



Assessment of Awareness, Adoption Behavior and Impact of the Crop Insurance Scheme (PMFBY) in Kangra District of Himachal Pradesh

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Abstract: Agriculture is inherently fraught with numerous risks that directly impact farmers' livelihoods. To address these challenges, crop insurance stands out as a crucial institutional mechanism. Acknowledging its significance in risk management, this paper seeks to evaluate the impact of the Pradhan Mantri Fasal Bima Yojana (PMFBY) on farmers' livelihood status. Furthermore, the study aims to assess the level of awareness among farmers and to identify the factors influencing their decisions to purchase crop insurance. The primary data was gathered from 120 farmers in the Kangra district of Himachal Pradesh, comprising 60 beneficiaries and 60 non-beneficiaries, through a simple random sampling technique. The beneficiaries were further categorized into two groups; claimholders and non-claimholders. An analysis using the livelihood framework revealed that beneficiaries enjoyed a better standing in terms of social, financial, and human asset status compared to non-beneficiaries. The findings indicate a significantly lower level of awareness regarding the scheme among non-beneficiaries when compared to beneficiaries. Moreover, factors such as landholding size, income level, awareness of the scheme, and contact with extension agents emerged as pivotal influences on the adoption of PMFBY. In light of these findings, it is recommended that policymakers and stakeholders prioritize efforts to enhance awareness and outreach regarding crop insurance, particularly targeting farmers with smaller landholdings and lower incomes. Additionally, bolstering the engagement of extension agents is essential for promoting the adoption of PMFBY, thereby improving the overall livelihood status of farmers.

Key words: Crop insurance, Pradhan Mantri Fasal Bima Yojana (PMFBY), Adaptation strategy, Livelihood framework, Sustainability.

India's economy heavily relies on agriculture, which provides gainful employment opportunities for a significant portion of the population, particularly in rural areas (Ramakrishna *et al.*, 2021). The agricultural sector accounted for a substantial 18.30% of gross value added (GVA) during 2022-23 (Economic Survey, 2022-23). However, this sector is inherently risky due to its dependence on monsoon, along with various other risks,

such as pests, diseases, and the availability and quality of seeds, fertilizers, and pesticides, all of which significantly affect production and farm income (Birthal *et al.*, 2017; Nagesh, 2019). As a result, this leads to several unfavorable outcomes for the economy, including farmers exiting the sector for their survival, decreasing GDP contributions from agriculture, rising unemployment, and increased poverty.

The agricultural sector faces a multitude of challenges, including crop failures, unprofitable crop pricing, a lack of knowledge about risk mitigation strategies, technological inadequacies, and significant financial losses due to yield damages from weather fluctuations (FICCI, 2018). In response, the government has implemented various measures aimed at reducing risks and providing flexibility in agriculture, such as crop diversification, mixed cropping, drought-resistant varieties, and watershed improvement. Additionally, price support through market intervention and futures trading has helped stabilize prices and mitigate volatility. Initiatives from the India Meteorological Department (IMD) and the Indian Council of Agricultural Research (ICAR), including weather-based Agromet Advisory Services (AAS), offer crucial advisories that assist farmers in adjusting their operations based on forecasted weather, thereby reducing risks and enhancing resource utilization, yield quality, and income (Dupdal *et al.*, 2020).

Amid these efforts, crop insurance emerges as a vital strategy capable of protecting farmers from various production losses (Rao, 2002). A well-structured crop insurance program can serve as an effective tool by providing monetary assistance to farmers in the event of crop failure. This not only stabilizes their incomes but also ensures access to credit, encouraging farmers to innovate and adopt advanced agricultural technologies. In India, various crop insurance schemes have been introduced, including the Comprehensive Crop Insurance Scheme (CCIS) in 1985, the National Agricultural Insurance Scheme (NAIS) in 1999-2000, the Weather Based Crop Insurance Scheme (WBCIS) in 2011, and the Modified National Agriculture Insurance Scheme (MNAIS) in 2011. Acknowledging the need for further improvements, the government launched the Pradhan Mantri Fasal Bima Yojana (PMFBY) in 2016 to address the limitations of these earlier crop insurance programs. PMFBY

is recognized as one of the world's largest crop insurance programs intended to protect farmers and provide financial assistance in the event of crop damage (Bhushan and Kumar, 2017). The scheme provides coverage for all field and oilseed crops, along with annual commercial and horticultural crops. Under PMFBY, farmers are required to pay a maximum premium of 2% for kharif crops, 1.5% for rabi crops, and 5% for annual horticultural crops. This new program addresses a range of crop loss concerns, including post-harvest losses, localized disasters, delayed sowing, and damages to standing crops (from sowing to harvesting). Initially, participation in the program was mandatory for loanee farmers and optional for non-loanee farmers; however, as of kharif 2020, it is now optional for all farmers (Tiwari *et al.*, 2020).

