

Original Article

# Prospects and Challenges of Crop Insurance in India: An Analytical Study

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**Abstract:** Crop insurance plays a crucial role in mitigating risks faced by farmers due to climatic uncertainties. This study analyses the prospects of crop insurance policies in India, examines the challenges in implementation and adoption, and provides policy recommendations for improvement. Using data from Agricultural Statistics at a Glance 2021, the study evaluates trends in coverage, premium collection, and claim settlements under schemes like PMFBY and RWBCIS.

**Keywords:** Crop Insurance, Climate Risk, Prime Minister's Crop Insurance Scheme, Climate Based Crop Insurance Scheme, National Crop Insurance Scheme, Agricultural Policy, Economic Stability.

## I. INTRODUCTION

Agriculture is the backbone of the Indian economy, as it forms the basis of the agricultural sector. The agricultural sector works under conditions of uncertainty and risk, where production relies on many unpredictable factors. At the same time, some agricultural problems such as floods, climate change, pest attacks and diseases are unavoidable for farmers in India. More than other crops, these rice varieties always give a good yield even with a lack of rain, so this is also a mitigative measure that can help to increase overall crop production.

Crop insurance is an important tool to help farmers with these risks. However, it requires good coordination between farmers and the government. Farmers need timely support when they decide to take out crop insurance. These companies provide assistance in the event of adverse legal events as well, which helps them to some extent.

The aim of this study is to look at the prospects, working and adoption, as well as challenges while implementing crop insurance policy. The study will also try to find out the solutions for these challenges.

This study will mainly be descriptive, quantitative and qualitative in nature and based on secondary data from various sources, such as government reports; RBI Reports; annual reports of the Ministry of Agriculture, Indian Govt.; policy documents relating to agricultural insurance; and statistical data from fields, agriculture and economics.

## II. OBJECTIVES OF THE STUDY

- To analyse the prospects of crop insurance policies.
- To identify key challenges in implementation and adoption.
- To provide policy recommendations for improving crop insurance schemes.

## III. RESEARCH METHODOLOGY

For the research paper titled "Prospects and Challenges of Crop Insurance in India: An Analytical Study," secondary sources have been used as the primary basis. The secondary data sources are basically government reports, reports by the Ministry of Agriculture, insurance companies (RBI reports), newspapers, reference books, Economic Survey –Maharashtra Socio-economic Review, agricultural journals, Yojana Magazine and internet websites.

## IV. ANALYSIS AND FINDINGS

### A) Increasing Farmers' Participation in PMFBY and RWBCS

The findings suggest that over time the number of farmers has increased under both Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather-Based Crop Insurance Scheme (RWBCS). The number of farmers insured under PMFBY was, however, 56271253 in the year 2016-17, which also increased to a record level of over two crore (60622878) by 2020–21, indicating that there has been increasing acceptability for taking crop insurance among farmers.



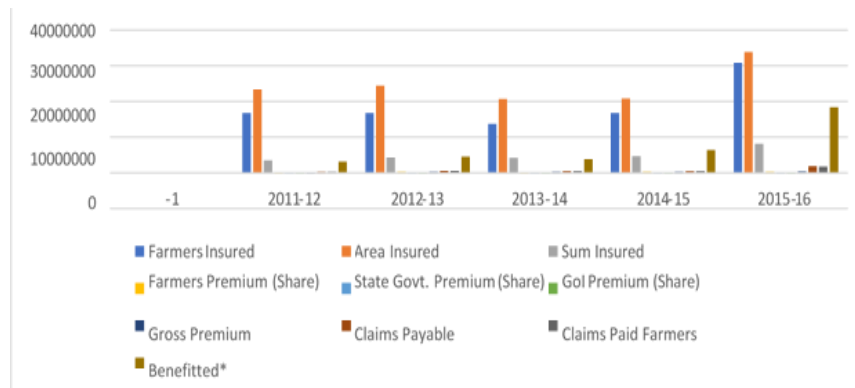
### B) Growth in Insured Area and Premium Collection

The area insured under NAIS, PMFBY and WBCIS has been consistently increasing over the years, as evident from the data. This is crucial because there has been a substantial increase in premium collection under all three schemes, indicating that more money from both farmers and the government is now being directed to mitigate agricultural risks.

