ISSN No.2349-7165

Crop Insurance: A Boon for Farmers

Md. Moazzam Sulaiman
"Sulaiman House", Chhoti Quazipura, P. O. Lal Bagh,
Darbhanga, 846004

ABSTRACT

In a country like India, crop production is exposed to adverse weather conditions and heavy losses due to pest attacks, diseases and natural disasters affecting crops in the agricultural sector. To cover such risks which may crop up in the future, there is a need for some provision and crop insurance is the only instrument available to defend against production risk in agriculture. It is primarily a way of protecting farmers against the element of opportunity in crop production as well as a major source of capital support for distressed farmers. Crop insurance spreads crop losses over time and place, provides social security for the farmers, supports them in maintaining their dignity, offers self-help and promotes large investments in agriculture that can improve their crop yields and agricultural production. Crop insurance not only stabilizes farm income but also helps farmers start production activity after a bad agricultural year. It protects against the shock of crop losses by offering farmers minimum protection against natural hazards beyond their control. Crop insurance in India has been attempted in developing form since independence with sporadic efforts to ensure that farmers are protected against crop damage. To help fulfill this need, the Indian Government has experimented with introducing various schemes of crop insurance from time to time. But in recent decades, the central government has made various efforts to ensure that all farmers are covered by crop insurance through the cooperation of the state and local governments. As a result, the development of crop insurance in India has been proliferating which plays an important role in the stability and growth of the country's agricultural sector.

Keywords: Crop, Insurance, Agriculture, Farmer, Government, Risk, Production.

INTRODUCTION

Due to a high dependency on weather, Indian farmers are heavily exposed to risks arising from rainfall deviations, temperature fluctuations, drought, floodwaters, cold waves and other natural disasters. This risk is aggravated by poor rural infrastructure, imperfect markets and lack of financial services and the limited use of risk mitigation instruments such as credit and insurance. All these factors heavily affect farm production and the farmers' income. In this context, crop insurance is the only tool that can effectively reduce the losses of farmers in India.

Crop insurance is the ultimate risk management tool. It protects farmers and crop producers against the loss of crops beyond their control. It provides a safety net for farmers to mitigate losses arising from climatic shocks and also encourages them to continue investing in inputs and technology to increase yields and household incomes. Looking at it differently, it is one method by which farmers can stabilize farm income and investment and guard against the disastrous effects of losses because of natural hazards or low market prices.

It is an arrangement whereby a farmer (insured) can insure his farm yield income against production risks and uncertainties prevailing in fields with crop insurance companies (insurers) by paying premiums towards insurance contracts and spreading the risks across time, place and industry. In the event of a lower insurance risk yield, the farmers receive compensation from the crop insurance company for the incurred losses which are calculated based on the multi-parameter threshold levels used by the insurance companies. The level of crop yield deviations will be calculated and based on these indemnities, payments will be made to farmers when farming community investments in agriculture are safeguarded and the economy achieves sustainable growth in agriculture and rural economies.

Crop insurance is a meaningful policy risk management tool but it would have to reach out to most farmers. This facilitates the adaptation of improved technologies and encourages greater investment, leading to higher agricultural production. It spreads the crop losses that occur because of uncontrollable natural factors over space and time and helps the farmers make more investments in agriculture. Crop credit insurance also cuts down on the risk of becoming a debtor to institutional credit. The compensation of indemnities for crop failure enables a farmer to refund his debts and therefore not have to take a loan from a private moneylender.

Crop insurance not only stabilizes farm income but also helps farmers to reorganize their production after a bad agricultural year. However, one needs to keep in mind that crop insurance should be part of the overall risk management strategy. Insurance comes toward the end of the risk management process. Insurance is a redistribution of the cost of losses suffered by the few among the many and it cannot prevent the losses of the many. There are two major types of agricultural insurance: single-peril coverage and multi-peril coverage. Single-peril coverage offers protection from a single hazard whereas multiple-peril coverage protects from multiple hazards. India implements a multi-hazard crop insurance program that has a huge impact on agricultural production and has disastrous consequences for society and farmers in particular.

Considering the risks faced by farmers in India, the government has introduced various policy measures and comprehensive agricultural risk management measures. These include direct initiatives such as agricultural credit, input subsidies and calamity relief; indirect initiatives to mitigate production risks through insurance mechanisms covering crops, weather and livestock and micro-insurance and market-based approaches to mitigate price or income risks such as minimum support prices, commodity markets, contract farming etc. A multifaceted strategy is needed to advance all these instruments far enough to address critical issues such as stagnant agricultural growth, rural debt and farmer suicides.

