farmers to positively change their farming practices, so to make it more transparent, effective, time bound and get rid of procedural complexities, there is need to follow the **'approach of files to crops and offices to farmers'** (fileon se fasal aur karayalaya se kisan tak).

## CHAPTER – I

### OVERVIEW OF PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY) IN BIHAR

#### 1.1 Background

To help farmers cope with crop losses, the Government of India launched its flagship scheme namely; PMFBY, starting from the kharif season of 2016. PMFBY replaced the earlier NAIS (National Agricultural Insurance Scheme) and MNAIS (Modified National Agricultural Insurance Scheme). The Weather Based Crop Insurance Scheme (WBCIS) remains in place with same premium rates as in PMFBY. It is said that PMFBY is one of the World's largest crop insurance schemes. PMFBY is an improvement over NAIS and MNAIS and is designed to reduce the burden of crop insurance on farmers besides being and in line with One Nation-One Scheme theme. The nodal department for its implementation in Bihar is State Department of Co-operatives.

#### 1.2 Objectives of the Scheme

PMFBY aims at supporting sustainable production in agriculture sector by way of:

- i. Providing financial support to farmers suffering crop loss/damages arising out of unforeseen events.
- ii. Stabilizing the income of farmers to ensure their continuance in farming.
- iii. Encouraging farmers to adopt innovative and modern agricultural practices, and;
- iv. Ensuring flow of credit to agricultural sector, this will contribute to food security, crop diversification and enhancing growth and competitiveness of agriculture sector protecting farmers from production risks.

#### 1.3 Salient Features of the Scheme

The salient features promised under PMFBY are as follows:

##### 1.3.1 Coverage of Farmers

The scheme covers loanee farmers (those who have availed institutional loans through (KCCs) etc. non-loanee farmers (those who availed insurance cover on a voluntary basis), share croppers and tenant farmers (those who undertook farming on rented land). All farmers availing seasonal agricultural operation related loans from financial institutions (i.e. loanee farmers) for the notified crops would be covered compulsorily. However, the scheme would be optional for the non-loanee farmers.

##### 1.3.2 Coverage of Crops

Crops will be notified by respective state governments in state notifications separately for each crop season. These will be categorized as hereunder:

- i. Food crops (cereals, millets and pulses),
- ii. Oilseeds, and;
- iii. Annual Commercial/Horticultural Crops

### 1.3.3 Insurance Unit

PMFBY operates on an area-based approach. An insurance unit is defined area for each notified crop for widespread calamities with the assumption that all insured farmers face similar risk exposures, incur large extent identical cost of production per hectare, earn comparable farm income per hectare and experience similar extent of crop loss due to operation of an insured peril in the notified area. Accordingly, an insurance unit at the village/village panchayat level or equivalent unit for major crops is notified by the state government; for other crops the insurance unit could be of a size above the village/village panchayat. For localized calamities, insurance unit will be taken as affected insured field of individual farmers.

### 1.3.4 Coverage of Risks and Exclusions

Following stages of the crop and risks to crop loss are covered under the scheme

- i. Prevented sowing/Planting risks
- ii. Standing crop (sowing to harvesting)
- iii. Post-harvest losses
- iv. Localized calamities

Losses arising out of war and nuclear risks, malicious damage and other preventable risks shall be excluded.

### 1.3.5 Premium Rates

The APR (Actuarial Premium Rate) to be charged under PMFBY by the implementing agency will be as follows:

SN	Crop		
1.	Kharif	All Food grains & Oilseed Crops	2% of sum insured or actuarial rate, whichever is less.
2.	Rabi	All Food grains & Oilseed Crops	1.5% of sum insured or actuarial rate, whichever is less.
3.	Kharif & Rabi	Annual Commercial/ Horticultural Crops	5% of sum insured or actuarial rate, whichever is less.

The difference between actuarial premium rate and the rate of insurance charges payable by the farmers shall be treated as RNPS (Rate of Normal Premium Subsidy), which will be shared equally by the Centre and respective State.

#### 1.4 Governance of PMFBY in Bihar

The State Department of Co-operatives is the Nodal Department for implementation of PMFBY, which was already looking after the implementation of NAIS/NCIP and thus, the SLCCCI (State Level Co-ordination Committee on Crop Insurance) which earlier oversaw implementation of NAIS/NCIP was authorized to oversee implementation of PMFBY. Its composition was strengthened by including the representatives from the State Horticulture Department, State Remote Sensing Application Centre, IMD, State Level Bankers Committee, etc. The present composition of the SLCC is as below (table 1.1).

**Table 1.1: Composition of State Level Co-ordination Committee (SLCC)**

SN	Particulars	Designation
i.	Development Commissioner, GoB	Chairman
ii.	Principal Secretary, Finance Dept, GoB	Member
iii.	Principal Secretary, Planning & Development Dept., GoB	Member
iv.	Principal Secretary, Dept. of Agriculture, GoB	Member
v.	Principal Secretary, Dept. of Co-operative, GoB	Member
vi.	Director, Directorate of Economics & Statistics, GoB	Member
vii.	Registrar, Co-operative Societies, GoB	Member
viii.	Director, Indian Weather Science Centre, Patna,	Member
ix.	Director, Bihar Remote Sensing Centre, Patna	Member
x.	Director, Horticulture Directorate, GoB	Member
xi.	Joint Secretary, Ministry of Agriculture & Farmers Welfare, GoI,	Member
xii.	Chief General Manager, NABARD, Bihar	Member
xiii.	Chief General Manager, RBI, Patna	Member
xiv.	Managing Director, Bihar State Co-operative Bank Ltd., Patna	Member
xv.	Convener, State Level Bankers Samitee, Patna	Member

Source: Department of Co-operatives, Government of Bihar.

Similarly, the District Level Monitoring Committee (DLMC) has been constituted in the following composition (table 1.2).

**Table 1.2: Composition of District Level Monitoring Committee**

SN	Particulars	Designation
i.	District Magistrate	Chairman
ii.	District Co-operative Officer	Member Secretary
iii.	Additional Collector	Member
iv.	District Agriculture Officer	Member
v.	District Statistical Officer	Member
vi.	District Development Manager, NABARD,	Member
vii.	Managing Director, Central Co-operative Bank Ltd.,	Member
viii.	Lead Bank Manager	Member
ix.	District Panchayati Raj Officer	Member
x.	Senior Deputy Collector (Banking)	Member

Source: Department of Co-operatives, Government of Bihar.

As noted earlier, PMFBY was launched with the start of kharif, 2016 season followed by rabi, 2016-17 and continuing till date. The coverage of notified crops along with the number of districts where the scheme has been implemented is as below (table 1.3).

**Table 1.3: Coverage of the Crops**

Seasons		Crops	No. of Districts Covered	% of total districts covered in the state
Kharif, 2016 & Kharif, 2017	1.	Paddy	38	100.00
	2.	Maize	28	73.68
Rabi, 2016-17 & Rabi, 2017-18	1.	Wheat	38	100.00
	2.	Maize	27	71.05
	3.	Gram	18	47.37
	4.	Rai-Mustard	38	100.00
	5.	Potato	15	39.47
	6.	Sugarcane	16	42.10
	7.	Lentil*	35	92.10

Source: Department of Co-operatives, Government of Bihar.

Note: In Bihar the total No. of Districts are 38.

\*Lentil is included in Rabi 2017-18.

The crop wise insurance unit in the state is mentioned below (table 1.4)

**Table 1.4: Insurance Unit (IU)**

Seasons		Crops	Insurance Unit
Kharif, 2016	1.	Paddy	Village/Village Panchayat
	2.	Maize	District
Rabi, 2016-17	1.	Wheat	Village/Village Panchayat
	2.	Maize	District
	3.	Gram	District
	4.	Rai-Mustard	District
	5.	Potato	District
	6.	Sugarcane	District

Source: Department of Co-operatives, Government of Bihar.

For kharif, 2016 the IA (Implementing Agency) had classified the districts of the state in six clusters and tenders were sought from all the 13 insurance companies authorized by the Government of India, of which only 06 participated, which were designated to operate on the basis of cluster wise minimum weighted average premium rates in their respective districts



for crop insurance. The cluster wise/district wise/crop wise, rates of premium and designated insurance companies for kharif, 2016 are presented in table 1.5.

**Table 1.5: District wise/Cluster wise/Crop wise premium and designated Insurance Companies for Kharif, 2016**

SN	Cluster No.	Name of the District	Premium of Paddy (%)	Premium of Maize (%)	Designated Insurance Company
1.	1	Arwal	14.72	---	Chola Mandalam GIC Ltd.
2.	1	Katihar	18.90	6.04	
3.	1	Madhubani	17.02	---	
4.	1	Saharsa	12.36	1.50	
5.	1	Siwan	26.14	17.40	
6.	1	Vaishali	24.89	13.96	
7.	2	Aurangabad	7	---	AIC Ltd.
8.	2	Gopalganj	14	6	
9.	2	Lakhisarai	12	5	
10.	2	Madhepura	16	6	
11.	2	Saran	7.50	6	
12.	2	West Champaran	21	10	
13.	3	Araria	17.15	10.98	SBI, GIC Ltd.
14.	3	Banka	10.33	11.45	
15.	3	Buxar	11.15	13.52	
16.	3	East Champaran	29.00	27.53	
17.	3	Jamui	25.45	14.42	
18.	3	Purnea	15.66	11.23	
19.	3	Sheohar	28.69	---	
20.	4.	Bhagalpur	13.00	12.00	TATA AIG, GIC Ltd.
21.	4	Jehanabad	7.00	---	
22.	4	Munger	12.00	10.00	
23.	4	Muzaffarpur	23.00	8.00	
24.	4.	Nawada	13.00	7.00	
25.	4	Sheikhpura	16.00	---	
26.	5.	Gaya	6.00	4.50	AIC Ltd.
27.	5	Kishanganj	4.00	---	
28.	5	Patna	12.00	5.00	
29.	5	Rohtas	5.00	---	
30.	5	Samastipur	26.50	13.00	
31.	5	Sitamarhi	25.00	---	Bajaj Allianz, GIC Ltd.
32.	6	Begusarai	35.00	15.00	
33.	6	Bhabhua	18.10	---	
34.	6	Bhojpur	9.60	4.50	
35.	6	Darbhanga	11.90	16.50	
36.	6	Khagaria	35.00	15.00	
37.	6	Nalanda	21.50	20.50	
38.	6	Supaul	5.00	6.50	

Source: Department of Co-operatives, Government of Bihar.

Similarly for kharif, 2017 tenders were sought from 18 GoI's authorized insurance companies, of which only 12 participated and based on the same criteria, as was followed in kharif, 2016; six insurance companies were designated to work across the six clusters for crop insurance. The cluster wise/district wise/crop wise rates of premium and designated insurance companies are presented in table 1.6.

**Table 1.6: District wise/Cluster wise/Crop wise premium and designated Insurance Companies for Kharif, 2017**

SN	No. of Cluster	Districts	Premium of Paddy Crop (%)	Premium of Maize Crop (%)	Designated Insurance Company
1.	1	Arwal	5.00	---	Bharti A.X.A G.I.C. Ltd.
2.	1	Katihar	7.00	14.00	
3.	1	Madhubani	15.00	---	
4.	1	Saharsa	7.00	5.00	
5.	1	Siwan	12.00	5.00	
6.	1	Vaishali	20.00	5.00	
7.	2	Aurangabad	5.00	---	AIC Ltd.
8.	2	Gopalganj	17.50	6.00	
9.	2	Lakhisarai	9.00	7.00	
10.	2	Madhepura	6.00	9.00	
11.	2	Saran	10.00	2.50	
12.	2	West Champaran	19.50	6.00	
13.	3	Araria	9.00	5.00	Chola Mandalam G.I.C Ltd.
14.	3	Banka	8.00	5.00	
15.	3	Buxar	8.00	10.00	
16.	3	East Champaran	24.00	20.00	
17.	3	Jamui	18.00	5.00	
18.	3	Purnea	6.00	5.00	
19.	3	Sheohar	25.00	---	Bharti A.X.A G.I.C Ltd.
20.	4.	Bhagalpur	10.00	25.00	
21.	4	Jehanabad	8.00	---	
22.	4	Munger	8.00	10.00	
23.	4	Muzaffarpur	23.00	8.00	
24.	4.	Nawada	8.00	5.00	
25.	4	Sheikhpura	10.00	---	AIC Ltd.
26.	5.	Gaya	12.00	4.00	
27.	5	Kishanganj	5.00	---	
28.	5	Patna	10.00	5.00	
29.	5	Rohtas	5.00	---	
30.	5	Samastipur	10.00	9.00	
31.	5	Sitamarhi	15.00	---	AIC Ltd.
32.	6	Begusarai	9.00	25.00	
33.	6	Bhabhua	10.00	---	
34.	6	Bhojpur	8.00	5.00	
35.	6	Darbhangha	9.50	5.00	
36.	6	Khagaria	9.00	28.00	
37.	6	Nalanda	8.00	5.00	AIC Ltd.
38.	6	Supaul	6.00	5.00	

Source: Department of Co-operatives, Govt. of Bihar

For rabi, 2016-17 & 2017-18; the rates of premium across the crops and districts along with the designated insurance companies are depicted in tables 1.7 and 1.8 respectively.

