Scope of Incorporation of Pradhan Mantri Fasal Bima Yojana (PMFBY) and Weather Based Crop Insurance Scheme (WBCIS) in "Tree Investment Ventures" in India

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ABSTRACT

Purpose: *Tree Investment Ventures are a special type of commercial ventures, where in an individual or a group of individuals or any corporation owns, hires or leases a large piece of land with an intention of sowing the saplings of those trees which fetches a very huge monetary value after the elapse of 20- 25 years. They would pool the minimum investment from the investors, charged on the basis of per sapling like teak wood, rose wood, mahagani, etc and they would assure the investors a huge lump sum once the tree grows to the pre-determined size which attracts a huge monetary value by commercially selling it. The purpose of study is to know whether these Tree Investments are covered under any Government sponsored Crop Insurance Scheme.*

Methodology: *The data which is purely secondary is collected from various websites which gives information on Tree Investment Ventures as well as information on PMFBY and WBCIS and inferences were drawn based on the data authenticated in the websites and other web sources.*

Design and Analysis: *The research is exploratory research and has employed secondary data for the purpose of analysis. The study doesn't use any statistical tools for inferences as it confined only to know whether Tree Investment Ventures are covered under Govt. Sponsored Crop Insurance Schemes of PMFBY and WBCIS.*

Results: *Upon thorough study it was found that, in India , such commercially grown trees are not covered under the Central Government Crop Insurance Schemes such as Pradhan Mantri Fasal Bima Yojana (PMFBY) and Whether Based Crop Insurance Scheme (WBCIS).it was also found from the studies that PMFBY and WBCIS at present is available only to Mango Trees and investors who has invested in such Tree Investment Ventures are running under huge risk as their investment could be lost if some damage occurs to the trees due to natural calamities or any man made mishaps and hence there is scope of bringing such Tree Investment Ventures under the purview of PMFBY and WBCIS and upon implementing such a government sponsored insurance backup, it will be a boosting factor for attracting much more investments under Tree Investment Ventures.*

Originality/Value: *The research is interesting as the researchers are curious about knowing whether Tree Investment Ventures which attracts huge investments from investors are covered under any Govt. Sponsored Crop Insurance Scheme or not? The secondary data which has not been used in any research so far is used in this research study going through various websites and periodicals which gives input about PMFBY AND WBCIS in India.*

Keywords: Tree Investment Ventures, Government Sponsored Insurance Schemes, Crop Insurance, PMFBY, WBCIS

1. INTRODUCTION :

Droughts, floods, cyclones, storms, landslides, earthquakes, and other natural disasters can affect India's agricultural output and farm income (Krishnaveni R Muniswamy (2026). [1]). Agriculture is more vulnerable to epidemics and man-made disasters like fire, the marketing of phoney seeds, fertilisers,