**Table 1: National Agricultural Insurance Scheme (NAIS)-Cumulative Form 2011 To 2015-16 (in lakh)**

| No. of years | Farmers Insured | Area Insured | Sum Insured | Farmers Premium (Share) | State. Govt. Premium (Share) | GoI Premium (Share) | Gross Premium | Claims Payable | Claims Paid | Farmers Benefitted* |
|--------------|-----------------|--------------|-------------|-------------------------|------------------------------|---------------------|---------------|----------------|-------------|---------------------|
| (1)          | (2)             | (3)          | (4)         | (5)                     | (6)                          | (7)                 | (8)           | (9)            | (10)        | (11)                |
| 2011-12      | 16,793,860      | 23,385,766   | 3,477,104.5 | 85,651.4                | 9,016.9                      | 2,534.4             | 97,202.7      | 220,899.3      | 220,816.6   | 3,131,981           |
| 2012-13      | 16,791,080      | 24,384,857   | 4,290,914.7 | 104,165.1               | 25,446.1                     | 3,023.6             | 132,634.8     | 489,687.6      | 488,685.8   | 4,467,828           |
| 2013-14      | 13,720,042      | 20,707,899   | 4,155,414.7 | 102,521.2               | 22,037.1                     | 2,961.0             | 127,519.3     | 432,361.6      | 432,259.7   | 3,808,624           |
| 2014-15      | 16,738,205      | 20,769,685   | 4,588,082.4 | 115,431.4               | 20,485.1                     | 3,893.6             | 139,810.1     | 428,801.7      | 428,182.8   | 6,411,620           |
| 2015-16      | 30,907,885      | 33,905,309   | 8,062,208.7 | 201,881.2               | 37,679.1                     | 14,163.6            | 253,723.9     | 1,755,779.0    | 1,735,070.2 | 18,373,656          |

Source: Agricultural Statistics at a Glance 2021



**Figure 1. Trends in National Agricultural Insurance Scheme (NAIS) Performance Indicators, 2011–12 to 2015–16**

In the National Agriculture Insurance Scheme, it has been observed that the area insured has been increasing over time. In 2011-12, the area insured was 23,385,766 lakh hectares, which increased to 33,905,309 lakh hectares in 2014-15. Similarly, the number of farmers insured has also shown an upward trend. In 2011-12, the claims payable amounted to 3,131,981 lakh, and there has been a continuous rise in the farmers' premium share, state government premium share, and Government of India premium share over the years.

**Table 2: Weather-Based Crop Insurance Scheme (WBCIS)-Cumulative (From 2011 To 2015-16) (in lakh)**

| No. of Farmers | Farmer s Insured | Area Insured | Sum Insured | Farmer s Premium (Share) | State Govt. Premium (Share) | GoI Premium (Share) | Gross Premium | Claims Payabl e | Claims Paid | Farmers Benefitte d* |
|----------------|------------------|--------------|-------------|--------------------------|-----------------------------|---------------------|---------------|-----------------|-------------|----------------------|
| (1)            | (2)              | (3)          | (4)         | (5)                      | (6)                         | (7)                 | (8)           | (9)             | (10)        | (11)                 |
| 2011-12        | 11,671,398       | 15,633,625   | 2,020,943.1 | 54,002.8                 | 65,854.2                    | 64,574.4            | 184,431.3     | 117,701.4       | 109,143.3   | 6,329,838            |

|         |            |            |             |          |          |          |           |           |           |            |
|---------|------------|------------|-------------|----------|----------|----------|-----------|-----------|-----------|------------|
| 2012-13 | 13,599,651 | 17,112,196 | 2,352,599.7 | 66,209.9 | 77,783.8 | 77,783.8 | 221,777.5 | 192,062.9 | 157,554.5 | 10,805,097 |
| 2013-14 | 14,156,596 | 16,513,072 | 2,552,588.6 | 97,165.3 | 72,561.5 | 69,650.5 | 239,373.3 | 201,695.4 | 195,057.4 | 10,721,564 |
| 2014-15 | 11,251,844 | 12,775,464 | 1,764,307.2 | 93,882.3 | 59,257.6 | 59,096.2 | 212,236.1 | 204,295.4 | 201,595.3 | 9,624,367  |
| 2015-16 | 9,030,741  | 9,435,537  | 1,473,714.4 | 78,700.2 | 46,801.9 | 46,629.4 | 172,131.5 | 208,349.8 | 196,266.6 | 7,519,004  |