**Table 1.7: District wise/Cluster wise/Crop wise premium and designated Insurance Companies for Rabi 2016-17**

SN	Cluster No.	Name of the District	Premium of Wheat (%)	Premium of Rai-Mustard (%)	Premium of Maize (%)	Premium of Gram (%)	Premium of Potato (%)	Premium of Sugarcane (%)	Designated Insurance Company
1.	1	Arwal	0.89	2.53	4.27	1.66	---	---	National Insurance Co. Ltd.
2.	1	Katihar	2.57	8.63	19.23	---	---	---	
3.	1	Madhubani	8.46	17.72	1.58	---	8.64	---	
4.	1	Saharsa	7.95	1.72	7.73	---	---	---	
5.	1	Siwan	2.44	1.26	8.85	---	1.29	4.11	
6.	1	Vaishali	3.19	8.81	8.26	---	5.69	---	
7.	2	Aurangabad	1.03	3.64	---	0.89	---	---	
8.	2	Gopalganj	11.26	1.30	8.85	---	14.59	1.20	
9.	2	Lakhisarai	1.16	14.50	---	2.72	---	---	
10.	2	Madhepura	2.41	12.62	6.61	---	---	4.66	
11.	2	Saran	1.94	9.11	8.11	---	6.40	3.65	
12.	2	Champan(W)	6.97	7.92	3.74	---	12.20	0.91	
13.	3	Araria	17.16	3.77	6.18	---	12.11	---	
14.	3	Banka	6.19	1.07	3.66	1.97	---	2.85	
15.	3	Buxar	5.48	12.54	---	4.18	---	9.21	
16.	3	Champan (E)	17.16	23.36	23.23	---	29.53	12.18	
17.	3	Jamui	17.16	28.13	---	16.09	---	16.78	
18.	3	Purnea	17.16	1.90	8.84	---	---	---	
19.	3	Sheohar	17.16	15.93	6.18	---	---	11.96	National Insurance Co. Ltd
20.	4.	Bhagalpur	7.08	5.70	11.82	2.13	---	6.08	
21.	4	Jehanabad	2.09	0.89	---	2.01	---	---	
22.	4	Munger	1.35	2.45	7.80	1.28	---	---	
23.	4	Muzaffarpur	3.21	4.57	5.14	---	25.03	2.32	
24.	4.	Nawada	1.54	3.70	---	7.61	---	---	
25.	4	Sheikhpura	5.37	4.26	---	3.96	---	---	
26.	5.	Gaya	0.97	6.13	---	0.89	2.50	---	
27.	5	Kishanganj	4.33	21.42	25.90	---	---	---	
28.	5	Patna	1.81	10.61	7.11	6.41	1.80	---	
29.	5	Rohtas	0.89	12.50	---	2.69	---	---	
30.	5	Samastipur	2.02	4.83	5.54	---	5.36	9.93	
31.	5	Sitamarhi	9.07	18.85	11.52	---	15.95	5.48	
32.	6	Begusarai	7.04	7.72	16.85	---	---	23.27	
33.	6	Bhabhua	4.09	2.86	---	1.38	---	---	
34.	6	Bhojpur	4.21	0.89	---	6.49	2.91	---	
35.	6	Darbhanga	4.21	7.75	6.56	---	---	8.07	
36.	6	Khagaria	13.79	2.59	3.71	8.38	---	---	
37.	6	Nalanda	1.46	5.04	11.39	1.42	13.53	---	
38.	6	Supaul	0.89	10.76	4.58	---	---	---	

Source: Department of Co-operatives, Government of Bihar

**Table 1.8: District wise/Crop wise premium and Designated Insurance Companies for Rabi 2017-18**

S N	No of Cluster	District	Premium Rates of Different Crops (%)							Designated Insurance Company
			Wheat	Maize	Gram	Potato	Mustard	Sugarcane	Lentil	
1.	1	Arwal	4.00	3.00	5.00	---	5.00	---	3.00	AIC Ltd.
2.	1	Katihar	5.30	4.00	---	---	5.00	---	3.00	
3.	1	Madhubani	6.00	---	---	5.00	5.00	---	3.00	
4.	1	Saharsa	5.00	4.00	---	---	5.00	---	3.00	
5.	1	Siwan	5.00	3.00	---	5.00	5.00	3.00	3.00	
6.	1	Vaishali	6.00	3.00	---	5.00	5.00	---	---	
7.	2	Aurangabad	12.00	---	1.50	---	1.50	---	1.50	Bharti A.X.A G.I.C. Ltd.
8.	2	Gopalganj	7.00	1.50	---	1.50	1.50	1.50	---	
9.	2	Lakhisarai	12.00	---	1.50	---	1.50	---	1.50	
10.	2	Madhepura	6.00	1.50	---	---	1.50	1.50	1.50	
11.	2	Saran	4.00	5.00	---	1.50	1.50	1.50	---	
12.	2	Champanan (W)	9.00	18.00	---	1.50	1.50	1.50	5.00	
13.	3	Araria	13.02	6.53	---	---	14.10	---	13.92	United India Insurance Co. Ltd.
14.	3	Banka	5.91	5.21	2.17	---	11.02	3.40	2.48	
15.	3	Buxar	4.25	---	2.53	---	5.53	2.73	3.73	
16.	3	Champanan (E)	14.46	17.68	---	30.97	10.53	9.37	5.72	
17.	3	Jamui	13.41	2.39	4.42	---	10.53	9.37	6.47	
18.	3	Purnea	12.05	7.89	---	---	12.73	---	1.32	
19.	3	Sheohar	12.57	6.53	---	---	2.63	9.37	12.06	
20.	4.	Bhagalpur	6.00	4.00	1.50	---	1.50	1.50	1.50	Bharti A.X.A G.I.C. Ltd.
21.	4	Jehanabad	8.00	---	1.50	---	1.50	---	1.50	
22.	4	Munger	11.00	5.00	1.50	---	1.50	---	1.50	
23.	4	Muzaffarpur	6.00	1.50	---	1.50	3.00	1.50	1.50	
24.	4.	Nawada	6.00	---	1.50	---	1.50	---	1.50	
25.	4	Sheikhpura	6.00	---	2.00	---	1.50	---	1.50	
26.	5.	Gaya	6.00	---	1.50	1.50	1.50	---	1.50	Bharti A.X.A G.I.C. Ltd.
27.	5	Kishanganj	6.00	30.00	---	---	1.50	---	1.50	
28.	5	Patna	9.00	5.00	1.50	1.50	1.50	---	1.50	
29.	5	Rohtas	4.00	---	1.50	---	1.50	---	1.50	
30.	5	Samastipur	9.00	1.50	---	1.50	1.50	1.50	1.50	
31.	5	Sitamarhi	5.00	1.50	---	1.50	1.50	1.50	1.50	
32.	6	Begusarai	7.28	12.63	---	8.28	5.79	15.09	3.47	United India Insurance Co. Ltd.
33.	6	Bhabhua	4.87	---	1.63	---	1.32	---	4.61	
34.	6	Bhojpur	2.47	---	3.26	3.78	5.35	1.05	2.83	
35.	6	Darbhanga	4.19	3.95	---	---	5.26	5.26	4.43	
36.	6	Khagaria	8.72	3.87	3.83	---	1.32	---	4.71	
37.	6	Nalanda	6.44	8.42	1.59	8.37	5.26	---	6.08	
38.	6	Supaul	3.24	4.78	---	---	1.32	---	4.96	

Source: Department of Co-operatives, Government of Bihar

In case of sum insured/limit of coverage, it would be equal to scale of finance for that crop as fixed by the DLTC (District Level Technical Committee). This may be extended up to the value of the threshold yield of the insured crop at the option of the insured farmer. Where value of the threshold yield is lower than the scale of finance, higher amount shall be the sum insured. Multiplying the National threshold yield with the Minimum Support Price (MSP) of the current year arrives at the value of sum insured. Besides, there are three levels of

Indemnity viz., 70 per cent, 80 per cent and 90 per cent, corresponding to crop risk in the areas, which shall be available for all crops. The scale of finance and indemnity level for kharif 2016 & 2017 and rabi 2016-17 have been notified, which may be seen in tables 1.9 to 1.11.

**Table 1.9: District wise/Crop wise Scale of Finance and Indemnity Level for Kharif, 2016 & 2017**

SN	District	Scale of Finance (Rs./Ha)		Indemnity Level	
		Maize	Paddy	Maize (%)	Paddy (%)
1.	Araria	51250	47500	70	70
2.	Darbhanga	50632	45512	70	70
3.	East Champaran	30500	36500	70	70
4.	Gopalganj	50263	47088	70	70
5.	Katihar	55000	44000	70	70
6.	Khagaria	66250	56250	70	70
7.	Kishanganj	NN	47500	---	70
8.	Madhepura	51250	47500	70	80
9.	Madhubani	NN	37752	---	70
10.	Muzaffarpur	60534	61492	70	70
11.	Purnea	51250	47500	70	70
12.	Saharsa	70625	43375	70	80
13.	Samastipur	42000	44625	70	70
14.	Saran	55000	66500	70	80
15.	Sheohar	NN	46500	---	70
16.	Sitamarhi	NN	46500	---	70
17.	Siwan	35200	42350	70	70
18.	Supaul	80500	50500	80	80
19.	Vaishali	65750	68250	70	70
20.	West Champaran	48750	53500	70	70
21.	Arwal	NN	45430	---	80
22.	Aurangabad	NN	45000	---	70
23.	Banka	32250	45000	80	80
24.	Begusarai	73750	62500	70	70
25.	Bhabhua	NN	55000	---	80
26.	Bhagalpur	32250	45000	70	70
27.	Bhojpur	48250	56000	70	80
28.	Buxar	51500	40000	80	80
29.	Gaya	36190	41300	70	70
30.	Jamui	35000	47500	70	70
31.	Jehanabad	NN	45430	---	80
32.	Lakhisarai	35000	47500	70	70
33.	Munger	35000	47500	70	70
34.	Nalanda	47500	55000	70	70
35.	Nawada	55357	49912	80	70
36.	Patna	37400	42200	70	70
37.	Rohtas	NN	57700	---	80
38.	Sheikhpura	NN	47500	---	70

Source: Department of Co-operatives, Government of Bihar  
NN=Not Notified

**Table 1.10: District wise/Crop wise Scale of Finance for Rabi, 2016-17 & 2017-18 (In Rs./ha)**

SN	District	Wheat	Maize	Gram	Rapeseed & Mustard	Sugarcane	Potato
1.	Araria	44375	56250	NN	31250	NN	122500
2.	Darbhanga	41300	50750	NN	38525	108500	NN
3.	East Champaran	34059	28375	NN	13375	65625	61625
4.	Gopalganj	48412	52787	NN	28413	102132	160287
5.	Katihar	42500	50000	NN	27500	NN	NN
6.	Khagaria	59000	71375	45250	49375	NN	NN
7.	Kishanganj	44375	56250	NN	31250	NN	NN
8.	Madhepura	46250	55625	NN	37500	62500	NN
9.	Madhubani	44039	26224	NN	21967	NN	65715
10.	Muzaffarpur	50432	61140	NN	40488	129635	113890
11.	Purnea	44375	56250	NN	31250	NN	NN
12.	Saharsa	41750	53000	NN	76250	NN	NN
13.	Samastipur	51250	51625	NN	47500	111500	115000
14.	Saran	59875	48125	NN	33687	94500	148500
15.	Sheohar	43450	61325	NN	31625	83325	NN
16.	Sitamarhi	43450	61325	NN	31625	83325	94050
17.	Siwan	46210	32245	NN	17978	65940	74715
18.	Supaul	43500	55625	NN	47500	NN	NN
19.	Vaishali	67000	53625	NN	28250	NN	107000
20.	West Champaran	43187	47937	NN	36437	85750	79687
21.	Arwal	34950	35245	27950	23762	NN	NN
22.	Aurangabad	40625	NN	28750	23125	NN	NN
23.	Banka	43050	30581	25988	25988	69563	NN
24.	Begusarai	61250	72500	NN	51250	114375	NN
25.	Bhabhua	50000	NN	32037	30500	NN	NN
26.	Bhagalpur	43050	30581	25988	25988	69563	NN
27.	Bhojpur	36375	NN	30625	24750	NN	93250
28.	Buxar	38125	NN	31375	25875	93000	NN
29.	Gaya	34950	NN	27950	24560	---	85000
30.	Jamui	45937	NN	38719	37406	111562	NN
31.	Jehanabad	34950	NN	27950	24810	NN	NN
32.	Lakhisarai	45937	NN	38719	37406	NN	NN
33.	Munger	45937	61687	38719	37406	NN	NN
34.	Nalanda	29250	51250	38250	32500	NN	115250
35.	Nawada	48750	NN	36250	38750	NN	NN
36.	Patna	43500	40500	31000	27000	NN	100000
37.	Rohtas	50000	NN	32037	30500	NN	NN
38.	Sheikhpura	45937	NN	38719	37406	NN	NN