In Himachal Pradesh, where farmers grapple with frequent floods, hailstorms, cloudbursts, and unpredictable snowfall, the PMFBY scheme has shown itself to be a vital shield against these challenges, offering a robust solution to safeguard farmers and enhance their livelihoods. This study employs a holistic livelihood framework analysis, encompassing human, social, natural, physical, and financial capital, to unravel the intricate dynamics of livelihood sustainability. Numerous studies have assessed the effectiveness of PMFBY at both the national level (Panigrahi, 2018; Yadav *et al.*, 2019; Marvadi and Chauhan, 2020; Kumar *et al.*, 2020) and the state level (Kalia *et al.*, 2018); however, few have concentrated on how the program affects the livelihood status of farmers. Therefore, this brief endeavour aims to assess the livelihood impact of the Pradhan Mantri Fasal Bima Yojana on farmers. Additionally, the study seeks to evaluate the level of awareness among farmers regarding the scheme and analyse their adoption behaviour. Through these efforts, the study aims to deepen our understanding of how PMFBY influences farmer livelihoods and enhances agricultural risk management.

Materials and Methods

The present study was carried out in the Kangra district of Himachal Pradesh. The Kangra district was selected purposively. The district comprised five development blocks, out of which two development blocks viz. Bhawarna and Nagrota were randomly

Table 1. Livelihood framework analysis with components and indicators

Component	Livelihood Indicator
Human capital	• Average family size • Literacy rate • Work participation rate • Skills (Risk management, Crop management, Technology utilization)
Natural capital	• Ownership of land for agriculture • Availability of clean water for human and livestock • Adequate water for irrigation • Ability to purchase land • Good soil fertility
Financial capital	• Monthly income >30000/month (Gross income) • Saving >5000/month • Access to agricultural credit from institutional sources
Physical capital	• Availability of concrete house • Availability of regular electricity • Availability of LPG • Availability of toilets
Social capital	• Participation in agricultural extension/ training programmes • Access to agriculture information • Awareness regarding various Governmental policies • Awareness regarding agricultural insurance policies

selected for the study because of highest number of beneficiary farmers and highest claim settlements during the year 2019-20 under PMFBY. In consultation with the agriculture department and bank branches from the selected blocks, a list of beneficiaries and non-beneficiaries was compiled. The study included 120 respondents, with an equal distribution of 60 beneficiaries and 60 non-beneficiaries of PMFBY, selected using a simple random sampling technique. Among the insured farmers, 20% were claim holders, while 80% were non-claim holders. Beneficiaries of the PMFBY are farmers who have purchased insurance, while non-beneficiaries are farmers who have not purchased insurance. Following this, the insured farmers (Beneficiaries) were divided into two groups: claim-holders and non-claim holders. To achieve the study's objectives, primary data was collected from 2022 to 2023. A carefully designed questionnaire was employed to conduct personal interviews, encompassing a range of topics including socio-economic background, land use practices, livestock ownership, crop distribution, and farmers' familiarity with the Pradhan Mantri Fasal Bima Yojana (PMFBY). Moreover, the questionnaire probed the various factors influencing the adoption of PMFBY among the farmers.

Livelihood framework analysis technique:

In this study, a livelihood framework analysis was employed to assess the livelihood status of both insured and uninsured farmers. The analysis focused on evaluating five key livelihood assets: human capital, financial asset, social asset, natural asset and physical asset. By utilizing various indicators within these assets, including factors such as education levels, income, social networks, land ownership and environmental resources, a comprehensive understanding of the farmers' livelihoods was achieved. Weighted scores were allocated to each sub-variable within these indicators to analyze the category-wise variation in livelihood assets. This approach facilitated a detailed exploration of the factors influencing the livelihoods of both insured and uninsured farmers, providing valuable insights into their respective circumstances and vulnerabilities. Table 1 presents the components of the livelihood framework.

To analyze variations in livelihood assets across different farm categories, a consolidated assessment was conducted. This involved evaluating physical, social, political, human, financial, and natural capitals, using weighted scores assigned to each sub-variable or indicator within these categories.

Adoption behaviour of PMFBY: To evaluate the effectiveness of PMFBY, understanding the drivers behind farmers' decisions to participate in PMFBY is crucial. Key aspects like farming experience, family income, credit accessibility, and engagement with agriculture extension agents were examined. A Binary Logit Regression Model was used to determine the factors that influence farmer's willingness to participate in the crop insurance scheme. The cumulative logistic probability model is specified as:

$$\ln(P_i / 1 - P_i) = \beta_0 + \beta_1 X_1 + \dots + \beta_i X_i + e_i$$

where, P_i = Probability of farmer's adoption of agricultural insurance

$1 - P_i$ = Probability of farmer's not adopting agricultural insurance

β_0 = Intercept

Regression coefficients = β_i (1, 2, 3...7)

Independent variables = X_i (1, 2, 3...7)