Source: Agricultural Statistics at a Glance 2021

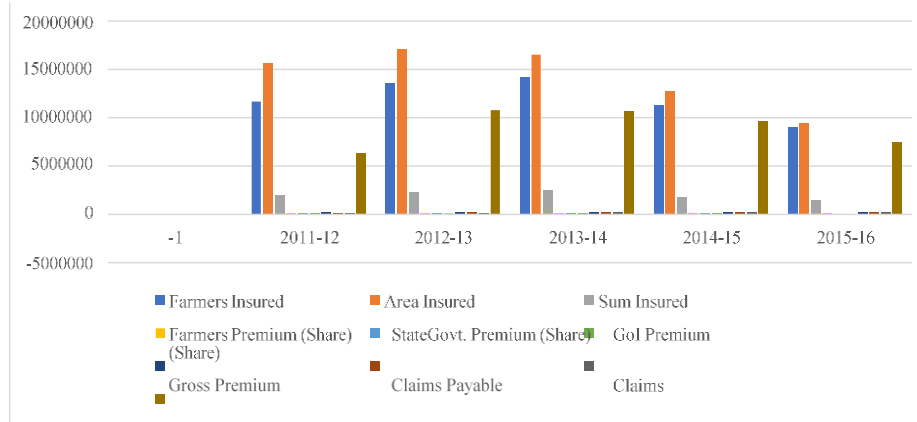


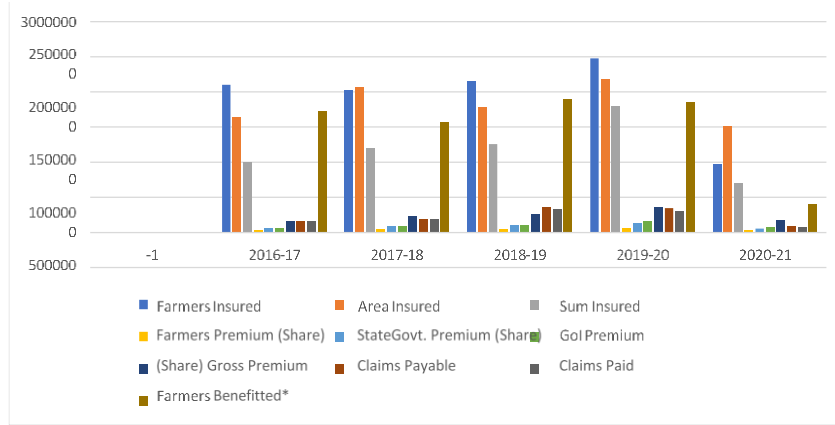
Figure 2. Year-wise Cumulative Performance of the Weather Based Crop Insurance Scheme (WBCIS)

During the period 2011-12 to 2015-16 under the Weather-Based Crop Insurance Scheme (WBCIS), the area insured initially showed an increasing trend. It rose from 15,633,625 lakh hectares to 17,112,196 lakh hectares in the first two years. However, after this increase, there was a decline, and by 2015-16, the area insured had dropped to 9,435,537 lakh hectares. A similar trend was observed in other factors, where there was an initial rise followed by a decline over time.