Source: Department of Co-operatives, Government of Bihar

NN=Not Notified

**Table 1.11: District wise/Crop wise Indemnity Level for Rabi, 2016-17 & 2017-18**

SN	District	Wheat (%)	Maize (%)	Gram (%)	Rapeseed & Mustard (%)	Sugarcane (%)	Potato (%)
1.	Araria	70	80	NN	80	NN	70
2.	Darbhanga	80	80	NN	70	70	NN
3.	East Champaran	70	70	NN	70	70	70
4.	Gopalganj	70	70	NN	90	80	70
5.	Katihar	70	70	NN	70	NN	NN
6.	Khagaria	70	80	80	80	NN	NN
7.	Kishanganj	70	70	NN	70	NN	NN
8.	Madhepura	80	70	NN	80	80	NN
9.	Madhubani	70	80	NN	70	NN	70
10.	Muzaffarpur	70	80	NN	70	70	70
11.	Purnea	70	70	NN	90	NN	NN
12.	Saharsa	80	80	NN	70	NN	NN
13.	Samastipur	80	70	NN	80	70	70
14.	Saran	80	70	NN	80	80	80
15.	Sheohar	70	80	NN	70	70	NN
16.	Sitamarhi	70	70	NN	70	70	70
17.	Siwan	80	80	NN	80	80	70
18.	Supaul	80	80	NN	70	NN	NN
19.	Vaishali	80	70	NN	70	NN	70
20.	West Champaran	70	70	NN	70	80	70
21.	Arwal	80	80	80	80	NN	NN
22.	Aurangabad	70	NN	80	80	NN	NN
23.	Banka	80	70	80	90	80	NN
24.	Begusarai	70	70	NN	70	70	NN
25.	Bhabhua	80	NN	80	80	NN	NN
26.	Bhagalpur	70	70	80	80	70	NN
27.	Bhojpur	80	NN	80	80	NN	80
28.	Buxar	80	NN	80	70	70	NN
29.	Gaya	80	NN	70	70	---	70
30.	Jamui	70	NN	70	70	70	NN
31.	Jehanabad	80	NN	80	70	NN	NN
32.	Lakhisarai	70	NN	80	70	NN	NN
33.	Munger	80	80	80	80	NN	NN
34.	Nalanda	70	70	80	70	NN	70
35.	Nawada	80	NN	70	80	NN	NN
36.	Patna	80	70	70	70	NN	80
37.	Rohtas	80	NN	80	70	NN	NN
38.	Sheikhpura	80	NN	90	80	NN	NN

Source: Department of Co-operatives, Government of Bihar

NN=Not Notified

## 1.5 Implementation of PMFBY in Bihar (2016-17)

### 1.5.1 Agency Overview

During kharif, 2016 the districts of the state were classified into six clusters and for each cluster crop wise tenders were sought from insurance companies authorized by Government of India. Out of these, five insurance companies were finalized through the process of

tenders. On the basis of cluster wise minimum weighted average premium rates, insurance companies were designated to work in the districts falling under the respective clusters. These companies were Cholamandalam General Insurance Company Limited in Arwal, Katihar, Madhubani, Saharsaa, Siwan and Vaishali districts falling under cluster – I, Agricultural Insurance Company Ltd. in Cluster – II that comprised of Aurangabad, Gopalganj, Lakhisarai, Madhepura, Saran and West Champaran districts, SBI in cluster – III that comprised Araria, Banka, Buxar, East Champaran, Jamui, Purnea and Sheohar districts; Tata AIG in cluster – IV that comprised of Bhagalpur, Jehanabad, Munger, Muzaffarpur, Nawada and Sheikhpura districts, AIC Ltd, in cluster – V that comprised of Gaya, Kishanganj, Patna, Rohtas, Samastipur and Sitamarhi districts and in cluster – VI by Bajaj Allianz operating in the districts of Begusarai, Bhabhua, Bhojpur, Darbhanga, Khagaria, Nalanda and Nawada. The gross premium collected by these insurance companies was Rs. 1112.49 crores, out of which the share of farmers was Rs. 130.61 crores (11.74%). Insurance companies paid out Rs. 289.38 crores, as claims to beneficiary farmers (1,51,474 in number) with a CP (Claims-to-Premium) ratio of 26.02 per cent.

Similarly, during rabi, 2016-17 seven insurance companies participated in tenders and like the kharif, 2016 only two insurance companies were designated to operate in respective clusters. These insurance companies were NIC Ltd. for clusters – I, II, IV, V & VI and United India Insurance Company Ltd. in cluster – III. The gross premium collected by these two insurance companies was Rs. 298.43 crores, out of which the share of farmers was Rs. 73.29 crores (24.56%). Insurance companies paid out Rs. 58.85 crores, as claims to the beneficiary farmers (71,733) with a claim to premium (CP) ratio of 19.72 per cent.

### **1.5.2 Farmer Enrolment**

During 2016-17, total number of insured farmers under the scheme was 27,13,199 constituting 54.75 per cent (14, 85, 445) in kharif 2016 and 45.25 per cent (12, 27,754) in rabi 2016-17. Of the total insured farmers 98.69 per cent (26,77,753) were loanee and 1.31 per cent (35,446) non-loanee across the districts. The proportions of loanee and non-loanee farmers in majority of the districts are almost similar to the state's proportion (tables 1.12 & 1.13).

### **1.5.3 Area Coverage**

Total area insured during the year 2016-17 was 24.65 lakh hectare, constituting 46.77 per cent (11.53 lakh ha) in kharif, 2016 and the remaining 53.23 per cent (13.12 lakh ha) were in rabi, 2016-17. The average area insured per farmer was 0.908 hectare. It was 0.883 hectare in kharif, 2016 and 0.939 hectare in rabi, 2016-17 (table 1.14).



**Table 1.12: District wise Farmers enrolled under PMFBY in Bihar during Kharif, 2016**

SN	Districts	Loanee Farmers		Non-Loanee Farmers		Total	
		No.	%	No.	%	No.	%
1.	Arwal	8651	99.59	36	0.41	8687	100
2.	Katihar	12185	99.67	40	0.33	12225	100
3.	Madhubani	50091	99.96	20	0.40	50111	100
4.	Saharsa	9249	99.64	33	0.36	9282	100
5.	Siwan	17811	85.99	2902	14.01	20713	100
6.	Vaishali	24946	99.53	897	3.47	25843	100
7.	Aurangabad	52262	99.86	75	0.14	52337	100
8.	Gopalganj	21486	99.96	9	0.04	21495	100
9.	Lakhisarai	31954	99.99	3	0.01	31957	100
10.	Madhepura	6055	99.98	1	0.02	6056	100
11.	Saran	19280	98.98	199	1.02	19479	100
12.	Champanan (E)	31371	78.92	8378	21.08	39749	100
13.	Araria	10216	97.80	230	2.20	10446	100
14.	Banka	25003	99.98	4	0.02	25007	100
15.	Buxar	33509	99.99	5	0.01	33514	100
16.	Champanan (W)	99617	99.99	5	0.01	99622	100
17.	Jamui	61392	99.86	86	0.14	61478	100
18.	Purnea	29447	99.63	108	0.37	29555	100
19.	Sheohar	4764	91.44	446	8.56	5210	100
20.	Bhagalpur	2152	99.94	14	0.06	2166	100
21.	Jehanabad	16069	99.97	5	0.03	16074	100
22.	Munger	30132	99.81	56	0.19	30188	100
23.	Muzaffarpur	74869	94.15	4649	5.85	79518	100
24.	Nawada	39344	99.58	164	0.42	39508	100
25.	Sheikhpura	21149	98.56	309	1.44	21458	100
26.	Gaya	75177	99.95	40	0.05	75217	100
27.	Kishanganj	9161	99.86	13	0.14	9174	100
28.	Patna	57447	99.95	27	0.05	57474	100
29.	Rohtas	60249	99.99	1	0.01	60250	100
30.	Samastipur	141266	99.91	127	0.09	141393	100
31.	Sitamarhi	20024	93.64	1361	6.36	21385	100
32.	Begusarai	110522	100.00	00	---	110522	100
33.	Bhabhua	46875	97.87	1022	2.13	47897	100
34.	Bhojpur	43922	99.66	150	0.34	44072	100
35.	Darbhanga	14465	100.00	00	---	14465	100
36.	Khagaria	67186	100.00	00	---	67186	100
37.	Nalanda	52567	98.78	651	1.22	53218	100
38.	Supaul	11706	99.93	8	0.07	11714	100
	Total	1463371	98.51	22074	1.49	1485445	100

Source: Department of Co-operatives, Government of Bihar

**Table 1.13: District wise Farmers enrolled under PMFBY in Bihar during Rabi, 2016-17**

SN	Districts	Loanee Farmers		Non-Loanee Farmers		Total	
		No.	%	No.	%	No.	%
1.	Arwal	8842	100.00	Nil	---	8842	100
2.	Katihar	8399	100.00	Nil	---	8399	100
3.	Madhubani	19533	100.00	Nil	---	19533	100
4.	Saharsa	7296	100.00	Nil	---	7296	100
5.	Siwan	8452	100.00	Nil	---	8452	100
6.	Vaishali	15284	100.00	Nil	---	15284	100
7.	Aurangabad	48272	100.00	Nil	---	48272	100
8.	Gopalganj	7168	100.00	Nil	---	7168	100
9.	Lakhisarai	34296	100.00	Nil	---	34296	100
10.	Madhepura	5890	100.00	Nil	---	5890	100
11.	Saran	19054	100.00	Nil	---	19054	100
12.	Champanan (W)	57953	81.29	13340	18.71	71293	100
13.	Araria	11305	99.96	5	0.04	11310	100
14.	Banka	21972	99.99	2	0.01	21974	100
15.	Buxar	31576	99.99	1	0.01	31577	100
16.	Champanan (E)	27411	100.00	Nil	---	27411	100
17.	Jamui	61537	100.00	Nil	---	61537	100
18.	Purnea	22758	99.99	2	0.01	22760	100
19.	Sheohar	3357	99.38	21	2.18	3378	100
20.	Bhagalpur	33088	100.00	Nil	---	33088	100
21.	Jehanabad	16065	100.00	Nil	---	16065	100
22.	Munger	29133	100.00	Nil	---	29133	100
23.	Muzaffarpur	62246	100.00	Nil	---	62246	100
24.	Nawada	33015	100.00	Nil	---	33014	100
25.	Sheikhpura	21141	100.00	Nil	---	21141	100
26.	Gaya	73228	100.00	Nil	---	73228	100
27.	Kishanganj	5559	100.00	Nil	---	5559	100
28.	Patna	58231	100.00	Nil	---	58231	100
29.	Rohtas	40621	100.00	Nil	---	40621	100
30.	Samastipur	122326	100.00	Nil	---	122326	100
31.	Sitamarhi	11172	100.00	Nil	---	11172	100
32.	Begusarai	90202	100.00	Nil	---	90202	100
33.	Bhabhua	42866	100.00	Nil	---	42866	100
34.	Bhojpur	38989	99.99	1	0.01	38989	100
35.	Darbhanga	15240	100.00	Nil	---	15240	100
36.	Khagaria	44729	100.00	Nil	---	44729	100
37.	Nalanda	44105	100.00	Nil	---	44105	100
38.	Supaul	12074	100.00	Nil	---	12074	100
	Total	1214382	98.91	13372	1.09	1227754	100

Source: Department of Co-operatives, Government of Bihar

**Table 1.14: Per Farmer Area Insured and Sum Insured during Kharif 2016 and Rabi 2016-17**

SN	Districts	Area Insured per Farmer(In ha)		Sum Insured/ Ha (In Rs.)		Sum Insured/Farmer (In Rs.)	
		Kharif 2016	Rabi 2016-17	Kharif 2016	Rabi 2016-17	Kharif 2016	Rabi 2016-17
1.	Arwal	0.999	1.192	45430	34954	45388	41677
2.	Katihar	0.795	0.867	44838	46652	35626	40443
3.	Madhubani	0.736	0.776	37752	44935	27783	34184
4.	Saharsa	0.869	0.841	43406	41884	37700	35234
5.	Siwan	0.817	0.766	42350	46309	34583	35471
6.	Vaishali	0.589	0.686	68250	67021	40204	45990
7.	Aurangabad	1.181	1.181	44500	40624	53149	55116
8.	Gopalganj	0.794	1.092	47089	48430	37381	52889
9.	Lakhisarai	0.949	1.065	47533	45937	44897	48908
10.	Madhepura	0.736	0.744	47533	47008	34974	35009
11.	Saran	0.564	0.539	66355	59875	37456	32285
12.	Champan (W)	0.909	0.787	53497	44221	48609	34784
13.	Araria	1.088	1.069	47513	52721	51716	56352
14.	Banka	0.776	0.846	44887	42963	34823	36350
15.	Buxar	1.207	1.238	40092	38125	48374	47213
16.	Champan (E)	0.881	1.069	36497	33580	32071	35901
17.	Jamui	1.002	0.981	47497	45937	47596	45086
18.	Purnea	0.847	0.707	47543	54433	40254	38489
19.	Sheohar	0.939	0.960	46497	43295	43676	41548
20.	Bhagalpur	0.763	0.743	44830	40900	34193	30374
21.	Jehanabad	0.886	0.959	45430	34950	40268	33525
22.	Munger	0.774	0.818	47499	45960	36742	37603
23.	Muzaffarpur	0.820	0.799	61492	50777	50469	40594
24.	Nawada	0.967	0.947	49913	48747	48265	46175
25.	Sheikhpura	0.861	0.826	47499	45873	40922	37894
26.	Gaya	0.906	1.194	41300	34950	37417	41735
27.	Kishanganj	0.956	0.823	47500	50828	45400	41831
28.	Patna	0.935	0.850	42096	43515	39345	36998
29.	Rohtas	1.194	1.167	57700	50000	68875	58477
30.	Samastipur	0.712	0.656	44549	51363	31719	33722
31.	Sitamarhi	0.852	0.780	46500	53807	39641	34183
32.	Begusarai	0.684	0.696	69544	62879	47593	43733
33.	Bhabhua	1.352	1.562	55000	50000	74372	78116
34.	Bhojpur	1.073	1.048	55996	36375	60103	41743
35.	Darbhanga	0.744	0.794	45516	41485	33908	32936
36.	Khagaria	0.732	0.916	61084	60085	44708	55189
37.	Nalanda	0.976	1.055	54500	29379	53659	31009
38.	Supaul	0.691	0.870	50518	43526	34920	37884
	Total	0.883	0.939	49771	45048	43968	42303

Note: Compiled by Author on the basis of data made available by the Department of Co-operatives, Govt. of Bihar.