$\ln(P_i / 1 - P_i)$ = in log-odds ratio

e_i = Error term

For this study, the above equation is expressed as

$$WTI = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + u_i$$

where, WTI = Willingness of the respondents to take insurance (1 if yes, 0 if no), X_1 = Literacy rate, X_2 = Farming experience, X_3 = Family size, X_4 = Landholding size, X_5 = Farm income (Rs./Farm), X_6 = Non-Farm income (Rs./Farm), X_7 = Accessibility to credit (if, yes=1 or no=0), u_i = Error

Results and Discussion

The study employed a comprehensive indicator framework approach to compute the livelihood capital index for farmers, drawing upon the sustainable livelihood framework. This index encompasses five key components: Natural, physical, human, financial, and social capital, each comprising various contributing indicators. Through the construction of an integrated index comprising these five capitals, the livelihoods of farmers was assessed comprehensively. Weighted scores were assigned to facilitate comparison and offer a nuanced understanding of the relative significance of each capital in shaping farmers' livelihood as shown in Figures 1 to 5.

Human Capital: Human capital encompasses a range of attributes including knowledge, health, skills, abilities and other inherent qualities possessed by workers (Tong *et al.*, 2024). Typically, human capital is assessed in terms of both quantity and quality (Pandey *et al.*, 2017), with each dimension potentially influencing farmers' behavioural choices and decisions. Variations in human capital indicate that claim holder farmers demonstrate a superior status compared to non-claim holders and non-beneficiaries, as illustrated in Fig. 1. This figure is based on weighted scores assigned to each category, reflecting farmers' responses: 1 for low, 2 for medium and 3 for high values. This discrepancy arises from the extensive skill development and training provided to beneficiaries, facilitated by their increased interaction with extension agents. Additionally, claim holders demonstrate higher literacy rates, rendering them more open to novel concepts and early adoption of programs like PMFBY.

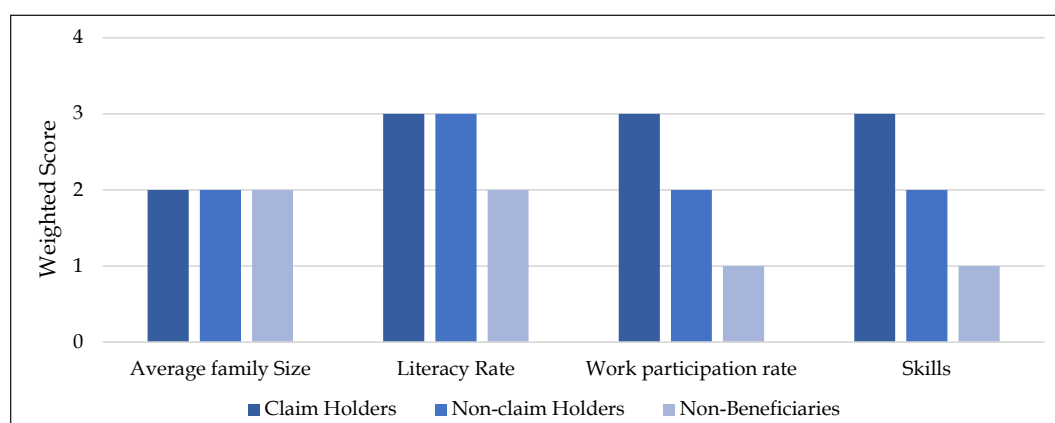


Fig.1. Status of human assets among sampled households (%).

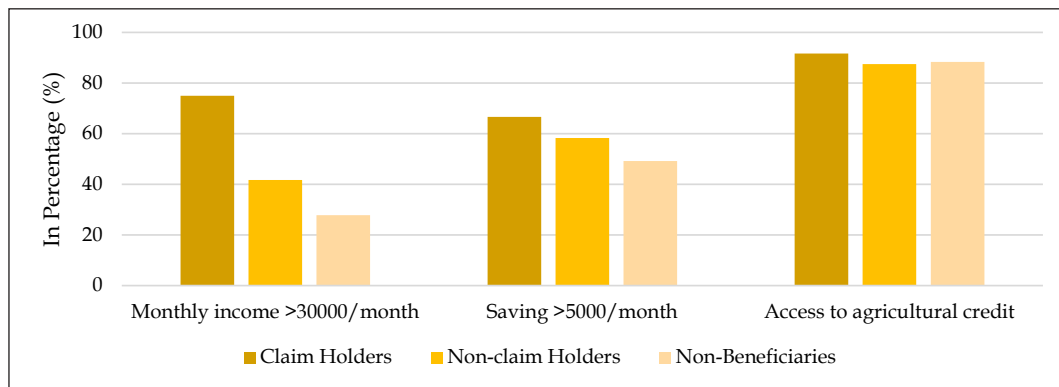


Fig. 2 Status of financial assets among sampled households (%).

