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## Crop Insurance As a Tool for Risk Management in **Agriculture Sector**

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#### Abstract:

Crop insurance plays an important role in modern agriculture by providing a safety net to farmers against various risks such as adverse weather, pests and price fluctuations. This paper explores the importance of crop insurance as a risk management tool in agriculture, its evolution, challenges and possible future developments. The global landscape of crop insurance is also examined, highlighting its role in ensuring food security and sustainable agricultural practices.

Keywords: Crop insurance, agriculture, risk management, Pradhan Mantri Fasal Bima Yojana, weather index-based insurance, technology, climate change

#### 1. Introduction

Agriculture is exposed to many risks, from predictable weather patterns and natural disasters to market volatility and crop diseases. This uncertainty can lead to huge economic losses for farmers, affecting food production and food security. Crop insurance has emerged as an important tool to manage these risks and provide a safety net for agricultural stakeholders. The objective of this research paper is to know the role of crop insurance in risk management in agriculture sector.

#### 2. Objectives of the Study:

- To know the development of the crop insurance scheme in India.
- To understand the benefits and challenges of crop insurance.
- To know the global perspectives of crop insurance

#### 3. Methodology:

The process of research methodology involves systematic steps that researchers follow to conduct a research study effectively.

#### 4. Data Collection:

Study based on the secondary data which collected from the various journals, reports, websites and different books of related study.

Risk management means minimizing the loss of income, reducing the variation in output or ensuring a certain minimum price or guarantee, a certain level of income. It is the process of measuring and mitigating risk. Options created to do this way are referred to as risk management options. The present study looks at the origins of agricultural insurance in India

### 5. Historical Development of Crop Insurance

The concept of crop insurance centuries old, with its earliest form of risk sharing among farmers in ancient societies. However, modern crop insurance programs began to take shape in the 19th century, primarily in response to growing importance of agriculture industrialized nations. The United States is often credited with establishing modern crop insurance with the establishment of the Federal Crop Insurance Corporation (FCIC) in 1938 under the

Agricultural Adjustment Act.

1985	1999	2007	2010	2016
1985 Comprehensiv e Crop Insurance Scheme (CCIS) began at National level	National Agriculture Insurance Scheme (NAIS) implemente d by GIC/AIC	2007 Weather Based Crop Insuranc e Scheme (WBCIS) started on actuarial	2010  Modified National Agricultur e Insurance Scheme Pilot yield based insurance scheme	2016 Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructure d Weather Based Crop Insurance
		pricing pilot basis	on actuarial basis	Scheme (RWBCIS) launched
			started	

Source: Study material in PMFBY web portal 6. The Global Landscape of Crop Insurance

Crop insurance programs vary widely across countries, with different approaches and government involvement. The paper will provide case studies of crop insurance programs in different countries, highlighting their unique features and challenges.

#### **Progress of Insurance in Various Countries of** the World

Country	Type of insurance	Type of crop covered	Period of introduction
USA	All-risk and Single risk	Staple Crops	1818
Europe	All-risk and single risk	Staple Crops	1900
Canada	All-risk and single risk	Staple Crops	1930
Japan	All-risk insurance	Paddy	1938

Mauritius	Cyclone and Drought	Sugar	1946
Ceylon	All-risk insurance	Paddy	1958
Jamaica	All-risk insurance	Banana	1958
Puerto- Rio	Hurricane Insurance	Coffee- plant and beans	1958
Brazil	All-risk insurance	Staple food crops	1958
USSR	Crop-Hall insurance	Staple food crops	1958
Sweden	All –risk insurance	Staple food crops	1961

Source: Study material in PMFBY web portal

#### 7.0. Benefits of Crop Insurance

Crop insurance offers several key benefits to farmers and the wider agricultural sector:

- 7.1. Financial Stability: Crop insurance provides financial stability to farmers by compensating them for losses due to adverse events. This stability allows farmers to continue their operations and invest in sustainable farming practices.
- 7.2. Risk reduction: Farmers can reduce production risks associated with unpredictable weather conditions, pests and diseases through crop insurance, thereby ensuring a consistent flow of income.
- 7.3. Access to credit: Crop insurance can improve credit access to farmers as it acts as collateral for credit. Lenders are more willing to lend to insured farmers knowing they have a safety net in case of crop failure.
- 7.4. Food Security: Crop insurance contributes to food security by helping to stabilize food production levels in the face of unforeseen events. This is especially important to ensure a stable food supply for a growing population.

8. Calamity-Hit areas Vs Claim Settlement

Season	State	Claim Ratio in %
	Kerala	209
Kharif 2020	Kamataka	137
	Tamil Nadu	107
	Maharashtra	198
	Tamil Nadu	296
Rabi 2020-21	Andhra Pradesh	172
	Kerala	108
	Maharashtra	235
	Chhattisgarh	451
Kharif 2021	Haryana	269
	Odisha	216
	Maharashtra	311

	Chhattisgarh	383
Rabi 2021-22	Odisha	217
	Haryana	198
	Maharashtra	323

Source: Study material in

#### PMFBY web portal

#### 9. Challenges and criticisms:

While crop insurance offers many benefits, it also faces many challenges and criticisms:

- 4.1. Moral hazard: Critics argue that the availability of crop insurance can create moral hazard, where farmers may take more risks or engage in risky farming practices, knowing that they are insured against potential losses.
- 4.2. Adverse selection: Adverse selection occurs when high-risk farmers are more likely to participate in a crop insurance program, potentially leading to adverse financial consequences for policyholders.
- 4.3. Premium Subsidy: Many crop insurance programs are heavily subsidized by the government, raising concerns about cost-effectiveness and burden on taxpayers.
- 4.4. Data Accuracy: Accurate assessment of crop losses is essential for a proper and effective insurance system. Obtaining accurate statistics on crop yields and losses can be challenging, leading to disputes between farmers and insurance providers.

#### 10. Future developments and conclusions:

With the continuous advancements in technology, data analytics and climate science, the future of crop insurance in agriculture is set. These developments can increase the accuracy of risk assessments and improve the effectiveness of insurance programs. Moreover, the role of crop insurance will gain importance in promoting sustainable farming practices and environmental conservation.

Finally, crop insurance is an important risk management tool in modern agriculture, providing financial stability, risk mitigation and food security. However, it faces challenges such as moral hazard and adverse selection. Understanding the global landscape of crop insurance and its likely future developments is imperative for policymakers, farmers and insurers as they work together to ensure the resilience of agricultural systems in an uncertain world.

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