#### **1.5.4 Sum Insured**

Total sum insured in the year 2016-17 was Rs. 11724.98 crores. It was Rs. 6531.16 crores (55.70%) in kharif, 2016 while Rs. 5193.82 crores (44.30%) in rabi, 2016-17. The average sum insured per farmer was Rs. 43215. It was Rs. 43968 per farmer in kharif, 2016 and Rs. 42303 in rabi, 2016-17. The average sum insured per hectare was Rs. 47562. In regard to season wise, average sum insured per hectare was Rs. 49771 for kharif, 2016 and Rs. 45048 for rabi, 2016-17.

#### **1.5.5 Premiums**

Total premium collected by insurance agencies in the year 2016-17 was Rs. 1420.91 crores. It was Rs. 1112.49 crores (78.85%) in kharif, 2016 and Rs. 298.42 crores (21.15%) in rabi 2016-17. Total premium paid by the farmers was Rs. 203.90 crores (14.45%). It was Rs. 130.61 crores (64.05%) in kharif, 2016 and Rs. 73.29 crores (35.95%) in rabi, 2016-17. Total premium paid by the Central and State Governments was Rs. 608.51 crores (42.82%) each. The average premium paid by the farmer was Rs. 751.51.

#### **1.5.6 Beneficiaries and Claims**

Total number of beneficiary farmers in the year 2016-17 was 2.23 lakh, constituting 67.87 per cent in kharif., 2016 and 32.17 per cent in rabi, 2016-17. The total claims reported were Rs. 348.23 crores constituting Rs. 289.38 crores (83.10%) in kharif, 2016 and Rs. 58.85 crores (16.90%) in rabi 2016-17. The average claim to premium ratio was 24.68 per cent. However, these were 26.02 per cent in kharif 2016 and 19.72 per cent in rabi, 2016-17. The average claim per farmer was Rs. 15601. It was Rs. 19104 for kharif, 2016 and Rs. 8204 for rabi, 2016-17.

## CHAPTER – II

### SURVEY DESIGN

The PMFBY incorporates the best features of all previous schemes to ensure faster insurance services or reliefs to farmers. 21 states implemented the scheme in kharif, 2016 whereas 23 states and 02 UTs implemented the scheme in rabi 2016-17. It is one of the largest crop insurance schemes in the world. After one year of its implementation, the MoA & FW, GoI desired to have a performance evaluation of PMFBY. Accordingly, 09 Agro-Economic Research Centres were assigned the task of conducting a study in their respective states in September, 2017 under the Co-ordination of CMA, IIM - Ahmedabad. Out of these AERCs, one is AERC, Bhagalpur (Bihar), which undertook the study for the state of Bihar.

#### 2.1 Objectives of the Study

Following three objectives were outlined as below:

- i. To assess the status of PMFBY implementation for both kharif and rabi seasons in 2016-17, and;
- ii. Study the characteristics of farming households that are beneficiaries of PMFBY both loanee and non-loanee to assess the factors that can lead to better uptake of crop insurance.

#### 2.2 Sampling Methodology

Following the methodology in common, first objective was focused on Governance Analysis. A comprehensive process of implementation at the state level was examined using the secondary data and primary information collected by interviewing/discussing the issues with the stakeholders. The analysis under this objective is based on one year data i.e., 2016-17. The second objective relied on primary survey, with the help of a structured schedule comprising socio-economic characteristics of sample beneficiary farmers and their uptake behavior. A total of 150 sample farmers distributed equally i.e., 50 from each of the three sample districts, were surveyed based on random sampling method. These three districts were chosen on the basis of uptake or number of farmers who availed the scheme for the year 2016-17. First of all, all the 38 districts were classified in three broad categories of uptake viz., high, medium and low and from each category one district were selected. Each district had a sample of 50 farmers consisting 40 loanee insured and 10 non-insured farmers as control group. These were selected randomly from the available list of insured farmers and enlisted non-insured farmers respectively. Accordingly, the details of the sample are shown in table 2.1. Reference year of the study was kharif 2016 and rabi 2016-17.

**Table 2.1: Details of Sample Distribution**

Category	District	Block	Panchayat	Sample Farmers			
				Loanee Insured	Non-Loanee Insured	Non-Insured	Total
High Uptake	Samastipur	Kalyanpur	Hajpura	40	---	10	50
Medium Uptake	Jamui	Sikandara	Mahadeo Simiria	40	---	10	50
Low Uptake	Saharsa	Patharghat	Golma (E & W)	40	---	10	50
			Total	120	---	30	150

### 2.3 Sampled Districts

As depicted in table 2.1, three districts namely Samastipur, Jamui and Saharsa were selected from the respective categories of high, medium and low uptakes of PMFBY during 2016-17 in the state. Table 2.2 deals with a brief profile of these three sample districts vis-à-vis the state. According to Census 2011, the population in these districts was 42.6 lakh, 17.6 lakh and 19 lakh respectively, accounting for 4.1 per cent, 1.7 per cent and 1.8 per cent respectively of the state's total population of 1041 lakh. The literacy rate in Samastipur was equal to that of the state; however the same was lower in Jamui and Saharsa districts. The state falls under middle Gangetic plane of agro-climatic zones and within the state Samastipur fell under sub-zone-I, Jamui under sub-zone-III A and Saharsa under sub-zone – II. The rainfall situation across the sample districts was good, as the state had received a good monsoon rainfall in the year 2016. Out of the geographical areas, the percentages of net sown area were 60.6 in Samastipur, only 15.5 in Jamui and 59.8 in Saharsa as against the state's figure of 56.4 per cent. The cropping intensities were 1.81, 1.46, and 1.99 respectively. The new and renewed KCCs (taken together) during 2016-17 were 170.53 thousand in Samastipur, 68.24 thousand in Jamui and 33.45 thousand in Saharsa. Both the notified crops under PMFBY for kharif, 2016 in the state were covered under these three districts but in rabi 2016-17, out of the six notified crops, gram in Samastipur, maize and potato in Jamui and gram, potato and sugarcane in Saharsa were not covered under the scheme.

**Table 2.2: A Brief Profile of Sample Districts vis-à-vis the State**

SN	Particulars	Samastipur	Jamui	Saharsa	Bihar
1.	Category	High uptake	Medium uptake	Low uptake	Overall
2.	Population (2011)	42.6 lakh (4.1%)	17.6 lakh (1.7%)	19.0 lakh (1.8%)	1041 lakh (100%)
3.	% of literacy (2011)	63.8	62.2	54.6	63.8
4.	State Agro-Climatic Region	I	III A	II	Middle-Gangetic Plane
5.	Rainfall (In mm), 2016	1058.6	1120.5	1349.9	1071.6
6.	Geographical Area ('000 ha)	262.3	305.2	164.5	9359
7.	Net Area Sown ('000 ha)	159.0 (60.6%)	47.32 (15.5%)	98.4 (59.8%)	5278.3 (56.47%)
8.	Cropping Intensity	1.81	1.46	1.99	1.45
9.	Kisan Credit Card ('000)	170.53 (6.75%)	68.24 (2.70%)	33.45 (1.32%)	2524.66 (100.00%)

Source: Economic Survey (Bihar): 2017-18

Moreover, PMFBY profile meant for kharif 16 rabi 2016-17 and both the seasons taken together of the sample districts have been presented in table 2.3. The table reveals that the aggregate enrolment of the farmers under the scheme was 263719 in high uptake (Samastipur) followed by 123015 in medium (Jamui) and 16578 in low (Saharsa) uptake districts. Out of them, the percentage of loanee insured farmers in all the three districts were more than 99, which implies that compulsory component of the coverage has largely prevailed during the first year of implementation of the scheme. Almost similar trend could be noticed separately in both the seasons. The average area insured per farmer across the sample districts moderately varied from 0.68 to 0.99 ha for combined data but in all cases it was up to 1 hectare. The average sum insured per farmer was as high as Rs. 46340 in medium uptake district (Jamui) followed by low uptake district (Rs. 36615) and high uptake district (Rs. 32647) for both the seasons taken together. Similar trend was revealed during the kharif and rabi seasons. The average sum insured per hectare was Rs. 47573 in high uptake district followed by medium (Rs. 46724) and low (Rs. 42748). Similar trend was observed in kharif and rabi seasons also, except in kharif for medium uptake district (Jamui). The average premium paid per farmer was Rs. 9923.56 in medium uptake district (Jamui) followed by Rs. 4763.52 in high and Rs. 3836.35 in low uptake districts for both the seasons (taken together). The same trend was noticed for kharif and rabi seasons also. Total amount of registered claims for both seasons taken together was as high as Rs. 2715.03 lakh in high uptake district (Samastipur) and low of Rs. 7.10 lakh in medium uptake district (Jamui). However, it was Rs. 765.75 lakh for low uptake district (Saharsa).

**Table 2.3: PMFBY Profile of Sample Districts**

SN	Particulars	Sample Districts		
		Samastipur	Jamui	Saharsa
<b>Kharif, 2016</b>				
i.	No. of loanee insured farmers	141266 (99.91)	61392 (99.86)	9249 (99.64)
ii.	No. of Non-loanee insured farmers	127 (0.09)	86 (0.14)	33 (0.36)
iii.	Total No. of insured farmers	141393 (100.00)	61478 (100.00)	9282 (100.00)
iv.	Avg. Area insured per farmer (ha)	0.712	1.002	0.868
v.	Avg. Sum insured per farmer (Rs.)	31718	47596	37700
vi.	Avg. Sum insured per hectare (Rs.)	44549	47497	43406
vii.	Avg. premium paid per farmer (Rs.)	8289.21	12112.44	4652.00
viii.	Total amount of registered claims (In lakh Rs.)	2587.84	0.00	605.03
ix.	Total number of Beneficiary	8606	0.00	4631
x.	Avg. amount of claim per farmer (Rs.)	30070.18	0.00	13064.78
xi.	Claims to premium ratio (%)	22.08	---	140.12
<b>Rabi, 2016-17</b>				
i.	No. of loanee insured farmers	122326 (100.00)	61537 (100.00)	7296 (100.00)
ii.	No. of Non-loanee insured farmers	0.00	0.00	0.00
iii.	Total number of insured farmers	122326 (100.00)	61537 (100.00)	7296 (100.00)
iv.	Avg. area insured per farmer (ha)	0.656	0.981	0.841
v.	Avg. sum insured per farmer (Rs.)	33721	45086	35234
vi.	Avg. sum insured per hectare (Rs.)	51363	45937	41884
vii.	Avg. premium paid per farmers (Rs.)	688.29	7736.78	2798.66
viii.	Total amount of registered claims (In lakh Rs.)	127.19	7.10	160.72
ix.	Total number of beneficiary	3122	138	2114
x.	Avg. Amount of claim per farmer (Rs.)	4074	5144.93	7602.65
xi.	Claims to premium ratio (%)	15.10	0.15	78.71
<b>Combined (Kharif, 2016 + Rabi, 2016-17)</b>				
i.	No. of loanee insured farmers	263592 (99.95)	122929 (99.93)	16545 (99.80)
ii.	No. of non-loanee insured farmers	127 (0.05)	86 (0.07)	33 (0.20)
iii.	Total number of insured farmers	263719	123015	16578
iv.	Avg. area insured per farmer (ha)	0.686	0.991	0.856
v.	Avg. sum insured per farmer (Rs.)	32647	46340	36615
vi.	Avg. sum insured per hectare (Rs.)	47573	46724	42748
vii.	Avg. Premium paid per farmers (Rs.)	4763.52	9923.56	3836.35
viii.	Total amount of registered claims (In lakh Rs.)	2715.03	7.10	765.75
ix.	Total number of beneficiary	11728	138	6745
x.	Avg. Amount of claim per farmer (Rs.)	23150.0	5144.93	11352.85
xi.	Claims to premium ratio (%)	21.61	0.06	120.40

Note: Compiled by Author on the basis of data made available by the Department of Co-operatives, Govt. of Bihar.

In brackets percentage figure is shown.