and pesticides, price fluctuations, etc. Farmers are negatively impacted by all of these unpredictable events since they lower farm income and output. The amount of damage brought on by unfavourable events is increasing as agriculture gets increasingly commercialised. The productivity of dry land agriculture has varied over time, which is unmistakable proof of the industry's continued instability (Biswal and Bahinipati (2025) [3]). While it is impossible to completely eliminate volatility in the agriculture sector, its detrimental effects might increase operating risk when growing various crops. Natural disasters may have an impact on the agricultural sector's yield. Crop insurance is the sole method available to protect against production risk in agriculture (Kumari & Lingamurthy et al (2025). [5]), therefore it is necessary to make certain provisions to cover any future risks. In order to address this need, the Indian government experimented and introduced a number of crop insurance schemes, including the First Individual Approach Scheme (1972–1978), Pilot Crop Insurance Scheme (1979–1984), Comprehensive Crop Insurance Scheme (1985–1999), Experimental Crop Insurance Scheme (1997–1998), Pilot Scheme on Seed Crop Insurance Scheme (1999–2000). Agriculture has been the main sector of the Indian economy ever since independence. Despite technological advancements, agriculture continues to play a major role in the economy. Agriculture is the primary source of income for 70% of Indians **(**Bharne Yadav et al. (2025). [6]). Crop insurance is an addition to this list. A Comprehensive Crop Insurance Scheme (CCIS) was implemented in the nation with effect from Kharif, 1985, to give farmers financial support in the event that harvests failed due to natural disasters. Crop insurance generally refers to the kind of insurance that farmers, ranchers, and other agricultural producers buy to guard against either the loss of their crops as a result of natural disasters or the loss of income as a result of drops in the prices of agricultural commodities. Crop insurance is available in India under the Pradhan Mantri Fasal Bima Yojna (PMFBY), as well as Weather Based Crop Insurance Scheme (WBCIS), which the insurance companies provide. Crop insurance in India under PMFBY involves the following steps: (a) farmers apply for crop insurance themselves; (b) learn about the insurance premium using a premium calculator; (c) report crop loss or damage, if applicable, and file a claim; (d) monitor the status of your application at every stage via the Kisan call center or any supporting app; (e) contact concerned officials regarding any technical, administrative, or legal issues related to the claim; and (f) collect the claim amount. The WBCIS Weather Based Crop Insurance Scheme shields farmers from monetary losses brought on by unfavourable weather conditions such unusual rainfall, extreme heat or cold, frost, and humidity. It employs local meteorological data triggers to give quick, automatic payouts rather than measuring real crop output loss thru field surveys (Bhuvaneshwari (2025). [9]). The farmers covered under WBCIS can claim the sum assured in the following way (a) for specific damages like hailstorm or cloudburst the farmers (Murugesan Mathew (2025). [8]) should report it through PMFBY portal itself with 3 days of mishap (b) the damages are pre decided which depends upon verified weather data from the close Reference Weather Station (c) The preset yardsticks like rainfall, heat wave, humidity etc cross the limits the damages are calculated automatically(e) the approved and sanctioned amount of compensation will be directly credited to the farmers account to which mandatory Aadhar Link is provided.

2. LITERATURE REVIEWS :

Nascent Literature Reviews pertaining to Crop Insurance in India:

(1) Krishnaveni Muniswamy (2026) [1]: ‘Effectiveness of Agricultural Insurance Schemes in Andhra Pradesh: Challenges and Opportunities’**,** conducted study on the efficacy of WBCIS and PMFBY in Andhra and concluded that there are still several problems with crop insurance policies in Andhra, including low farmer awareness, a lack of efficient dispute resolution mechanisms, and a poor perception of risk. In addition, the Covid-19 epidemic has exacerbated the controversy around the level of transparency and participation among the players because to the difficulties posed by the historic changes and the private sector's involvement.

(2) Luo, T. Y. (2025). [2]: ‘The weather index insurance schemes for crops: Insights from India. He conducted a study on the positioning and development of India's Weather-Based Crop Insurance Scheme (RWBCIS) within its agricultural insurance system are briefly reviewed in this paper, which methodically elaborates on the particular actions and implementation experiences pertaining to product design, operational systems, and supervisory mechanisms. According to the report, India leverages the synergy between traditional agricultural yield insurance and RWBCIS by taking climatic types, land distribution, and geographic location into account. Comprehensive insurance

data, a strong and transparent information platform, sophisticated product design, and a vast meteorological network all contribute to the smooth deployment of RWBCIS and opined that the legislative method of implementing RWBCIS in India, coupled with its special provisions in insurance operation mechanisms, may offer useful insights for the top-level design of agricultural insurance and product innovation in the world.

(3) Biswal D. and Bahinipati C. (2025) [3]: 'Demand for Crop Insurance in India: Evidence from National Representative Surveys', conducted research on PMFBY and its demand with three main goals and concluded that there is a critical need to educate farmers about crop insurance because less than 10% of farmers are aware of it.

(4) Kerthikumara S. Saikia B. et al (2025) [4]: 'Landholding size, indebtedness, and crop insurance in India: A macro-level quantitative assessment' conducted research using state-level secondary data from 2016 to 2023 to examine the relationship between high indebtedness landholding size, agricultural credit, indebtedness, and crop insurance uptake. The study suggests region-specific pricing, better claim transparency, fully subsidised premiums for marginal farmers, and financial literacy integration with agricultural extension.