Financial capital: Financial capital primarily encompasses the funds and loans available to farmers reflecting both the quantity and utility of their economic resources. Income stands out as the most pivotal component of financial capital for farmers, encompassing earnings from both agricultural and non-farm activities, serving as a barometer of livelihood quality and consumption capacity (Kuang *et al.*, 2019). The criteria of monthly income >Rs. 30,000 and savings >Rs. 5,000/month were established based on average responses from farmers in the study area, providing relevant benchmarks for comparing insured and non-insured farmers. The beneficiaries with claims had better financial standing than beneficiaries without claims and uninsured farmers as shown in Fig. 2. Furthermore, compared to non-beneficiaries, beneficiaries had easier access to agricultural loans.

Natural capital: Natural capital includes water, soil, animals and ecological resources which are important assets for survival. In other words, natural capital comprises all the

assets naturally occurring in the environment (Ellis, 2000). The variation in the natural capital status of farmers who are insured and non-insured is presented in Fig. 3 and revealed that there were not many differences between the natural asset status among various categories of farmers. However, the natural capital status of beneficiaries and non-beneficiaries in irrigation facilities and soil assets, however, was slightly differed.

Physical capital: Physical capital typically encompasses agricultural machinery, infrastructure, various facilities, equipment, and network conditions crucial for agricultural production (Kataria *et al.*, 2012). The various indicators used in this study included ownership of a house, availability of a concrete house, transport facilities, regular electricity supply, availability of LPG (liquefied petroleum gas), ownership of a vehicle and access to improved transport facilities, as detailed in Fig. 4. All households in the study area owned their houses, with a significant proportion having concrete houses. Access to banking

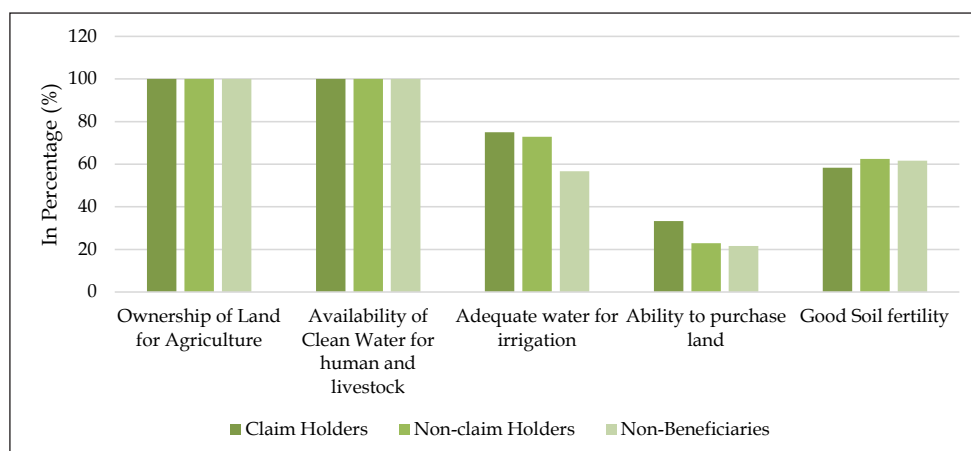


Fig.3. Status of natural assets among sampled households (%).

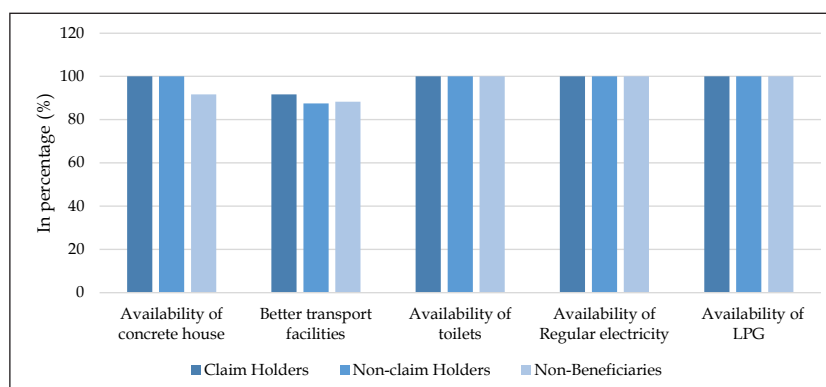


Fig.4. Status of physical assets among sampled households (%).

institutions was widespread among claim holders, followed closely by non-beneficiaries and non-claim holders. Additionally, regular electricity supply and availability of LPG were universally accessible among households in the study area. Overall, these findings suggest a relatively stable infrastructure base and access to essential services among farmers in Kangra district.