Season wise data reveals that total amount of registered claims was much higher in kharif season across the districts, compared to rabi season, except in case of medium uptake district (Jamui) where it was found nil during the kharif season. Total number of beneficiaries was 11728 in high uptake district followed by low uptake district (6745) and medium uptake district (138). Season wise analysis reveals that, the number of beneficiaries during kharif season in medium uptake district (Jamui) was nil. The amount of claim per farmer for both seasons taken together was high in high uptake district i.e., Samastipur (Rs. 23150) followed by low uptake district (Rs. 11352.85) and medium uptake district (Rs. 5144.93). The claim to premium ratio in both the seasons taken together was more than hundred per cent i.e., 120.40 per cent in low uptake district (Saharsa) and the same was 21.61 per cent in high uptake district (Samastipur) and only 0.06 per cent in medium uptake district (Jamui). During kharif season, the claims to premium ratio was similarly more than hundred per cent i.e., 140.12 per cent in low uptake district (Saharsa) whereas it was 22.08 per cent in high uptake district (Samastipur). Further, analysis reveals that claims to premium ratio in low uptake district (Saharsa) was high at 78.71 per cent followed by 15.10 per cent in high uptake district (Samastipur) and only 0.15 per cent in medium uptake district (Jamui) during the rabi season.

## CHAPTER – III

### SOCIO-ECONOMIC CHARACTERISTICS

To understand the socio-economic characteristics of the sample farmers the information collected through primary survey has been briefly analyzed in this chapter. The information relate to profile of the respondents, family details, occupational distribution, household income, value of assets, access to credit, purpose behind credit etc. These characteristics play important role in determining the uptake behavior of the PMFBY in the state. The analysis includes 150 sample farm households consisting of 120 loanee insured farmers (80%) and 30 control/non-insured farmers (20%), as also discussed in chapter – II.

#### **3.1 Socio-Economic Profile**

The analysis includes three variables, such as age group of family members, educational and social status of the sample households. Related data of these variables are presented in table 3.1. It is evident from the table that of the total family members under the category of loanee insured farmers, about 48.45 per cent were in adult age group (16-59 yrs), 49.35 per cent in minor age group (< 16 yrs) and only 2.20 per cent belonged to senior citizens group (> 60 yrs). It reveals that nearly half of the total family members were in working age group. Similarly under non-loanee insured farmers' category, the working population of the total family members was 48.25 per cent. In case of non-insured farmers (control group), 50.26 per cent of the total family members were in the age group of adults and the remaining were children. As regards the educational level of each category of sample hhs more than or equal to 60 per cent attained secondary level education and the rest were educated up to either primary level or just literate. Data on social composition of the sample revealed that more than 50 per cent in each category of sample households were from other backward castes followed by general (33 to 39%) and scheduled castes/scheduled tribes (6 to 13%).

**Table 3.1: Socio-Economic Profile**

Particulars	Particulars										
	Age group of family member (% to sample)			Educational Status (% to sample)					Caste (% to sample)		
	Minor (< 16 years)	Adults (16-59 yrs)	Senior Citizens (> 60 years)	Illiterate	literate	Primary	Secondary	Graduate and above	SC/ST	OBC	General
Loanee insured farmers	49.35	48.45	2.20	-	6.67	15.00	61.67	16.66	6.67	54.17	39.16
Non-loanee insured farmers	-	-	-	-	-	-	-	-	-	-	-
Total insured farmers	49.35	48.45	2.20	-	6.67	15.00	61.67	16.66	6.67	54.17	39.16
Farmers (Control)	49.74	50.26	-	-	6.67	23.33	60.00	10.00	13.33	53.34	33.33

Source: Primary Survey.

### 3.2 Occupational Status

Occupationally, the sample households were largely engaged in primary vocations and a few, besides the primary, were also found engaged in some secondary vocations. These occupations were classified in standard categories. In case of loanee insured farmers, 85 per cent adopted agricultural and allied sectors as primary occupation and the remaining were meagerly distributed across other eight occupations like agricultural labour (2.50%), salaried workers (2.50%), pension (4.17%) etc. Similarly in case of control group farmers, 76.67 per cent were in agriculture and allied sectors as primary occupations. The occupational details may be seen from table 3.2.

**Table 3.2: Occupational distribution of sample households (In %)**

Occupations	Loanee Insured Farmers		Non-Loanee Insured Farmers		Total Loanee Insured Farmers		Control Farmers	
	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
Agri. & Allied	85.00	14.17	-	-	85.00	14.17	76.67	23.33
Agri. Labour	2.50	6.67	-	-	2.50	6.67	3.33	16.67
Self employed in HH industry	-	-	-	-	-	-	-	-
Self employed in services	0.83	-	-	-	0.83	-	-	-
Non Agri. casual Lab	0.83	5.83	-	-	0.83	5.83	3.33	-
Salaried work	2.50	-	-	-	2.5	-	10.00	-
Household work	1.67	-	-	-	1.67	-	-	-
Pension	4.17	-	-	-	4.17	-	3.33	-
Others	2.50	-	-	-	2.50	-	3.34	-
Total	100.00	26.67	-	-	100.00	26.67	100.00	40.00

Source: Primary Survey

### 3.3 Farming Annual Income

The average number of family members engaged in farming for both types of sample farmers was just two-plus against the average family size of loanee insured sample farmers of 6.4 persons and non-insured farmers of 6.3 persons. So far as the annual income out of the loanee-insured farmers is concerned, it was Rs. 87536.09 per household (Rs. 13571.49 per capita per annum) and that for the non-insured farmers it was Rs. 85125.33 per household (Rs. 13511.96 per capita per Annum) against the per capita income in the state estimated at Rs. 26693 during 2016-17 (table 3.3).

**Table 3.3: Members engaged in farming and household income**

Type of Sample Farmers	Average number of family members engaged in farming	Per Hh annual income (in Rs.)
Loanee Insured Farmers	2.05	87536.09
Non-Loanee Insured Farmers	-	-
Total Insured Farmers	2.05	87536.09
Farmers (Control)	2.20	85125.33

Source: Primary Survey.

In case of per household annual income from non-agricultural sources, it was estimated at Rs. 28870.42 for insured sample farmers and in case of non-insured sample farmers it was Rs. 42626.66, accounting for about 148 per cent higher as compared to insured sample farmers. In regard to source wise analysis of annual income from non-agricultural sources, it is revealed that in case of loanee insured sample farmers it was 44.84 per cent (Rs. 12945) from pension followed by salary earned from employment/service (24.94%), business and trade (19.22%), farm labour (6.96%), remittances (4.04%). In case of non-insured/control farmers these were 70.69 per cent from salary followed by pension (18.77%), farm labour (9.76%) and other sources (0.78%). For detailed view, table 3.4 is presented.

**Table 3.4: Per Hh annual income from non-agricultural sources (in Rs.)**

	Income from non-agricultural sources								
	Name of sources								
	Salary from employment	Farm labor	MGNREGA	Remittances	Pension	Rents house/land	Business /trade	Others	Total
Loanee insured farmers	7200.00 (24.94)	2008.75 (6.96)	-	1166.67 (4.04)	12945.00 (44.84)	-	5550.00 (19.22)	-	28870.42 (100.00)
Non-loanee insured farmers	-	-	-	-	-	-	-	-	-
Total insured farmers	7200.00 (24.94)	2008.75 (6.96)	-	1166.67 (4.04)	12945.00 (44.84)	-	5550.00 (19.22)	-	28870.42 (100.00)
Farmers (Control)	30133.33 (70.69)	4160.00 (9.76)	-	-	8000.00 (18.77)	-	-	333.33 (0.78)	42626.66 (100.00)

Source: Primary Survey.

In parenthesis percentage figure is shown.

### 3.4 Value of Assets

The total value of assets that contains value of land owned, machinery, building, livestock and others, has been worked out in table 3.5. Per household value of total assets on loanee insured sample farmers was calculated at Rs. 29,80,212.50 and Rs. 18,15,500 for non-insured sample farmers. So far as the value of type of assets are concerned, it was as high as 92.18 per cent in case of owned land (Rs. 27,47,116.67) followed by building (7.42%), livestock (0.24%) and machinery (0.16%) meant for loanee-insured sample farmers whereas in case of non-insured sample farmers land owned was much ahead i.e., 84.70 per cent followed by building (12.55%), machinery (2.28%) and livestock (0.47%).

**Table 3.5: Asset value (in Rs.)**

	Per HH asset type (in Rs.)					
	Value of Land owned	Value of machinery	Value of building	Value of livestock	Others	Total
Loanee Insured	2747116.67 (92.18)	4845.83 (0.16)	221083.33 (7.42)	7166.67 (0.24)	-	2980212.50 (100.00)
Non-Loanee Insured	-	-	-	-	-	-
Total Insured	2747116.67 (92.18)	4845.83 (0.16)	221083.33 (7.42)	7166.67 (0.24)	-	2980212.50 (100.00)
Non-insured (Control)	1537666.67 (84.70)	41433.33 (2.28)	227833.33 (12.55)	8566.67 (0.47)	-	1815500.00 (100.00)

Source: Primary Survey

In parenthesis percentage figure is shown.

### 3.5 Credit Status

The details of access to credit per household for loanee insured and non-insured sample farmers have been shown in table 3.6. The table shows that loanee insured and non-insured sample farmers took loan. The loanee insured farmers had borrowed loan from both the sources i.e., institutional and non-institutional sources, whereas in case of non-insured farmers they took loans from non-institutional sources only.

It is evident from the table that per household amount of loan for loanee insured farmers was Rs. 57191.66, which accounted for 96.14 per cent, out of which (Rs. 54983.33) was from institutional sources and only 3.86 per cent from non-institutional sources. Out of the total loan amount of about 46.12 per cent (Rs. 26377.93) was repaid including interest and the amount outstanding plus interest on the day of survey was found at Rs. 37175.75 (65% of the borrowed amount). It indicates that the institutional sources had played significant role in meeting the credit needs of the insured farmers but on an average the outstanding amount was more than half of the borrowed amount. Similarly in case of non-insured farmers per household amount of borrowings was Rs. 4166.67 only and out of it, a sum of Rs. 2190 was repaid including the interest and outstanding amounts estimated at Rs. 3000 on the day of survey. As discussed earlier, non-insured sample farmers had borrowed the amount from non-institutional sources only.

**Table 3.6: Access to Credit Per Hh for Loanee Insured Farmers**

Sources	No. of Loanee	Amount for loan (Rs.)	Amount paid with Interest (Rs.)	Outstanding
<b>Loanee Insured Farmers</b>				
<b>A. Institutional Sources</b>				
Commercial Banks	84	58511.90	26694.41	37743.46
Regional Rural Banks	36	46750.00	19336.68	31545.53
Co-operatives societies	-	-	-	-
<b>Total</b>	<b>Overall</b>	<b>54983.33 (96.14)</b>	<b>24487.10 (92.83)</b>	<b>35884.08 (96.52)</b>
<b>B. Non Institutional Sources</b>				
Money Lenders	07	10000.00	11714.29	10000.00
SHGs	11	17727.27	13172.73	7727.27
Others	-	-	-	-
<b>Total</b>	<b>Overall</b>	<b>2208.33 (3.86)</b>	<b>1890.83 (7.17)</b>	<b>1291.67 (3.47)</b>
<b>Grand Total(A+B)</b>	<b>Overall</b>	<b>57191.66 (100.00)</b>	<b>26377.93 (100.00)</b>	<b>37175.75 (100.00)</b>
<b>Non-Insured Farmers</b>				
<b>A. Institutional Sources</b>				
Commercial Banks	-	-	-	-
Regional Rural Banks	-	-	-	-
Co-operatives societies	-	-	-	-
Total	-	-	-	-
<b>B. Non Institutional Sources</b>				
Money Lenders	03	13333.33	6333.33	12333.33
SHGs	03	16666.67	7200.00	13333.33
Others	03	11666.67	8366.67	4333.33
Total	Overall	4166.67	2190.00	3000.00
<b>Grand Total(A+B)</b>	<b>Overall</b>	<b>4166.67</b>	<b>2190.00</b>	<b>3000.00</b>

Source: Primary Survey

In parenthesis percentage figure is shown.

As regards the purpose of borrowings, agriculture and allied sector figured prominently (87.59%) in case of loanee-insured farmers whereas it was found 100 per cent in case of control/non-insured farmers borrowed for non-agricultural purposes (table 3.7).