Unlike other insurance products that are actuarially priced (actuarially sound premium rates identify the price/cost of risk of the underlying business activity), crop insurance continues with limited premiums. A variation in actuarial rates (with a revision in the existing method whereby the premium rates reflect the loss cost for the crop) would in turn present another problem. It remains amply clear that high-risk insurers are undercharging under the area approach. If individual risks cannot be identified and premiums are based on some general measure of risk, low-risk producers will be overcharged and high-risk producers will be undercharged. It has however been shown that high-risk producers are less responsive to premium increases than low-risk producers. The inelasticity of demand for insurance by high-risk insurers and the highly elastic demand by low-risk insurers would result in retaining the base of high-risk insurers in the program in the event of an across-the-board increase in premium rates. Thus, any effort to lower losses by transitioning to actuarial rates with premium rates showing realistic loss experience may complicate the existing situation as high-risk producers comprise an increasing proportion of the small insurance pool.

OBJECTIVES OF THE STUDY

The objectives of the present study are as follows:

(a) To explain the concept of crop insurance.

(b) To discuss the genesis of crop insurance schemes in India and

(c) To discuss the various crop insurance schemes prevalent in India over the years.

METHODOLOGY

The data have been collected from various secondary sources like books, journals, websites, reports by government organizations, newspaper articles etc. The secondary data helps in understanding the real scenario of crop insurance in India which is available and more reliable and helps to access and understand the real scenario of the crop insurance in India.

LITERATURE REVIEW

The review is a very important part of the research because it shows the work done and carried out on the problem also it provides a correct path for the researcher to find out and discover new conclusions based on old research. There are various studies related to crop Insurance available on various aspects. A few reviews are discussed here:

The basic principle underlying crop insurance was that the loss incurred by a few was shared by many in an area. Also, losses incurred in bad years were compensated by resources accumulated in good years **(Dandekar, 1976)**.

Dandekar (1976) suggested that crop insurance should be linked with credit on a compulsory basis. He found that the crop insurance scheme offered insurance against a chance occurrence. The chance phenomenon underlying a crop insurance scheme is the fluctuations in the output of a crop from one year to another or from one crop season to another.

Singh, Gurudev (2010) examined crop insurance in India and the dependence of Indian agriculture on uncertain risk. In addition, the farmer's experience of other production and marketing risks relates to different cropping patterns and different agro-climatic and areas. It also analyzed the need for crop insurance as an alternative to manage production risk.

Nair, Reshmy (2010) studied an evaluation of the crop insurance program in India through the multi-peril yield-based National Agricultural Insurance Scheme. The coverage and indemnity payments are biased towards a few regions and crops, and there are delays in the settlement of claims while the emergence of weather-based insurance as an alternative has addressed several limitations of traditional insurance, it is faced by challenges of a different kind. Both these forms of insurance must thus be looked upon as complementary to each other in order to evolve an efficient mechanism for dealing with natural disaster risks in agriculture.

According to Raju and Chand (2008) agricultural insurance was one method by which farmers can stabilize farm income and investment and guard against the disastrous effect of losses due to natural hazards or low market prices. Crop insurance not only stabilizes the farm income but also helps the farmers to initiate production activity after a bad agricultural year. It cushioned the shock of crop losses by providing farmers with minimum protection. It spreads crop losses over space and time and helps farmers make more investments in agriculture.

Sarangi and Panigrahi (2016) “Crop Insurance, the Backbone of Indian Farming Community Issues and Challenges”. In this study, they have studied the need for crop insurance for Indian farmers. They also studied the dynamism of the farming sector and its environment. The study focused on crop insurance as a tool for risk management. The study also analyses the issues in crop insurance in India such as the difficulty to ensure crop losses, the main issues with existing area-based and weather-based crop insurance prerequisites for effective crop insurance. The study suggested that there is a need to increase crop insurance education for small and marginal farmers and hence the capacity building of various stakeholders. They also recommended that the financial base for the insurer must be adequate.

Singh, S. (2004) "Crop Insurance in India-A Brief Review". The risk load of the agriculturists can be minimized from the medium of crop insurance which is mainly a way of securing farmers against the factor of possibility in crop production. Crop insurance spreads the loss of crops over space and time provides social safety to the farmers and helps in maintaining their self-respect, offers self-help, cheers huge investments in agriculture for improving crop yield and escalating agricultural production.

Bharati et al. (2014) have studied the factors that affect the adoption of crop insurance in the state of Bihar. It was observed that several factors like age, category and education were significant in the decisions that people made in taking up crop insurance. It has been inferred from the data that the adoption of crop insurance increased significantly with an increase in the educational qualifications that farmers had and the quantity of land they held. A positive rise in income from agriculture has also been shown to have a positive impact on the adoption of crop insurance among farmers in Bihar. It has been also suggested that measures such as awareness generation among the farmers and ensuring more subsidies on the premiums of small and marginal clients be undertaken in order to make the overall insurance program more sustainable in the long run.