Social capital: Social capital refers to the social resources utilized by local communities

Table 2 Status of different assets among farmers (In numbers)

Financial capital	Beneficiaries		Non-Beneficiaries (60)
	Claim Holders (12)	Non-claim Holders (40)	
Monthly income >30000/month	9 (75.00)	20 (41.67)	17 (27.86)
Saving >5000/month	8 (66.66)	28 (58.33)	30 (49.18)
Access to agricultural credit from institutional sources	9 (75.00)	20 (41.67)	17 (27.86)
Natural capital			
Ownership of Land for Agriculture	12 (100.00)	48 (100.00)	60 (100.00)
Availability of Clean Water for human and livestock	12 (100.00)	48 (100.00)	60 (100.00)
Adequate water for irrigation	9 (75.00)	35 (72.92)	34 (56.67)
Ability to purchase land	4 (33.33)	11 (22.91)	13 (21.67)
Good Soil fertility	7 (58.33)	30 (62.50)	37 (61.67)
Physical capital			
Availability of concrete house	12 (100.00)	48 (100.00)	55 (91.66)
Better transport facilities	11 (91.67)	42 (87.50)	53 (88.34)
Availability of toilets	12 (100.00)	48 (100.00)	60 (100.00)
Availability of Regular electricity	12 (100.00)	48 (100.00)	60 (100.00)
Availability of LPG	12 (100.00)	48 (100.00)	60 (100.00)
Social capital			
Participation in Agriculture extension/ training programmes	11 (91.67)	26 (54.17)	20 (33.33)
Awareness regarding agriculture information	7 (58.33)	29 (50.14)	16 (26.67)
Awareness regarding various Governmental policies	9 (75.00)	27 (56.25)	25 (41.67)
Awareness regarding agricultural insurance policies	8 (66.67)	32 (66.67)	28 (46.67)

Figures in the parentheses represent the percentage to the total (20% of total 60 farmers were claim holders i.e.12 numbers and 80% of total 60 farmers non-claim holders 48 numbers). Non-beneficiaries were 60 farmers.

in their pursuit of livelihood objectives. As illustrated in Fig. 4, beneficiaries demonstrated a greater propensity to participate in agricultural extension and training programs, have access to agricultural information and be aware of different government and insurance policies than non-beneficiaries.

The analysis further revealed that beneficiaries were more likely to engage in agricultural extension and training programs, had improved access to agricultural information,

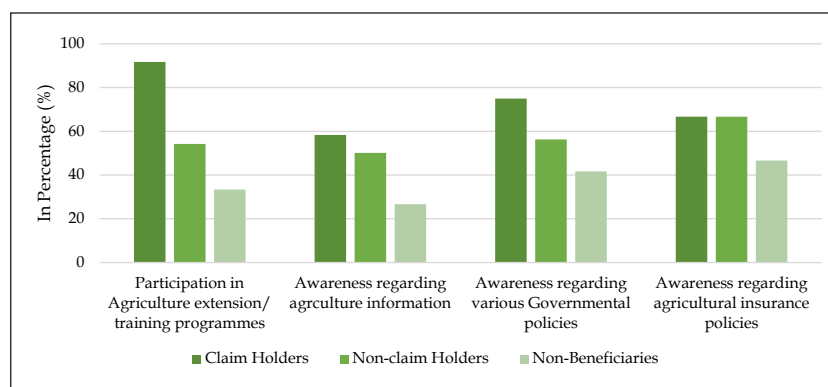


Fig. 5. Status of social assets among sampled households (%).

Table 3. Variation in assets and capital status among farmers

Assets	Claim holders	Non-claim holders	Non-beneficiaries
Physical	2.20	2.20	2.00
Natural	3.00	2.80	2.60
Social	2.25	1.75	1.00
Human	2.75	2.25	1.50
Financial	2.50	2.00	1.50

and demonstrated greater awareness of agricultural insurance policies compared to non-beneficiaries. The Table 2 provides a comprehensive overview of various assets among farmers, categorized into financial, natural, physical and social capital.

Comparison of five livelihood capitals among different categories: Figure 6 presents the comparative analysis of five livelihood capitals: physical, natural, social, human, and financial assets, conducted among both beneficiaries and non-beneficiaries utilizing weighted scores. The results indicated that claim holders outperformed non-claim holders and non-beneficiary farmers in terms of asset levels.

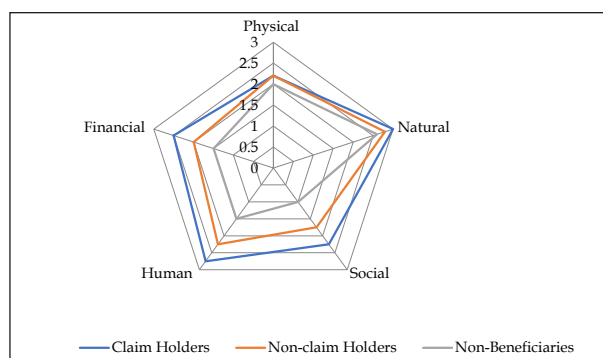


Fig. 6. Inter-farm variations in assets/capitals level among sampled households.