**Table 3.7 Purpose behind borrowing loans by Insured and non-Insured Farmers (in%)**

Purpose	Loanee Insured Farmers	Non Loanee Insured Farmers	Total Insured Farmers	Control Farmers
Agriculture & Allied	87.59	-	87.59	-
Non Agriculture	12.41	-	12.41	100.00
Overall	100.00	-	100.00	100.00

Source: Primary Survey

## CHAPTER – IV

### FARM LEVEL CHARACTERISTICS

This chapter focuses on farm level characteristics of the sample farm households, constituting loanee-insured and non-insured/control sample farmers. The analysis is based on primary survey, undertaken for the reference year i.e., 2016-17. The characteristics included operational land holdings, sources of irrigation, per farm cropping pattern, per farm volume of production, per farm quantity sold out of the produced volume and per farm value of production. Since these farm level characteristics played significant role in determining the insurance uptake behavior of the sample farm households, so its brief analysis has been presented hereunder:

#### **4.1 Operational Land Holdings**

Details of operational land holdings of the sample farm households are presented in table 4.1. It mainly described five particulars such as owned, uncultivated, leased-in, leased-out and net operated land vis-à-vis irrigated and non-irrigated areas. The table indicates the net operated area per household loanee-insured sample farmers was 2.65 acres whereas it was a little lower at 2.22 acres in case of non-insured sample households. Out of the net operational area owned by the insured sample farmers about 59.25 per cent (1.57 acre/hh) was irrigated and 40.75 per cent (1.08 acre/hh) un-irrigated. Similarly in case of non-insured sample farmers, the share of irrigated area of net operated area was 61.71 per cent (1.37 acre/hh) and non-irrigated being 38.29 per cent (.85 acre/hh) for non-insured sample farm households. Out of the net operated area of sample insured farmers, 2.25 acre/hh (84.90%) was owned land and in case of non-insured farmers it was 1.80 acre/hh (81.08%). The share of leased-in land areas for both the types of sample households were higher at 0.62 acre/hh and 0.86 acre/hh as compared to leased out lands for 0.19 acre/hh and 0.40 acre/hh respectively. It is evident from the table that the share of irrigated area was higher than un-irrigated area for both the types of sample farm households.

**Table 4.1: Characteristics of operational holdings per household (area in acres)**

Particulars	Loanee insured	Non-loanee insured	Non-insured (control)
Own land			
Irrigated	1.36	-	1.20
Un-irrigated	0.89	-	0.60
Total	2.25	-	1.80
Uncultivated land			
Irrigated	-	-	-
Un-irrigated	0.03	-	0.04
Total	0.03	-	0.04
Leased-in land			
Irrigated	0.26	-	0.43
Un-irrigated	0.36	-	0.43
Total	0.62	-	0.86
Leased-out land			
Irrigated	0.04	-	0.27
Un-irrigated	0.15	-	0.13
Total	0.19	-	0.40
Net operated land			
Irrigated	1.57	-	1.37
Un-irrigated	1.08	-	0.85
Total	2.65	-	2.22

Source: Primary Survey

#### 4.2 Sources of Irrigation

Irrigation is considered to be one of the foremost inputs in agricultural practices. Incidences of crop failures in many parts occur due to lack of sufficient irrigation water. In Bihar, major source of irrigation is bore wells. It can also be seen from table 4.2 that bore well formed a major source of irrigation for different crops in the study area, as revealed by the loanee insured sample farmers (66.67%) and non-insured sample farmers (73.33%). The second important source of irrigation was other sources i.e., traditional sources (ahar, pynes, kutcha drains etc.), which were utilized by about 14 per cent of the sample households followed by tank (about 10%) and dug wells (2 to 3 %) irrespective of loanee-insured and non-insured sample farmers.



**Table 4.2: Sources of Irrigation (% to sample)**

	Sources of irrigation				
	Dug well	Bore well	Canal	Tank	Others
Loanee Insured	2.50	66.67	-	10.83	14.17
Non-loanee Insured	-	-	-	-	-
Total Insured	2.50	66.67	-	10.83	14.17
Non-insured (Control)	3.30	73.33	-	10.00	10.00

Source: Primary Survey

### 4.3 Cropping Pattern

Usually cropping pattern followed by farmers depends on availability of inputs, soil conditions and agricultural practices adopted by them. So it is worthwhile to study cropping pattern adopted by the sample farm households in general. Crops grown by them during the reference period of the survey have been shown in table 4.3. It is evident from the table that sample farm households largely grew paddy during kharif. During rabi season, they used to grow wheat, maize, pulses, oilseeds and vegetables whereas in summer maize and moong crops were grown. It is revealed from the table that per farm gross/total cropped area (GCA) was 3.946 during the reference period across for loanee-insured farmers whereas it was 3.198 acres in case of non-insured farmers. Out of the GCA, nearly 50 per cent of the area was devoted to paddy followed by 30 per cent in wheat and 10 per cent on maize crops irrespective of the types of sample households. It explicitly indicates that nearly 90 per cent of the GCA was devoted on cereal crops. Moreover, only insured farmers found to have grown pulses (3.8% of the GCA) and less than 1 per cent grew oil seeds. Vegetables were grown in around 6 per cent of the GCA by the non-insured farmers whereas 3.6 per cent of the loanee insured farmers grew it. The cropping intensity was estimated at around 149 per cent in case of loanee insured farmers and 144 per cent in case of non-insured farmers.

**Table 4.3: Cropping Pattern per farm (in acres)**

Seasons/Crops	Loanee Insured	Non - Loanee Insured	Total Insured	Non - Insured (Control)
<b>Kharif</b>				
Paddy	2.024 (51.29)	-	2.024 (51.29)	1.597 (49.94)
<b>Rabi</b>				
Wheat	1.204 (30.51)	-	1.204 (30.51)	1.000 (31.27)
Maize	0.252 (6.39)	-	0.252 (6.39)	0.201 (6.29)
Pulses	0.149 (3.77)	-	0.149 (3.77)	-
Oilseed	0.019 (0.48)	-	0.019 (0.48)	-
Vegetable	0.142 (3.60)	-	0.142 (3.60)	0.200 (6.25)
<b>Zaid</b>				
Maize	0.127 (3.22)	-	0.127 (3.22)	0.158 (4.94)
Moong	0.028 (0.71)	-	0.028 (0.71)	0.042 1.31
G.CA	3.946 (100.00)	-	3.946 (100.00)	3.198 (100.00)
Cropping Intensity (%)	148.90	-	148.90	144.00

Source: Primary Survey.

#### 4.4 Production

As regards per farm production of different crops grown by the sample farm households, the captured data have been depicted in table 4.4. It is revealed from the table that production of main produce of all the crops except vegetables was higher in case of loanee insured sample farmers compared to non-insured sample farmers. Per farm production of paddy was estimated at 35.23 quintals in case of loanee insured sample farmers whereas it was 21.80 quintals for non insured sample farmers. Similarly in case of wheat, per farm quantities of production of loanee insured sample farmers were 14.68 quintals and 10.87 quintal for non insured sample farmers. Per farm maize production was also higher in regard to loanee insured sample farmers as compared to non insured sample farmers. Production of vegetables only was a little bit higher at non insured sample farms compared to loanee insured sample farmers. It may be due to better application of inputs and agricultural practices at the non-insured sample farmers' level.

**Table 4.4: Per Farm Production (In Qtls.)**

Seasons/ Crops	Loanee Insured		Non - Loanee Insured		Total Insured		Non - Insured (Control)	
	Main Product	By Product	Main Product	By Product	Main Product	By Product	Main Product	By Product
Kharif								
Paddy	35.23	39.90	-	-	35.23	39.90	21.80	12.25
Rabi								
Wheat	14.68	9.15	-	-	14.68	9.15	10.87	6.11
Maize	5.29	2.59	-	-	5.29	2.59	3.90	2.43
Pulses	0.22	0.00	-	-	0.22	0.00	0.00	0.00
Oilseed	0.029	0.00	-	-	0.029	0.00	0.00	0.00
Vegetable	6.25	0.00	-	-	6.25	0.00	7.00	0.00
Zaid								
Maize	3.12	1.39	-	-	3.12	1.39	3.03	1.93
Moong	0.04	0.00	-	-	0.04	0.00	0.05	0.00

Source: Primary Survey

#### 4.5 Disposal Pattern of the Produce

Table 4.5 highlights the proportions of quantity sold and quantity retained out of the total production at farm level across the crops and seasons of the sample farm households. Before analyzing, it is to make here clear that retained quantity refers to such consumption which is made for family requirements, payments to be made in kind to labour, other miscellaneous consumption and wastages. Similarly quantity sold refers to marketed surplus. As is evident from the table that out of total production of the paddy, nearly 85 to 88 per cent was the marketed surplus and 15 to 12 per cent were retained for overall consumption purpose in case of both the types of sample farm households. The marketed surplus was little lower in case of wheat compared to paddy resulting in higher retention in case of both types of sample farm households. In case of maize, about 99 per cent of the produce was sold, as maize has meagre domestic consumption. Similar was the case of vegetables irrespective of the types of sample farm households. Contrary to above disposal behavior oilseeds and moong were retained cent per cent for home consumption. It reveals that farmers were generally on

subsistence economy, so their disposal pattern of the produce followed accordingly. Per farm analysis of disposal pattern strongly endorse the above notion.

**Table 4.5: Quantity sold per farm (in Qtls.)**

Hhs	Kharif			Rabi								
	Paddy			Wheat			Maize			Pulses		
	Prod uction	Sold	Retai ned	Prod uction	Sold	Retai ned	Prod uction	Sold	Retai ned	Prod uction	Sold	Retai ned
Loanee Insured	35.23 (100.00)	31.10 (88.28)	4.13 (11.72)	14.68 (100.00)	10.91 (74.32)	3.77 (25.68)	5.29 (100.00)	5.25 (99.24)	0.04 (0.76)	0.22 (100.00)	0.11 (50.00)	0.11 (50.00)
Non-loanee Insured	-	-	-	-	-	-	-	-	-	-	-	-
Total Insured	35.23 (100.00)	31.10 (88.28)	4.13 (11.72)	14.68 (100.00)	10.91 (74.32)	3.77 (25.68)	5.29 (100.00)	5.25 (99.24)	0.04 (0.76)	0.22 (100.00)	0.11 (50.00)	0.11 (50.00)
Non-insured (Control)	21.80 (100.00)	18.43 (85.54)	3.37 (15.46)	10.87 (100.00)	6.10 (56.12)	4.77 (43.88)	3.90 (100.00)	3.40 (87.18)	0.50 (12.82)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)

**Table 4.5 (cont.)**

Hhs	Rabi						Zaid					
	Oilseeds			Vegetables			Maize			Moong		
	Prod uction	Sold	Retai ned	Prod uction	Sold	Retai ned	Prod uction	Sold	Retai ned	Prod uction	Sold	Retai ned
Loanee Insured	0.029 (100.00)	0.00 (0.00)	0.029 (100.00)	6.25 (100.00)	6.13 (98.08)	0.12 (1.92)	3.12 (100.00)	2.45 (78.53)	0.67 (21.47)	0.04 (100.00)	0.00 (0.00)	0.04 (100.00)
Non-loanee Insured	-	-	-	-	-	-	-	-	-	-	-	-
Total Insured	0.029 (100.00)	0.00 (0.00)	0.029 (100.00)	6.25 (100.00)	6.13 (98.08)	0.12 (1.92)	3.12 (100.00)	2.45 (78.53)	0.67 (21.47)	0.04 (100.00)	0.00 (0.00)	0.04 (100.00)
Non-insured (Control)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	7.00 (100.00)	6.10 (87.14)	0.90 (12.86)	3.03 (100.00)	2.53 (83.45)	0.50 (16.51)	0.05 (100.00)	0.00 (0.00)	0.50 (100.00)

Source: Primary Survey

Note: Figures in parenthesis are the percentages of production

#### 4.6 Value of Production

Per farm value of agricultural production has also been estimated for assessing agricultural income of the sample farm households. Table 4.6 presents per farm value of the production, which reveals per farm value of production for loanee insured farmers was Rs. 72715.27 which is about 83 per cent of the per household annual agricultural income meant for the same sample farmer. Similarly in case of non-insured farmers, per farm value of production was estimated at Rs. 52081.67 that accounted for about 61 per cent of the per household annual agricultural income for the same set of sample households. It clearly indicates that economy of the sample households (in general) is still largely supported by agricultural income (61 to 83%) and remaining by non-agricultural income (17 to 39 %).

**Table 4.6: Per Farm Value of Production (Rs.)**

Seasons/Crops	Loanee Insured	Non - Loanee Insured	Total Insured	Non- Insured (Control)
<b>Kharif</b>				
Paddy	36385.54 (50.04)	-	36385.54 (50.04)	23097.50 (44.35)
<b>Rabi</b>				
Wheat	22284.75 (30.64)	-	22284.75 (30.64)	16366.67 (31.43)
Maize	5582.58 (7.68)	-	5582.58 (7.68)	4006.67 (7.69)
Pulses	1015.25 (1.40)	-	1015.25 (1.40)	-
Oilseeds	143.16 (0.20)	-	143.16 (0.20)	-
Vegetables	3972.50 (5.46)	-	3972.50 (5.46)	5225.00 (10.03)
<b>Zaid</b>				
Maize	3120.83 (4.29)	-	3120.83 (4.29)	3123.33 (6.00)
Moong	210.66 (0.29)	-	210.66 (0.29)	262.50 (0.50)
Total	72715.27 (100.00)	-	72715.27 (100.00)	52081.67 (100.00)

Source: Primary Survey.

Figures in parenthesis are the percentages of production.

## CHAPTER – V

### INSURANCE BEHAVIOUR

Farmers are generally keen to avoid taking risks, which might threaten their livelihoods and this is often reflected in their farming practices. This behavior influences the levels and types of inputs they use and the aggregate levels of output produced. They are often reluctant to adopt output-increasing practices if these increase their exposure to risk (*Antle, 1989; Dercon, 1996*). Recognizing this trade off by the policy makers, the introduction of programmes that attempt to address farmers' aversion to risk in the form of agricultural insurance has been initiated. Since agricultural insurance has often been funded by the Governments so doubts have also been raised about its efficacy in the face of covariance of risks and the problems of asymmetry of information that are prevalent in developing agriculture (*Binswanger et.al, 1989; Venkatesh, 2008; Hazell et. al, 1986; Roumasset, 1978*). In view of above revealed aspects of risks, this chapter is devoted to insurance behaviour with the objective to understand the perceptions about crop insurance and experiences of the sample farm households with PMFBY.