(5) Kumari D, Lingamurthy S. et al (2025) [5]: 'An Ex-post Evaluation of Crop Insurance: Risk Mitigation and Constraints among Pigeon Pea Farmers' conducted study with the goal of determining the extent of yield loss and risk reduction under the Pradhan Mantri Fasal Bima Yojana (PMFBY). It also examines the limitations that farmers face, from enrolment to compensation. In the Bidar district of Karnataka, India, 203 insured agricultural households that grow pigeon peas provided survey data for the study. The research article's findings force us to reevaluate and update India's crop insurance program. The yield estimation method must be modified in order to close the gap between farmers' perceived loss and computed loss.

(6) Bharne S. Yadav P et al (2025 [6]): 'THE ROLE OF NON-FARM INCOME AND EMPLOYMENT SUPPORT IN FARMERS' DECISIONS ON CROP INSURANCE', conducted study to investigate the effects of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) on crop insurance adoption in India under the Pradhan Mantri Fasal Bima Yojana (PMFBY) and farmers' non-farm income (NFI). In order to maximise the benefits of crop insurance for Indian farmers, the study offered empirical evidence that may be used to increase its adoption. Planning for agricultural growth thru livelihood diversification and farm risk management might be based on the findings.

(7) Kumari M. Kumari V (2025) [7]: 'Streamlining Crop Insurance with Subsidised Premiums and Effortless Settlements'. This study focuses on how farmers' enrolment in crop insurance is affected by premium payments and indemnity settlements, as well as the necessity of technical advancements to improve programs. The researcher examined the implemented schemes and farmers' enrolment thru a thorough literature analysis, and the report made reference to secondary data. The study analysed data from the Weather-Based Crop Insurance Scheme and Pradhan Mantri Fasal Bima Yojana websites between 2018 and 2022. While many loanee farmers are taking part in crop insurance, just 31.6% of enrolled farmers have profited from it over the past four years.

(8) Murugesan D, Mathew R. (2025) [8]: 'Early season prevented and failed rice sowing detection using temporal Synthetic Aperture Radar data in coastal India for crop insurance applications. conducted research on the risks to rice production in coastal India posed by droughts and floods. India uses the Pradhan Mantri Fasal Bima Yojana (PMFBY) crop insurance program to lessen these. Due to disagreements and delays in damage assessments and claim settlements, adoption is still limited. In order to speed up payouts, the government supports remote sensing technology. This study was carried out in Odisha, India, where early-season flash floods can submerge rice fields for more than two weeks, causing losses due to failed or prevented sowing (P/FS). They suggest a methodical way to assess early season P/FS losses in near real-time and offer precise and impartial proof within the PMFBY timeframe.

(9) Bhuvaneshwari (2025) [9]: 'Inter - State Changes and Government Initiative for Policy Support Pradhan Mantri Fasal Bima Yojana (PMPBJ)-An Empirical Analysis'. conducted research to ensure that PMFBY's main goal is to help farmers financially when they lose crops due to pests, illnesses, hailstorms, droughts, or floods. According to this model, farmers pay a little premium, and the federal and state governments split the remaining subsidy. Based on an analysis of government-paid and reported claims, as well as an examination of the advantages that farmers receive under the PMFBY framework,

(10) Sahoo B. Behera A. (2025) [10]: 'Determinants of Crop Insurance Adoption: Farm-level Evidence from Odisha, India'. seeking to identify the variables impacting farm-level crop insurance adoption. After gathering responses from 240 farm households in the two districts of Odisha using primary data and a multistage simple random sample procedure, they concluded that targeted and inclusive policy mechanisms are required to support rural farmers. Crop insurance uptake may be improved by raising awareness, diversifying farms, and making particular provisions for rental farmers. They also opined that when it comes to crop insurance amid climate risk, the government ought to take farmers' demands and limitations into account.

(11) Murthy C. Choudhary K. et al (2024) [11]: 'Transformative crop insurance solution with big earth data: Implementation for potato in India. conducted research on a specific novel crop insurance program that substitutes the "area-crop performance approach," which uses objectively determined satellite indices, for the current "area-yield" approach, which uses bias-prone crop yield estimations. Method: The project's primary tasks include satellite-based crop mapping, satellite and weather-based crop health indicators, field data collection and analysis, composite index generation, and insurance loss assessment. It was discovered that the new index-insurance scheme has numerous advantages over the traditional yield-based scheme in terms of transparency, objectivity, and ease of implementation. The composite index could be improved by adding more features.