Table 3: Weather Based Crop Insurance Scheme (WBCIS)-Cumulative (Form 2016-17 to 2020-21) (in lakh)

| No. of years | Farmers Insured | Area Insured | Sum Insured | Farmers Premium (Share) | State Govt. Premium (Share) | GoI Premium (Share) | Gross Premium | Claims Payable | Claims Paid | Farmers Benefited* |
|--------------|-----------------|--------------|-------------|-------------------------|-----------------------------|---------------------|---------------|----------------|-------------|--------------------|
| (1)          | (2)             | (3)          | (4)         | (5)                     | (6)                         | (7)                 | (8)           | (9)            | (10)        | (11)               |
| 2016-17      | 2,099,863       | 1,644,444    | 1,006,121   | 40,415                  | 61,385                      | 61,385              | 163,186       | 166,025        | 166,025     | 1,724,246          |
| 2017-18      | 2,024,176       | 2,067,440    | 1,207,496   | 46,171                  | 95,206                      | 95,206              | 236,583       | 189,482        | 189,434     | 1,576,928          |
| 2018-19      | 2,148,646       | 1,788,400    | 1,257,498   | 53,683                  | 105,676                     | 106,976             | 266,335       | 361,711        | 339,033     | 1,897,705          |
| 2019-20      | 2,475,840       | 2,189,269    | 1,793,664   | 60,254                  | 135,898                     | 157,262             | 353,415       | 348,887        | 299,025     | 1,856,081          |
| 2020-21      | 966,793         | 1,516,407    | 706,437     | 34,481                  | 55,174                      | 82,135              | 171,790       | 92,280         | 82,290      | 407,444            |

Source: Agricultural Statistics at a Glance 2021



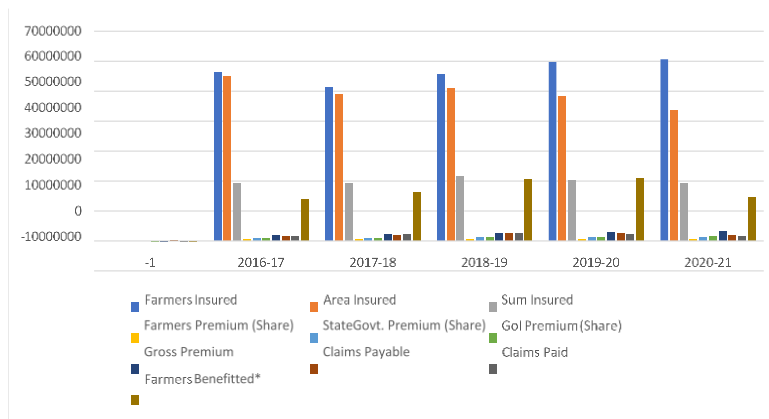
**Figure 3. Cumulative Performance of the Weather-Based Crop Insurance Scheme (WBCIS), 2016-17 to 2020-2**

During the period 2016-17 to 2020-21 under the Weather-Based Crop Insurance Scheme (WBCIS), all factors showed an increase from 2016-17 onwards. However, from 2019-20 onwards, a decline was observed across these factors, indicating a reduction in coverage and participation in the scheme.

**Table 4: Progress under Pradhan Mantri Fasal Bima Yojana (PMFBY)-Cumulative up to (Form 2016-17 to 2020-21) (in lakh)**

| No. of years | Farmers Insured | Area Insured | Sum Insured | Farmers Premium (Share) | StateGovt. Premium (Share) | GoI Premium (Share) | Gross Premium | Claims Payable | Claims Paid | Farmers Benefitted* |
|--------------|-----------------|--------------|-------------|-------------------------|----------------------------|---------------------|---------------|----------------|-------------|---------------------|
| (1)          | (2)             | (3)          | (4)         | (5)                     | (6)                        | (7)                 | (8)           | (9)            | (10)        | (11)                |
| 2016-17      | 56,271,253      | 54,919,919   | 19,282,026  | 368,094                 | 804,447                    | 834,040             | 2,006,581     | 1,514,769      | 1,514,768   | 13,938,868          |
| 2017-18      | 51,241,875      | 48,746,038   | 19,055,948  | 374,164                 | 915,684                    | 934,079             | 2,223,927     | 2,026,279      | 2,025,485   | 16,138,873          |
| 2018-19      | 55,629,638      | 50,695,216   | 21,695,521  | 415,301                 | 1,094,372                  | 1,128,984           | 2,638,657     | 2,573,267      | 2,480,196   | 20,525,549          |
| 2019-20      | 59,759,486      | 48,295,217   | 20,209,360  | 392,967                 | 1,209,474                  | 1,258,444           | 2,860,885     | 2,381,227      | 2,306,958   | 21,041,770          |
| 2020-21      | 60,622,878      | 43,469,106   | 19,049,599  | 367,619                 | 1,242,674                  | 1,385,762           | 2,996,055     | 1,817,229      | 1,570,829   | 14,415,002          |