#### 5.1 Enrolment and Awareness

Data depicted in table 5.1 showed about the enrolment and awareness of the sample farm households. These have been analyzed with six queries, which were put to the sample households. The table reveals that out of the 120 loanee sample households, 77.50 per cent had heard about PMFBY while 22.50 per cent were not aware of the programme. Only a few (7.50%) availed other insurance schemes. Of the insured farmers (120 Hhs), only 25 Hhs (22.83%) reported that they were certainly insured and the remaining (79.17%) did not know about that, despite the fact that they were insured. The main reason for getting insured by the applicants was to obtain farm loan (20.83%). About 54.17 per cent households reported their voluntary enrollment while remaining was not sure. The sources of information regarding the scheme were banks (36%) followed by media (28%), villagers (20%) and government's awareness programmes (4%) only.

**Table 5.1: Enrolment and Awareness**

Farmers	Heard of PMFBY		Availed any other insurance scheme		Insured in PMFBY			Insured because you had applied for loan		
	Yes	No	Yes	No	Yes	No	Unsure	Yes	No	Unsure
Loanee	93 (77.50)	27 (22.50)	9 (7.50)	111 (92.50)	25 (20.83)	0 (0.0)	95 (79.17)	25 (20.83)	0 (0.0)	95 (79.17)
Non-loanee	-	-	-	-	-	-	-	-	-	-

**Contd..... table 5.1**

Farmers	Voluntary enrollment under PMFBY		How did you know about PMFBY Scheme*					
	Yes	No	1	2	3	4	5	6
Loanee	65 (54.17)	55 (45.83)	4 (16.0)	0 (0.0)	0 (0.0)	5 (20.0)	9 (36.0)	7 (28.0)
Non-loanee	-	-	-	-	-	-	-	-

Source: Primary Survey.

Note: Figures in parenthesis are percentages to sample farmers.

\*Code: 1. Government awareness programs; 2. Insurance Company/Agent;  
3. Panchayat; 4. Other Villagers; 5. Others (Bank), 6. Media.

## 5.2 Insurance Details

There were four banks implementing this scheme in the study area (table 5.2). Of them, Banks of India (BoI) had covered 44 (36.67%) sample households followed by Regional Rural Bank (36 % Hhs), Allahabad Bank (20% Hhs) and Punjab National Bank (13.33% Hhs). Per loanee annual premium of farmer's share was found Rs. 1744.68, constituting Rs. 943.09 for kharif, 2016 and Rs. 801.59 for rabi 2016-17. Moreover, during field survey, no sample households were found to have received compensation from the insurers. In fact, they were quite desperate with the insurance agencies as well as procedures adopted for such claims and compensation.

**Table 5.2: Insurance details (per household)**

Name of Insured Crops	Name of Implementing Bank				Premiums (In Rs.)
	BOI	Allahabad Bank	PNB	Gramin Bank	
Loanee	44	24	16	36	943.09 (Kharif,16) 801.59 (Rabi,16-17)
Non-loanee	-	-	-	-	-
Total	44	24	16	36	1744.68

Source: Primary Survey.

Code: 1. Prevented sowing/planting due to deficit rainfall or adverse weather; 2. Yield loss (due to drought, dry spells, floods, pests and diseases etc.); 3. Post harvest losses (spoilage during storage); 4. Localized calamities such as cyclones, landslides etc.

### 5.3 Insurance Experiences

The details of experiences of the sample households with PMFBY are shown in table 5.3. Of the total sample households, 52.50 per cent reported that they were never insured in any of the earlier insurance schemes, 20.83 per cent were unable to comment and 26.66 per cent responded about the scheme. Of the respondent households, who opined, 22 (18.33%) said that the scheme was better than earlier schemes and 10 (8.33%) told that the scheme was same as any other scheme. It reveals their reluctance towards the programme particularly insurance schemes. It is also evident from the table that of the total sample households, 94.17 per cent said that despite loss of crops, they did not report to any of the authorities. It may be due to unawareness about the reporting place and concerned personnel as well. However, only 7 households reported to the concerned Banks.

**Table 5.3: Experiences**

Type of sample Farmers	Experience with PMFBY					Event of loss did you inform any authority		Whom did you inform (N=7)					
	Better than earlier schemes	Worse than earlier scheme	Same any other scheme	Never insured earlier	Cannot say	Yes	No	Insurance company	Bank	Local Govt. official	Toll free number	KVK officer	Others
Loanee	22 (18.33)	-	10 (8.33)	63 (52.50)	25 (20.83)	7 (5.83)	113 (94.17)	-	7 (100.00)	-	-	-	-
Non-loanee	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Primary Survey.

NB: Figures in brackets are percentages to sampled farmers.

### 5.4 Implementation

The information regarding the implementation of the programme is presented in table 5.4. The table reveals that out of the seven households, who had reported to the respective banks about their claims, 3 households did so within a period of one month and 4 households within a period of 3 months. Though the scheme operates on the basis of area approach for each notified crops and the claims are settled as per the CCEs data, however all the 7 households reported that no one paid visit to their farms during CCE. Besides, all the 120 Hhs were not aware of any yield assessment by way of CCE taking place in their villages or farms. They also felt that in the process of CCE or settlement of claims, there was no role of Panchayat. It is also revealed from the table that a majority of them (92.50%) were not satisfied with the implementation of the scheme.

**Table 5.4: Implementation**

Type of sample farmers	Event of loss did you inform how many days (N=7)				Did anyone visit your farm during CCE		Are you aware of any yield assessment of CCE taking place in village		Role of panchayat in process of claims		What was role of panchayat	Are you satisfied with the implementation PMFBY	
	Within 48 hours	Within 15 days	Within one month	Within 3 months	Yes	No	Yes	No	Yes	No		Yes	No
											Yes		
Loanee	-	-	3 (42.86)	4 (57.14)	-	7 (100.00)	-	120 (100.00)	-	120 (100.00)	-	9 (7.50)	111 (92.50)
Non-loanee	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Primary Survey.

NB: Figures in brackets are percentages to sampled farmers.

## 5.5 Suggestions

As already discussed, majority of the sample farm households were unaware about implementation of the programme. It is due to mandatory enrolment in the scheme. So, the survey tried to capture their suggestions for better implementation of the scheme. The suggestions given by them are shown in table 5.5. The first and foremost suggestion was extending awareness drives about the scheme (45%) followed by issuance of insurance paper by the bank or insurance company (26.67%), easing the process of compensating the loss (15%), opening of a claim redressal cell/help desk at block level (10%), deployment of field staff by insurance companies at district and block levels (7.5%) and continuance of deduction of premium despite zero balance in the loanee's bank accounts (1.67%). This may be continued based on of their repayment records.

**Table 5.5: Suggestions for further improvement of PMFBY**

Sl. No.	Suggestions	Loanee	Non-loanee
1	Loss and compensation process may be made easier, transparent and participatory.	18 (15.00)	-
2	Deduction of premium should be continued despite the zero balance – keeping the records of the borrowers / KCC holders.	2 (1.67)	-
3	There should be a cap on withdrawal from the A/c for deduction of premiums	2 (1.67)	-
4	Extending the Awareness about the PMFBY	54 (45.00)	-
5	Issuance of Insurance paper	32 (26.67)	-
6	Opening of a Claim cell / Help desk at Block level	12 (10.00)	-
7	Insurance companies should establish /open its offices at the district level & deploy the field staff across the blocks under the district.	9 (7.50)	-

Source: Primary Survey.

Note: Figures in brackets are percentages to sampled farmers.

## 5.6 Awareness of Control Farmers

The study has also covered 30 control farmers, who were not cover under the scheme. So, their awareness level and non-uptake behavior were required to be judged by their responses for wider coverage of the scheme. The related data are presented in table 5.6. The table indicates that of the total, 80 per cent did not hear about the scheme and those who heard were only 20 per cent. Their sources of information were villagers (13.33%) and media (6.67%). The data further revealed that they were not cover mainly due to their ignorance about the scheme (16.67%) and lack of contact with concerned (3.33%).



**Table 5.6: Awareness and non-uptake of Control Farmers**

	Have you heard of PMFBY (Yes/No)		If Yes, who informed you (Name of the source)		Why did you not enroll for PMFBY (up to 3 reasons)		
	Yes	No	Villagers	Media	Nobody contacted	Unknown about the process	Did not heard
Control Farmers	6 (20.00)	24 (80.00)	4 (13.33)	2 (6.67)	1 (3.33)	5 (16.67)	24 (80.00)

Source: Primary Survey.

Note: Figures in brackets are percentages to sampled farmers.

## CHAPTER – VI

### SUMMARY AND POLICY RECOMMENDATIONS

#### 6.1 Overview

PMFBY was launched by the Government of India to insure farmers against the vagaries of nature, at highly subsidized rates, starting from kharif season of 2016. The premium to be paid by farmers is just 2 per cent of the insured value for kharif crops and 1.5 per cent for rabi crops, whereas for annual commercial crops, it is @ 5 per cent. The remaining premium charged by the insurance companies is to be shared by the Centre and states on equal measure. PMFBY replaced the earlier NAIS and MNAIS. It is one of the World's largest crop insurance schemes, where all loanee farmers, who availed seasonal crop loans, are by default, included in the scheme. Other farmers are voluntarily included at the same premium rates. Risks like, crop loss due to climatic factors, damages from pests and diseases, post-harvest losses and localized calamities are covered under the scheme.

Till recently, the scheme operates on the basis of 'Area Approach' for each notified crop and insurance unit was village/village panchayat or any other equivalent unit for major crops and for other crops it may be a unit of higher size than village/village panchayat, to be decided by the states. However, it is interesting to mention that in the light of the demand by different sections of farmers, the Government of India has made some amendments in the provisions of PMFBY. With effect from 1<sup>st</sup> October, 2018 individual farms will be considered as insurance unit.

#### 6.2 Governance in the State

In Bihar, the state department of Co-operatives is the nodal department for implementation of PMFBY. The notified crops for kharif, 2016 & 2017 seasons were paddy and maize, which covered all districts of the state. Wheat, maize, gram, rai-mustard, potato and sugarcane crops were the notified crops for rabi, 2016-17; and in addition to these, recently lentil crop had also been included w.e.f., rabi, 2017-18 season. The insurance units for paddy (kharif) and wheat (rabi) crops are village/village panchayat and for all other notified crops, it is district.

- As per the guidelines of PMFBY, the Implementing Agency (IA) has classified the districts of the state in six clusters for kharif, 2016 & 2017 comprising six districts for four clusters and seven districts for two clusters and for each cluster one insurance company was designated to operate. These are Chola Mandalam GIC Ltd., AIC Ltd., SBI GIC Ltd., Tata AIG Ltd; AIC Ltd. and Bajaj Allianz GIC Ltd. respectively. For kharif, 2016 and for kharif, 2017, these were Bharti AXA GIC Ltd., AIC Ltd., Chola Mandalam GIC Ltd., Bharti AXA GIC Ltd., AIC Ltd., and AIC Ltd., respectively.

- Similarly for rabi 2016-17, the districts of the state were classified in three clusters, comprising 12 districts, 07 districts and 19 districts respectively. For each cluster, one insurance company was designated to operate. These insurance companies were: NIC Ltd., United India Insurance Co. Ltd., and NIC Ltd., respectively. In rabi 2017-18, the total districts in the state were classified in six clusters comprising 06 districts for 04 clusters and 07 districts for 02 clusters. For each cluster, one insurance company was authorized to operate. These insurance companies were: AIC Ltd., Bharti AXA GIC Ltd., United India Insurance Co. Ltd., Bharti AXA GIC Ltd., (for 02 clusters viz., III & IV) and United India Insurance Co. Ltd. respectively.

### **6.3 Implementation in the State (2016-17)**

- Total farmers insured under the scheme were 27,13,199 constituting 54.75 per cent in kharif, 2016 and 45.25 per cent in rabi 2016-17. Of the total insured farmers, 98.69 per cent were loanee and only 1.31 per cent non-loanee.
- Total area insured under the scheme was 24.65 lakh hectare, constituting 46.77 per cent in kharif, 2016 and 53.23 per cent in rabi, 2016-17.
- Average area insured per farmer was 0.908 hectare. For kharif 2016, it was 0.883 hectare and 0.939 hectare for rabi, 2016-17.
- Total sum insured was Rs 11724.98 crores, constituting 55.70 per cent in kharif, 2016 and 44.30 per cent in rabi, 2016-17.
- Average sum insured per farmer was Rs. 43215.
- Average sum insured per hectare was Rs. 47562.
- Total premium collected by insurance companies was Rs. 1420.91 crores, constituting 78.85 per cent in kharif, 2016 and 21.15 per cent in rabi, 2016-17.
- Total premium paid by the farmers was Rs. 203.90 crores, which accounted for 14.45 per cent of the total collected premium.
- Average premium paid by per farmer was Rs. 751.51.
- Total number of beneficiaries who claimed, was 2.23 lakh, constituting 67.87 per cent in kharif, 2016 and 32.17 per cent in rabi, 2016-17.
- Total amounts of claims were for Rs. 348.23 crores, constituting 83.10 per cent for kharif, 2016 and only 16.90 per cent for rabi, 2016-17.
- An average claim to premium ratio was 24.68 per cent. These were 26.02 per cent in kharif, 2016 and 19.72 per cent in rabi, 2016-17.
- Average amount of claim per farmer was Rs. 15601.