CONCEPT OF CROP INSURANCE

A farmer in order to meet his farming expenses took a loan from different financial institutions. But earlier since there was no crop insurance, in case his crops were damaged in a natural calamity, he did not receive any indemnity and thus was caught in the debt trap. Hence, when a farmer takes out crop insurance, he can protect himself from the perils that are beyond his control as he can get the same income irrespective of whether the crop is good or bad. So, it can be said that if a farmer buys a crop insurance scheme, he can insulate himself completely from all the risks and get the same return regardless of whether the production of agriculture is good or bad.

According to FAO (1992), "Provides protection against loss or damage to growing crops including perennial crops such as tree crops against specified or multiple perils, e.g. hail, windstorm, fire and flood. Measurement of loss could be by "yield" basis, production costs basis, agreed value basis or rehabilitation costs basis. While most crop insurance is geared towards loss of physical production or yield, cover may also be provided to loss of the productive asset such as tree crops".

The World Bank (2010) defines crop insurance as "that provides financial compensation for production or revenue losses resulting from specified or multiple perils, such as hail, wind storm, fire or flood. Most crop insurance pays for the loss of physical production or yield. Coverage is also often available for loss of the productive asset, such as trees in the case of fruit crops".

Crop insurance as already mentioned is an important tool to mitigate the risk associated with agricultural production. As defined by the Agricultural Insurance Corporation of India (AICL), crop insurance is a means of "protecting the farmers against uncertainties of crop yields arising out of practically all-natural factors beyond their control". It is a financial tool in which the uncertainty of loss in crop yields is minimized by merging a large number of uncertainties that impact crop yields so that the burden of loss can be distributed.

COVERAGE OF RISKS UNDER CROP INSURANCE

The comprehensive risk of crop insurance generally covers all kinds of unexpected events. The main reason to cover all the losses is to protect the losses of small and marginal farmers. Agricultural output is very important for the country's economy. This is necessary to protect the farmer from all types of losses. Risks covered under the non-preventable category of crop insurance are listed below:

- Natural Fire and Lightning
- Storm, Hailstorm, Cyclone, Typhoon, Tempest, Hurricane, Tornado etc.
- Flood, Inundation and Landslide
- Drought, Dry spells
- Pests/ Diseases etc.

The main exclusions of crop insurance do not cover losses from war or any type of nuclear attack or damage. The main benefit of crop insurance is that the farmer has access to a crop beyond its yield value. Usually, the farmer covers the yield threshold or yield value. At subsidized rates, the farmers get a portion of the crop yield but if they want to ensure additional yields, they can make up to 150%. They can do this by paying commercial rates.

GENESIS OF CROP INSURANCE SCHEMES IN INDIA

The concept of crop insurance in India dates back a long time and has had a chequered history. Over the years, it has evolved at irregular intervals but is continuously growing in terms of scope, methodologies and practices. Though many attempts were made to introduce crop insurance before independence, nothing concrete was achieved. It was only after independence that the crop insurance policy got a real shape in 1965 when the Indian Government drew up a crop insurance bill and a model scheme for crop insurance in order to empower the state to initiate crop insurance. Since then, we have moved forward a great deal in conceptualizing, formulating and implementing crop insurance schemes in the country. But we continue to grapple with these issues and challenges. In order to work out measures to address these issues, it is worthwhile to analyze and evaluate the schemes and implement an analytical overview from a historical perspective of our experiences with crop insurance.

PRE-INDEPENDENCE ERA

The pre-independence origins of crop insurance can be traced back to the Dashuri tax imposed by the Mughal emperor Akbar and the times when land revenue was suspended or canceled due to crop failure. This was shown to be one of the closest analogies to crop insurance found in the early pre-independence history of India. At the beginning of the 19^{th} century under the influence of Western countries, some efforts were made in India to introduce crop insurance. In 1920, J. S. Chakravarthi of Mysore State proposed a Rain Based Insurance Scheme based on the analysis of yield data and rainfall data to protect the farmers from severe drought in the state. He proposed to cover both the land owner and tenant farmer by collecting the premium based on the land tax. He also published several papers in the Mysore Economic Journal enunciating the concept of "Rainfall Insurance". In 1920, Shri Chakravarthi published a book titled "Agricultural Insurance: Practical Scheme Suited to Indian Conditions" and proposed an area approach for resolving the farmer's loss. However, the idea of Chakravarthi has not been implemented anywhere in India.