Physical and natural capital assets status was essentially the same across all of the categories. Yet, there were notable differences across the various categories of farmers in terms of their financial, social and human resources. Due to higher income and savings, claim holders were found to be in a better financial position than non-claim holders and non-beneficiary farmers. Since they had stronger infrastructure as a result of the implementation of PMFBY, claim holders were also found to be wealthier in tangible assets than non-claim holders and non-beneficiary farmers. Claim-holders have demonstrated the considerable effects of training, social awareness campaigns and extension initiatives.

Level of awareness of farmers towards PMFBY: The study aimed to assess the extent of awareness about the scheme among its beneficiaries and non-beneficiaries. Table 4 presents the awareness levels within these groups. Banks and the agriculture department were the primary sources of information regarding the scheme. A significant proportion of beneficiaries had availed Kisan Credit Card (KCC) loans, as enrollment in the scheme was mandatory for loanee farmers before the 2019-20 period. The findings indicated that non-beneficiaries had a considerably lower level of awareness about the scheme compared to beneficiaries. Similarly, fewer non-claim holders were aware of the scheme, as it was initially compulsory for farmers who had Kisan Credit Card (KCC). Many farmers were automatically enrolled by banks under the scheme, so some farmers were unaware about their coverage under the scheme and its modalities. The analysis revealed that 75% of beneficiaries had awareness of the Pradhan Mantri Fasal Bima Yojana, whereas only 50% of non-

Table 4. Awareness level of respondents about PMFBY (%)

Statements on awareness	Beneficiaries			Non - beneficiaries
	Claim holders	Non-claim holders	Overall	
Are you aware regarding PMFBY	100	68.75	75.00	50.00
The agencies implementing the PMFBY	100	64.58	71.67	41.67
Crops covered under the PMFBY	100	70.83	76.66	33.33
Sources helping in getting information regarding the scheme	100	64.58	71.67	26.67
Whether this scheme can help in increase of production	100	72.92	78.33	21.67
About farmers having their land can get the benefit of PMFBY	100	81.25	85.00	25.00
Premium to be paid	100	64.58	71.67	53.33
Procedure for insuring crops	100	52.08	61.67	36.67
Regarding agency paying compensation	100	41.67	53.33	28.33
Risk covered are natural fire/ lightening/ storm/ cyclone/ flood/ draught	100	58.33	66.67	36.67
Reporting period of crop loss for claim within 14 days	100	52.08	61.67	36.67
In case of crop loss, farmers can report to the concerned patwari/ bank	100	58.33	66.67	15.00

beneficiaries were familiar with the scheme. This limited awareness was a significant reason for the non-adoption of the scheme. among non-beneficiaries. Delving deeper, among beneficiaries, a substantial 71.67% were well-informed about their premium amounts, whereas a mere 46.67% of non-beneficiaries possessed such knowledge.

Moreover, procedural formalities were known by a notable 61.67% of insured farmers, whereas only 36.67% of non-beneficiaries were acquainted with them. A greater proportion of claim-holders (71.67%) were aware of the insurance agencies and bank branches involved in PMFBY for seeking compensation compared to non-claim holders (41.67%). Awareness of

the various risks covered under the scheme was highest among claim-holders (100%), followed by non-claim holders (58.33%) and non-beneficiaries (36.67%). Moreover, most claim-holders among beneficiaries were well-informed about the procedure for filing a claim in case of crop loss, whereas this knowledge was relatively lower among non-claim holders and non-beneficiaries. These findings are in line with studies conducted by Meena *et al.*, 2022; Ghanghas, 2018; Rao, 2020.

To measure the overall awareness among farmers regarding PMFBY, they were classified into three main categories: significantly aware, moderately aware, and unaware, as depicted in Figure 6. Among beneficiary farmers, 53.34%

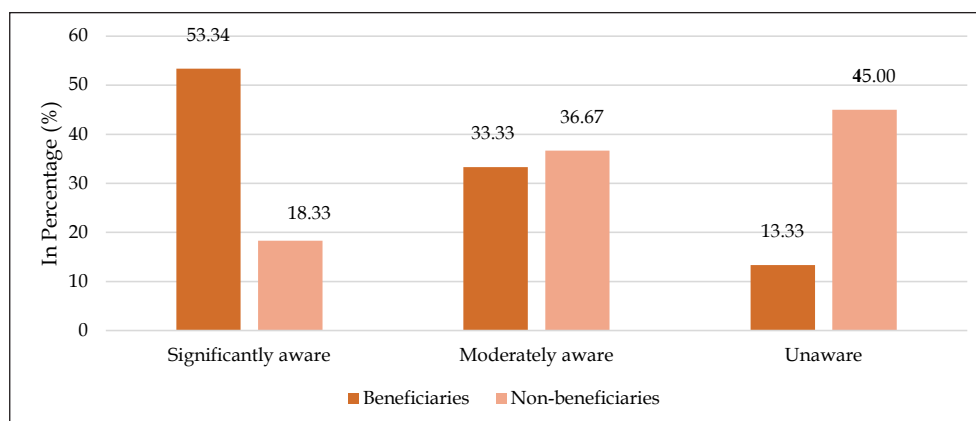


Fig. 6. Overall awareness status of respondents about PMFBY (%).