### **6.4 Survey Design**

After completion of one year of the implementation of PMFBY, the Ministry of Agriculture & Farmers Welfare, Government of India desired to have a performance evaluation of the program in September, 2017. Accordingly 09 AERCs/Us were assigned the task to study the same in their respective states under the co-ordination of CMA, IIM-Ahmedabad with the following specific objectives:

- i. To assess the status of PMFBY implementation for both kharif and rabi seasons in 2016-17, and;
- ii. Study the characteristics of farming households that are beneficiaries of PMFBY (both loanee and non-loanee), and to assess the factors that can lead to better uptake of crop insurance.

The first objective was addressed using secondary data and primary information based on one year data i.e., 2016-17. The second objective relied on primary survey with the help of a duly structured schedule administered on 150 sample farm households distributed equally across three sample districts; categorized as high, medium and low uptake districts. These districts are Samastipur, Jamui and Saharsa respectively and from each district, 40 loanee insured farmers and 10 non-insured farmers (as control group) were randomly selected from the available list of insured-loanee farmers and non-insured farmers respectively. The reference period was kharif, 2016 and rabi, 2016-17. PMFBY profile of sample districts is as below:

**Table 6.1: PMFBY Profile of Sample Districts**

SN	Particulars	Name of the Districts		
		Samastipur	Jamui	Saharsa
<b>Kharif, 2016</b>				
i.	No. of loanee insured farmers	141266 (99.91)	61392 (99.86)	9249 (99.64)
ii.	No. of Non-loanee insured farmers	127 (0.09)	86 (0.14)	33 (0.36)
iii.	Total No. of insured farmers	141393 (100.00)	61478 (100.00)	9282 (100.00)
iv.	Avg. Area insured per farmer (ha)	0.712	1.002	0.868
v.	Avg. Sum insured per farmer s (Rs.,)	31718	47596	37700
vi.	Avg. Sum insured per hectare (Rs.)	44549	47497	43406
vii.	Avg. premium paid per farmer (Rs.)	8289.21	12112.44	4652.70
viii.	Total amount of registered claims (In lakh Rs.)	2587.84	0.00	605.03
ix.	Total number of Beneficiary	8606	0.00	4631
x.	Avg. amount of claim per farmer (Rs.)	30070.18	0.00	13064.78
xi.	Claims-to-premium ratio (%)	22.08	---	140.12
<b>Rabi, 2016-17</b>				
i.	No. of loanee insured farmers	122326 (100.00)	61537 (100.00)	7296 (100.00)
ii.	No. of Non-loanee insured farmers	0.00	0.00	0.00
iii.	Total number of insured farmers	122326 (100.00)	61537 (100.00)	7296 (100.00)
iv.	Avg. area insured per farmer (ha)	0.656	0.981	0.841
v.	Avg. sum insured per farmer (Rs.)	33721	45086	35234
vi.	Avg. sum insured per hectare (Rs.)	51363	45937	41884
vii.	Avg. premium paid per farmers (Rs.)	688.29	7736.78	2798.66
viii.	Total amount of registered claims (In lakh Rs.)	127.19	7.10	160.72
ix.	Total number of beneficiary	3122	138	2114
x.	Avg. Amount of claim per farmer (Rs.)	4074	5144.93	7602.65
xi.	Claims-to-premium ratio (%)	15.10	0.15	78.71

Combined (Kharif, 2016 + Rabi, 2016-17)				
i.	No. of loanee insured farmers	263592 (99.95)	122929 (99.93)	16545 (99.80)
ii.	No. of non-loanee insured farmers	127 (0.05)	86 (0.07)	33 (0.20)
iii.	Total number of insured farmers	263719	123015	16578
iv.	Avg. area insured per farmer (ha)	0.686	0.991	0.856
v.	Avg. sum insured per farmer (Rs.)	32647	46340	36615
vi.	Avg. sum insured per hectare (Rs.)	47573	46724	42748
vii.	Avg. Premium paid per farmers (Rs.)	4763.52	9923.56	3836.35
viii.	Total amount of registered claims (In lakh Rs.)	2715.03	7.10	765.75
ix.	Total number of beneficiary	11728	138	6745
x.	Avg. Amount of claim per farmer (Rs.)	23150.0	5144.93	11352.85
xi.	Claims-to-premium ratio (%)	21.61	0.06	120.40

Note: Compiled by Author on the basis of data made available by the Department of Co-operatives, Govt. of Bihar.

In brackets percentage figure is shown.

## 6.5 Farm Level Characteristics

Followings are the overview of surveyed farmers:

- Per household land owned by loanee insured households was 2.25 acres, while for non-insured households, it was 1.80 acres.
- Per household net operated area (NOA) for loanee-insured sample farm households was 2.65 acres, while for non-insured sample households, it was 2.22 acres.
- Bore well was the major source of irrigation for loanee-insured sample households (66.67%) and 73.33 per cent for non-insured sample households.
- Sample households, irrespective of loanee-insured or non-insured largely grew paddy in kharif; wheat, maize, pulses, oilseeds, vegetables etc. in rabi and maize, moong in zaid seasons.
- Cropping intensities were 148.9 per cent and 144 per cent in case of loanee-insured households and non-insured households respectively.
- Per farm annual value of total production for loanee-insured households was estimated at Rs. 72715.27, while for non-insured households, it was Rs. 52081.67.

## 6.6 Insurance Behaviour

### 6.6.1. The perceptions about the crop insurance and experiences with PMFBY of the surveyed uptake households are:

- Nearly 77.50 per cent sample households heard about the PMFBY.
- 7.50 per cent sample households availed other insurance schemes prior to the PMFBY.
- 20.58 per cent sample households were sure about uptake of PMFBY.
- 20.83 per cent sample households were insured by default under PMFBY.
- 54.17 per cent sample households did get voluntarily covered under PMFBY.
- 36 per cent sample households reported that they had been informed about PMFBY by the concerned Banks followed by media (28%), villagers (20%), and through government awareness programmes (16%).

- Of the total insured households, 44 households (36.67%) were covered by Bank of India, followed by 36 households (30%) by Kshetriya Gramin Banks, 24 households (20%) by Allahabad Bank and 16 households (13.33%) by Punjab National Bank.
- Per household average annual premium was found Rs. 1744.68 in the year 2016-17. It was Rs 943.09 (54.06%) for kharif, 2016 and Rs. 801.59 (45.94%) for Rabi, 2016-17.
- 52.50 per cent of the sample households never got insured earlier, 20.83 per cent sample households could not say, 18.33 per cent sample households said that PMFBY was better than earlier schemes and 8.33 per cent sample households said that PMFBY was the same as any other farm insurance schemes implemented earlier.
- Only 5.83 per cent sample households said that they had reported to the authorities in the event of losses and they informed to the concerned Banks only.
- Nearly 42.86 per cent of loss incurred to sample households and they claimed about the event of loss within one month, while 57.14 per cent reported within three months.
- No one have paid visit to the loss-claimant sample households in their farms for CCE.
- All the sample households were unaware of any yield assessment through CCE method that took place in their respective villages.
- All the sample households reported that there was no role of panchayats in the process of claims.
- Only 7.50 per cent sample households were satisfied with the implementation of PMFBY.

#### **6.6.2 The perceptions about PMFBY of surveyed non-uptake households are:**

- 80 per cent of sample households did not hear of PMFBY.
- Those who heard (20%), were informed by villagers (13.33%) and media sources (6.67%).

#### **6.7 Policy Recommendations**

On the basis of suggestions obtained from the surveyed households, discussions with other stakeholders and field observations/perceptions, followings are suggested for policy interventions:

- i. An average claims-to-premium ratio for all the districts combined in the year 2016-17 was 24.68 per cent. But in some districts (04 districts in kharif, 2016 and 02 districts in rabi, 2016-17), it was more than 100 per cent. Under such circumstances also, farmers must not be left to suffer.
- ii. The awareness at the insurance level is extremely poor at different stages of its implementation i.e., right from its enrolment, CCEs, processing and settlement of claims to other stages. So a help desk (to be jointly ventured by the IA and Insurer) at least at the Block/Tehsil level should be constituted before long apart from undertaking massive awareness campaign.
- iii. Bataidari (50:50) and oral patta (cash or grain) are common practices of farming in the state. These share croppers or tenant farmers mostly belonging to lower social

and economic strata and got involved without enrolment in PMFBY, whereas the real land owners only are covered under the scheme. So, in case of any loss, the compensation in the form of claims directly benefits the land owners and not the real sufferers. So, exclusion of tenant farmers is required to be reverted by legalizing share cropping/tenancy farming for wider coverage under the programme by the state government.

- iv. Damages caused by wild animals (like blue bulls, boars etc.), fire, long cold spell (>10 days of below normal temperatures) and frost to crops should also be considered at individual or group of individual's farm level.
- v. Involvement of panchayat need to be effectively ensured by involving PRIs at different stages of implementation of PMFBY in general, and at CCEs level in particular.
- vi. Capacity building of functionaries with standard protocol for development of technology and usage should be necessarily and urgently devised for successful implementation of the program.
- vii. SLCC and DLMC should be regularly involved in implementation of the programme including in assessment of damages, CCEs, claims and compensation process at least on random basis so that justice to the sufferers could be appropriately and timely provided.
- viii. In majority of the cases, it was found that enrolled farmers were not aware about their enrolment covered mainly due to non-issuance of insurance bond paper. It should be issued among the insured farmers with their folio/unique ID numbers for further implications.
- ix. There is need of close co-ordination between the Agriculture Department and the Nodal agency for implementation of the programme (in case of Bihar, the IA is Department of Co-operatives) for minimizing the risks in cultivation and maximizing necessary investments (such as in irrigation, quality of inputs and cash contingent grant, etc.).
- x. Disbursal in totality should be in camp mode for winning the confidence of the farmers and hassle free implementation of the programme.
- xi. Sharing of data is also very essential so as to make this ambitious scheme in more effective.
- xii. Since PMFBY is a marvelous, unique and credible agricultural insurance scheme after Independence with its underlying assumptions that the scheme would encourage farmers to positively change their farming practices, so to make it more transparent, effective, time bound and get rid of procedural complexities, there is need to follow the approach of 'files to crops and offices to farmers' (fileon se fasal aur karayalaya se kisan tak).

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## Comments on the Draft Report

**Performance Evaluation of PMFBY (Pradhan Mantri Fasal Bima Yojana) in Bihar**Overall Comments

The draft report submitted by The Agro-Economic Research Centre (AERC) of Bihar and Jharkhand, titled ‘Performance Evaluation of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Bihar’ makes a detailed district wise assessment of PMFBY in the year 2016-17. The first part analyses crucial parameters district-wise such as the number of farmers enrolled, the sum insured, area insured, premiums collected and pay-outs. It also provides a comprehensive view of how the whole scheme is implemented and governed by different stakeholders. The methodology includes secondary departmental and company data, interviews and field observations. The second part tries to analyse the factors that help in a greater uptake of crop insurance. This is based on a primary survey of sampled farmers across three districts and splitting the sample into insured and non-insured farmers to provide a better comparison of variances in farmer’s choices. There are some very minor suggestions that can help the report improve. Otherwise, overall the report is a very valuable contribution to the understanding of crop insurance and we highly recommend it’s publication.

Minor Suggestions

- The report should be proof-read once again and spelling mistakes could be addressed along with a few basic grammatical mistakes.
- In the report, the full forms of the abbreviations should be mentioned in brackets at least for the first reference. Some of the full forms are not mentioned.
- Please ensure uniformity in font size and font style of the data in the table and the rest of the text of the document. Please consider doing so for other tables as well.
- Kindly ensure that the tables are formatted properly. Further, source and note must be added at the end in proper fonts. Anything mentioned under the table other than the source must be addressed as Note (An example is given in the table in the Executive Summary).
- Sources of some of the tables are missing. Kindly ensure that they are added.
- There should be uniformity in the style in which figures (Numbers & values) are mentioned. Bigger figures should be converted in multiples of thousands or lakhs.
- It would be better if the explanation of the tables is given in bullets, which will make it easier to understand.
- Repetition must be avoided (For example, the launch, objectives etc. of the Scheme have been mentioned more than once).
- A few points must be considered for detailed explanation (For example Page 40, suggestions, first line). Kindly check the same.

The overall report is good and includes many parts which are highly appreciable.

Sd/-  
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**Action Taken Report (ATR)**

1. Title of the Study : **Performance Evaluation of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Bihar**
2. Date of Dispatch of the Draft Report : 11/10/2018
3. Date of Receipt of the Comments : 18/11/2018
4. Date of Dispatch of the Final Report : 08/12/2018
5. Overall Comments : No action is required.
6. Major Suggestions : Corrections made as per the suggestions.

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