(12) Rajesh Acharya H. (2024) [12]: 'Adoption of Crop Insurance by Smallholder Farmers: Farm-Level Evidence from India'**.** conducted study to examine the degree and factors influencing smallholder farmers' use of crop insurance. Using a structured questionnaire, the study performed a primary survey and gathered data from farmers in a drought-prone area in the Indian state of Karnataka. It found that farmers believe the premium is costly and that the strict eligibility requirements prevent them from receiving the promised compensation. The majority of farmers who have received compensation believe it is insufficient to pay the cost of farming. Farmers believe that more crops should be covered by insurance and that each farm should be treated as a unit in opposition to the idea of area-based insurance. They also emphasised the necessity of more premium subsidies. The logistic regression's findings confirm that farmers who have a family history of agriculture and members of socially excluded groups are less likely to insure their crops.

(13) Sharma P. Ali S. (2024) [13]: 'Apple farmers willingness to pay for RWBCIS: Determinants and empirical evidences from Jammu. The authors aimed to determine the factors influencing apple growers' decisions to buy such insurance products and to investigate if they are willing to pay for RWBCIS. In the purposefully chosen districts of Baramulla and Budgam in Jammu and Kashmir, information was gathered from 900 apple growers. The results show that most farmers were unwilling to pay the present rate, even though they were all willing to implement the weather-based crop insurance program. In contrast to the average of Rs. 53 in the nearby state of Himachal Pradesh, the estimated mean willingness to pay (WTP) per tree was Rs. 37.22 without covariates and Rs. 17 with covariates. The authors opined that to reach the desired coverage of 25% of farmers under the program, the government needs think of creative ways to offer current subsidies.

3. RESEARCH GAP :

The Research Gap is very apparent from the above literature reviews. It is evident after going through concerned literature reviews that no concrete research has taken place in the field of connecting PMFBYcrop insurance and green insurance to 'Tree Based Agricultural Sector'.

4. OBJECTIVES OF THE PAPER :

(1) To know how Tree Investment Ventures work in India.

(2) To know whether such Tree Investment Ventures are covered under any Govt. Sponsored Crop Insurance Schemes namely PMFBY or WBCIS.

5. METHODOLOGY :

The topic under discussion was scrutinized through the secondary sources of information i e through several agricultural periodicals such as 'KRISHI VARTHE','RAITHA MITHRA', etc., and also through several websites which gives ample information on Tree Investment Ventures in India and how it actually works and many other websites which provides complete information on PMFBY and WBCIS.

6. PROBLEM STATEMENT :

"Tree Based Agriculture" has been commercialised off late, where the products grown under 'Tree Based Agriculture' will fetch the investors a fair earning upon harvesting the crop. In the Indian context we can see many entrepreneurs who have taken up 'Tree Based Agriculture' in the form Teak, Rosewood, Sandal wood, Red Sandalwood plantations etc. on a commercial basis and they are growing such long-term yield bearing trees in thousands of acres of land and as of now such crops are not covered under any crop insurance under PMFBY or green insurance.

7. DISCUSSIONS :

Tree Investment is an investment venture where in the investors are investing a small amount on a sapling now, which would become highly valuable huge tree in a span ranging from 20 – 25 years. After the efflux of the stipulated time period, the fully grown tree will be cut and subsequently sold at a huge profit, which further would be used for commercial purposes. Normally we can find "Tree Investments" on the trees like 'Teak, 'Sandal wood', 'Rose Wood', 'Mahagani', etc. 'Tree Investment' companies will be instrumental in up keep of environment as they grow more trees and hence reduce the environment pollution.

Mechanism of 'Tree Investment':

(1) The entrepreneur will identify some acres of land where he would want his investors to plant saplings.
(2) The investors would purchase saplings depending upon their investment size by paying a unit price per sapling and subsequently the sapling will be planted in the identified land.
(3) The investors are required to pay monthly or annual maintenance charges to the entrepreneurs to main the saplings and other maintenance charges.
(4) The entrepreneur will maintain and safeguard the saplings until it becomes tree which is in saleable condition.
(5) Upon the expiry of the stipulated time period, the tree(s) which is registered under the name of a particular investor(s) will be cut and sold at the current market price or agreed price as the case may be and after the sales proceeds are collected, a percentage of it should be given to entrepreneur and remaining amount will be returns to the investors.