Table 5. Results of Logit model showing factors affecting adoption of PMFBY

Particulars	Coefficients	Standard error
Constant	-1.06	1.12
Farming experience	-0.01	0.02
Landholding size (ha)	1.01***	0.52
Family size	0.07	0.14
Farm income	$7.58 \times 10^{-06**}$	3.14×10^{-06}
Non-farm income	$-4.03 \times 10^{-06**}$	1.86×10^{-06}
Accessibility to credit	0.03	0.48
Awareness regarding scheme	1.85*	0.46
Contact with agricultural extension agents	1.1**	0.51

*, ** and *** represents significant at 1, 5 and 10% level respectively.

showed significant awareness regarding the scheme, while 33.33% demonstrated moderate awareness and 13.33% were unaware of its modalities. Conversely, among non-beneficiary farmers, 45% were unaware, followed by 36.67% farmers were moderately aware and 18.33% significantly aware of PMFBY.

Factors affecting adoption of PMFBY:

Farmers' response to government schemes, including crop insurance like PMFBY, is influenced by various socio-economic and social factors. These factors include family size, farm income, farming experience, landholding size, access to credit, use of alternative risk mechanisms, awareness of the scheme, contact with agricultural extension agents, extent of irrigation, age, and subsidiary occupation. To understand the impact of these factors on farmer's adoption of PMFBY, a binary logistic regression model was employed as shown in Table 5.

Eight independent variables were selected for analysis i.e. farming experience, landholding size, family size, family income, non-farming incomes, accessibility to credit, awareness of the scheme and contact with agricultural extension agents. Results indicate that farming experience, family income, accessibility to credit, and contact with agricultural extension agents have a positive and significant influence on the adoption of the scheme.

Family income and accessibility to credit were significant at a 5% level, suggesting that higher family income and better access to credit increase the likelihood of adoption of PMFBY. Similarly, increased engagement with agricultural extension agents positively affects awareness and adoption rates. Farming

experience also showed significant positive results at a 1% level, indicating that greater experience improves PMFBY adoption. However, factors such as landholding size, family size, non-farming incomes, and awareness of the scheme were found to be statistically non-significant in the adoption of crop insurance. Similar findings were reported from study conducted by Sharon, 2019; Lakshmanan *et al.*, 2019; Swain *et al.*, 2020.

Conclusions

The study provides valuable insights into the impact of the Pradhan Mantri Fasal Bima Yojana (PMFBY) on farmers' livelihoods, utilizing a livelihood framework analysis. The findings indicate that beneficiaries of the PMFBY demonstrate significantly better human, financial, and social capital status compared to non-beneficiaries, highlighting the program's positive influence on enhancing farmers' livelihoods. Additionally, a logit model analysis reveals key determinants affecting the adoption of PMFBY, such as landholding size, income level, awareness, and interaction with extension agents. Despite these positive impacts, a substantial gap in awareness levels between beneficiaries and non-beneficiaries persists, necessitating targeted interventions to bridge this gap. To enhance the program's effectiveness, specific measures are recommended, including localized awareness campaigns that resonate with the unique needs of different farming communities, and strengthening extension services by training officers in crop insurance and utilizing digital platforms for easier access to information and claim processing. Moreover, fostering collaboration with Farmer Producer Organizations (FPOs) can facilitate pooling of

resources among small and marginal farmers, thereby enhancing participation. Providing targeted subsidies and utilizing satellite-based technologies for expedited claim settlements will further improve the program's outreach and efficiency. Tailoring insurance products to local crops and vulnerabilities is also essential for ensuring relevance to farmers' specific needs. By implementing these strategic interventions, policymakers can enhance the adoption of PMFBY, empowering farmers to mitigate risks effectively, secure their livelihoods and achieve greater economic stability in their agricultural practices.