**Source:** Agricultural Statistics at a Glance 2021



**Figure 4. Cumulative Season-wise Progress of Pradhan Mantri Fasal Bima Yojana (PMFBY), 2016-17 to 2020-21**

Under the Pradhan Mantri Fasal Bima Yojana (PMFBY), in the initial years, the number of farmers insured increased at a higher rate compared to the area insured. Additionally, the number of farmers benefited was the highest in 2019-20, reaching 21,041,770, which was significantly higher compared to other years.

### **C) Challenges in Implementation and Adoption**

- **Delays in Claim Settlement:** After registering a crop insurance claim, farmers experience significant delays in receiving the insured amount, which discourages them from opting for crop insurance in the future. The primary reasons for these delays include complex administrative procedures, time-consuming verification processes, and inadequate administrative capacity. These issues lead to financial instability for farmers during times of crop loss.
- **Lack of Awareness and Accessibility among Farmers:** Farmers in hilly and remote areas of India often lack complete information about crop insurance schemes. Due to this, they do not fully understand the terms and conditions, eligibility criteria, registration, and claim processes. As a result, many farmers are unable to take advantage of these schemes.
- **High Premium Burden for Small Farmers:** The premium cost of crop insurance is a huge burden for small farmers, who have highly fragmented landholdings. As a result, many of the farmers are not able to apply for these insurance schemes.
- **Challenges in Crop Damage Assessment and Compensation:** Estimating crop losses caused by natural disasters in an accurate manner is really difficult. This results in discrepancies in claim amounts, as well as different compensation collected by farmers. These issues erode the faith of farmers in the crop insurance scheme.

### **D) Policy Recommendations**

- **Enhanced Awareness Campaigns:** Organise awareness programmes and use mass media to inform farmers of the schemes available for their crops. The registration procedure and filing of claims should be clear-cut and discussed with the farmers in an understandable manner.
- **Simplification of the Claims Process:** Utilize the modern technology to ensure claim verification and payment processes are completed at a much faster pace. Establish e-portals and mobile-enabled applications to quickly gather details required for processing claims.
- **Government Support for Premium and Subsidies:** Offer government subsidies and help in premium payment for areas with some identified points at higher risk, so that more farmers can participate without a financial burden.
- **Advanced Crop Damage Assessment Techniques:** Drones and remote sensing technology using NDVI can improve precision (accuracy) in crop loss assessment. Doing this will enhance accuracy and trustworthiness in compensation distribution, thus increasing the farmers' confidence about the insurance system.
- **Capacity Building:** Conduct training programs for corporations and officials from government departments directly engaged in the implementation of crop insurance. This will improve their knowledge of rural agrarian context and issues, through which they can better conduct crop insurance schemes.

## **V. CONCLUSION**

The findings of this research highlight that the number of farmers insured has been constantly increasing for all crop insurance schemes. In addition, there has been an increase in the number of farmers covered under these schemes and premium collection. However, in certain years, such an increase has also been followed by a fall in these numbers. Crop insurance is essential for ensuring the economic security of agriculture, but establishing its effective implementation remains challenging. To make it more effective and extend its reach, governance needs to be strengthened; technology adoption should increase; the policy reform process must gather pace. In order to make crop insurance sustainable on a long-term basis, an insurance model that keeps farmers at the centre and minimises administrative bottlenecks in his/her progress, along with incentives for the highest participation from the farmer community, is vital. Strategies that integrate innovative financial mechanisms such as parametric insurance models and blockchain-based claim settlements can promote greater transparency and efficiency in the system. Crop insurance policies should also encourage public-private partnerships to attract additional expertise, investment and efficiency. India can establish a comprehensive crop insurance system by taking an integrated and strategic approach that covers policy reforms, innovative technology-driven risk solutions as well as education of farmers. This will enable constructive agricultural risk management by providing financial provisioning to farmers against economic uncertainty.

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