Present scenario of 'Tree Investment' companies in India: There are several 'tree investment corporations' in India which has stake from many investors who has invested on the high value bearing trees like teak, rosewood, sandalwood, etc. These investment corporations are facing threat in the form of trees being stolen or destroyed by miscreants or severe ailments affecting the saplings, loss of trees due to famine, flood or any natural calamities. At present the underlying asset i.e., the saplings/trees are not covered under any crop insurance schemes nor covered under green insurance schemes.
In the present scenario the crop insurance Pradhan Mantri Fasal Bima Yojana (PMFBY) is applicable to only those crops which are vulnerable to natural calamities like floods, drought, etc and Tree Based Cropping system is outside the purview of Crop Insurance coverage except for Mango Trees. In other words, the trees which will fetch returns to the farmers after the efflux of certain time period is outside the coverage of crop insurance. There are many Tree Investment Corporations in India who is into the business of raising the trees and these trees will have high commercial value but only elapse of a longer time duration. For instance, there are many teakwood and Mahagani Tree Investment Corporations who runs the business of sowing a sapling with a small investment which will multiply exponentially after

the elapse of 20 years or 25 years once the tree reaches a pre-determined size which attracts a huge commercial value. These Corporations will lease or hire some acres of land and it will seek investment from investors who would buy saplings at a pre-determined rate and they will be promised a huge sum after the tree attains a pre-determined size with an elapse of normally 20 to 25 years. In the process it is quite natural that these tree groves are vulnerable to suffer losses due to natural calamities, diseases, theft etc and at present such kind of damages to such tree farming is not covered under any insurance schemes under the Government sponsored insurance schemes. WBCIS (Whether Based Crop Insurance Scheme) or PMFBY or any private insurance companies, threatening the loss of investment and sum assured by such corporations and by virtue of this both the Corporations and Investors are likely to suffer huge financial losses which they would not be able to make it good as there is no insurance coverage to such commercially grown trees.

8. FINDINGS :

From the above discussion it is found that:

(1) High Value Bearing Commercially grown trees are not covered under either WBCIS or PMFBY.
(2) The following High Value Bearing Commercially grown trees are out of the coverage of WBCIS or PMFBY (A) Teak Wood (B) Rose Wood (C) Sandal Wood (D) Mahagani.
(3) Only very few Private Insurance Companies are extending Green Insurance Coverage to Sandalwood, Teak Wood, Rose Wood and Mahagani who are charging exorbitant premiums
(4) The investors on such Tree Investment Ventures are at high risk as their investment is susceptible due to likely damages due to unavoidable reasons.
(5) The common investors of Tree Investment Ventures are deprived from Central Government Insurance Schemes like PMFBY and WBCIS in which affordable premiums are charged under their schemes.

9. SUGGESTIONS :

Upon going through findings, the suggestions and recommendations are as follows:

1) The Entrepreneurs of Tree Investment Ventures should be aware of the probable loss that might occur to their investors because of unavoidable reasons, during the process of growing the trees which is as high as 20 – 25 years.
2) The entrepreneurs of such Tree Investment Ventures should urge the Central Government to extend the WBCIS and PMFBY schemes to their venture also.
3) The Central Government should conduct talks with such Tree Investment Venture's Entrepreneurs to have a consensus on the issues like Sum Assured, Coverage Period, Premium Payable, etc.
4) The Central Government should take initiative to cover the risk of damages or loss to such high value bearing commercially grown trees under their WBCIS and PMFBY.

10. CONCLUSION :

From the findings it can be concluded that the Tree Investment Ventures is gradually developing as one of the lucrative investment opportunities and it is a long-time investment where the gestation period ranges from 20-25 years and during such longer elapse of time there are all the possibilities that, growing trees could be destroyed due to some obvious reasons and by virtue of it the entrepreneurs and investors both are likely to lose out on their investment. At present such Tree Investments are not covered under any Government sponsored Crop Insurance Schemes such as PMFBY or under WBCIS and it can be suggested to the concerned that such Tree Investments should also be brought under the coverage of PMFBY and WBCIS so that the stake holders, to some extent can mitigate the risk of losing their investment and shield themselves from the probable financial loss.

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