References

- Bhushan, C. and Kumar, V. 2017. *Pradhan Mantri Fasal Bima Yojana: An assessment*. Centre for Science and Environment, New Delhi.
- Birthal, P.S., Chand, R., Joshi, P.K, Saxena, R., Rajkhowa, P., Khan, M.T., Khan, M.A. and Chaudhary, K.R. 2017. Formal versus informal: Efficiency, inclusiveness and financing of dairy value chains in Indian Punjab. *Journal of Rural Studies* 54: 288-303.
- Dupdal, R., Manjunatha, B.L., Dhakar, R. and Patil, S.L. 2020. Perception and economic impact of agromet advisory services: A case study of Thrissur AICRPAM centre of Kerala state. *Indian Journal of Extension Education* 56(3): 10-16.
- Economic Survey 2022-23. *Economic Division, Department of Economic Affairs, Ministry of Finance, Government of India, New Delhi, India*. pp. 1-414
- Ellis, F. 2000. The determinants of rural livelihood diversification in developing countries. *Journal of Agricultural Economics* 51(2): 289-302.
- FICCI, 2018. *Accelerating Agriculture Insurance, Knowledge Paper, Vol. 1*, pp. 1-27.
- Ghanghas, B.S. 2018. Awareness of Pradhan Mantri Fasal Bima Yojana among farmers of Haryana state. *Journal of Pharmacognosy and Phytochemistry* 7: 1912-1914.
- Kalia, A., Sadrate, N.D., Darhel, V. and Singh, R. 2018. *Performance evaluation of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Himachal Pradesh*. Agro-Economic Research Centre Himachal Pradesh University, Shimla. 142 p.
- Kataria, K., Curtiss, J. and Balmann, A. 2012. Drivers of agricultural physical capital development: Theoretical framework and hypotheses. Working Paper No. 18, Factor Markets. http://aei.pitt.edu/58521/1/Factor_Markets_18.pdf.
- Kuang, F., Jin, J., He, R., Wan, X. and Ning, J. 2019. Influence of livelihood capital on adaptation strategies: Evidence from rural households in Wushen Banner, China. *Land Use Policy* 89: 104-118. <https://doi.org/10.1016/j.landusepol.2019.104228>.
- Kumar, S., Sharma, A. and Kumar, S. 2020. Pradhan Mantri Fasal Bima Yojana (PMFBY): A Tool for Agricultural Risk Management. *Indian Farmer* 7(05): 455-467.
- Lakshmanan, P. and Ashok, K.R. 2019. Factors influencing adoption of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Tamil Nadu. *International Research Journal of Agricultural Economics and Statistics* 10: 27-30.
- Marvadi, C. and Chauhan, A. 2020. Evaluating the Performance of Crop Insurance Schemes in Gujarat. *Science, Technology and Development* 102 :115.
- Meena, S.K., Wakle, P.K., More, S.D., Badhala, B.S. and Meena, D.K. 2022. Knowledge and Attitude of Farmers towards Pradhan Mantri Fasal Bima Yojana (PMFBY). *Asian Journal of Agricultural Extension, Economics & Sociology* 40(11): 562-568.
- Nagesh, H. 2019. A Critical Study on Pradhan Mantri Fasal Bima Yojana in Srikakulam district of Andhra Pradesh. *M.Sc. Thesis*. Department of Agricultural Extension, Acharya N.G Ranga Agricultural University, Andhra Pradesh. Andhra Pradesh. 167 p.
- Pandey, R., Aretano, R., Gupta, A.K., Meena, D., Kumar, B. and Alatalo, J.M. 2017. Agroecology as a climate change adaptation strategy for smallholders of Tehri-Garhwal in the Indian Himalayan region. *Small-scale Forestry* 16: 53-63.
- Panigrahi, S.P. 2018. Socio-economic benefits of Pradhan Mantri Fasal Bima Yojana (PMFBY) for the rice growers of the Bhadrak district of Odisha. *M.Sc. Thesis*. Department of Extension Education, Orissa University of Agriculture and Technology, Bhubaneswar. 83 p.
- Ramakrishna, M., Devi, I.B., Rajeswari, S., Satyagopal, P.V. and Naidu, G.M. 2021. Factors Influencing Economic Viability of Small and Marginal Farms in Rayalaseema Region of Andhra Pradesh, India. *Asian Journal of Agricultural Extension, Economics & Sociology* 39(8): 48-57. <https://doi.org/10.9734/ajaees/2021/v39i830624>
- Rao, K.N. 2002. Crop Insurance in India-Past, Present & Future. *Vision* 6(2): 29-39.
- Rao, N.M. 2020. Farmers perception and awareness about agriculture insurance scheme—A study of North Karnataka. *Journal of Management and Science* 10(3): 33-40.
- Swain, M and Hembram, B.R. 2020. Determinants of adoption of crop insurance: Evidence from Bolangir District in Odisha. *Journal of Land and Rural Studies* 8(2): 121-137.
- Tiwari, R., Chand, K. and Anjum, B. 2020. Crop Insurance in India: A Review of Pradhan Mantri Fasal Bima Yojana (PMFBY).

- FIIB Business Review, 231971452096608. doi:10.1177/2319714520966084
- Tong, Q., Yuan, X., Zhang, L., Zhang, J. and Li, W. 2024. The impact of livelihood capitals on farmers' adoption of climate-smart agriculture practices: Evidence from rice production in the Jiangnan Plain, China. *Climate Risk Management* 43 :1-17.
- Yadav, A., Burark, S.S., Bairwa, K.C. and Patel, S.B. 2019. Performance of Pradhan Mantri Fasal Bima Yojana in India. *Indian Journal of Agricultural Marketing* 33(3s):145-46.