Apart from this, royal states like Madras and Baroda also tried to introduce crop insurance but that too did not materialize. Later in 1943, the State of Dewas Junior which is now part of Madhya Pradesh introduced compulsory crop insurance for the farmers in 1943 which was later discontinued due to a lack of interest as well as a lack of proper guidelines. Again in 1946, Dr. B. V. Narayanswamy Naidu recommended experimental crop insurance schemes to the Government of Madras on a government initiative which were not implemented. Hence, the idea of crop insurance is not new to the Indian agricultural scenario. In fact, it existed long before independence and it made many such attempts in this direction from time to time.

POST-INDEPENDENCE ERA

The question of crop insurance introduced in India was examined soon after independence. The issue was discussed by Central Legislature in 1947 and the then Minister of Food and Agriculture Dr. Rajendra Prasad confirmed that the government was studying the feasibility of introducing crop insurance and livestock insurance in India. In 1948, the Ministry of Agriculture appointed G. S. Priolkar of LIC as an Officer on Special Duty to study crop and livestock insurance problems under Indian conditions. His reports were discussed at a conference of economists, actuaries, insurance and agricultural experts held in Bombay in 1949 and it was recommended that a pilot scheme of crop insurance be immediately taken into consideration more or less, on the lines mentioned in Priolkar's report. The central government instructed all the state governments to implement the crop insurance scheme but none of the states accepted it due to financial and administrative constraints.

In 1965, due to increasing demand for crop insurance, the Government of India introduced a crop insurance bill and a model scheme of crop insurance so that interested states could introduce crop insurance in the areas under their jurisdiction. A draft bill and model scheme were prepared and circulated to the states to get their views and comments on the subject but again none of the states introduced the scheme quoting the similar cause of scarcity of funds and the state of Punjab was no longer interested in implementing the scheme as it said that the state has sufficiently developed potential of irrigation.

Further, integrating the remarks and opinions of the states, the Government of India in March 1970 considered the draft bill and the model scheme. The draft bill and model scheme were then sent to an expert committee in July 1970, led by the Chairman of the Agricultural Price Commission, Dr. Dharam Narain to assess the full economic, administrative, financial and actuarial implications.

The expert committee agreed with Priolkar's approaches but recommended that the crop insurance scheme not be introduced in the near future even pilot or experimentally. Despite the unfavourable report of the expert committee, various constraints and financial obligations India finally stepped towards getting its crop insurance schemes after a decade of efforts as discussed below.

FIRST CROP INSURANCE SCHEME

In 1972, the General Insurance Department of the Life Insurance Corporation of India undertook the first experiment of introducing crop insurance in Gujarat state on a tiny scale for the H-4 cotton crop and this pilot study followed an individual approach. Later, the newly established General Insurance Corporation of India took over an experimental scheme covering groundnut, wheat and potato in sequence and was implemented in the states of Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, Karnataka and West Bengal. It existed until a premium of Rs. 4.54 lakhs against claims of Rs. 37.9 lakhs covered 1978–79 and only 3,110 farmers. This attempt proved that an individual approach is not practically possible and economically viable in a country like India. The scheme was not profitable at all because there was a huge difference between the amount of compensation and the premium collected. The scheme did not succeed as it was soon realized that a scheme based on an individual approach was not viable in our country. The scheme was not at all beneficial as there was a vast disparity between the claim amount and the premiums collected. Thus, it paved the way for the Pilot Crop Insurance Scheme.

PILOT CROP INSURANCE SCHEME (PCIS)

In the mid-1970s, recognizing the failure of the first crop insurance program, Professor V. M. Dandekar (father of crop insurance in India) proposed an alternative homogeneous area approach to crop insurance. In 1979, General Insurance Corporation launched a pilot crop insurance scheme for this area approach. The scheme was voluntary and both the General Insurance Corporation of India and local state governments shared the risk at a ratio of 2:1. The maximum sum insured was 100 percent of the crop loan which was later increased to 150 percent. The insurance premium was 5 to 10 percent of the sum insured. The state government and the central government provided for insurance charges payable by small and marginal farmers with a 50 percent subsidy on a 50:50 basis. The scheme ran until 1984–85 with 13 states participating. From its inception to its closure 6.27 lakh farmers insured their crops, paid Rs. 197 lakh as premium and claimed Rs. 157.1 lakh as compensation. The scheme was discontinued in 1985 when the Comprehensive Crop Insurance Scheme (CCIS) was introduced in India.

COMPREHENSIVE CROP INSURANCE SCHEME (CCIS)

With the experience gained from PCIS, the central government launched the Comprehensive Crop Insurance Scheme (CCIS) with the active participation of the state government on April 1, 1985. It was the first national crop insurance scheme implemented in India. The scheme was based on the homogeneous area approach and it was compulsory for loanee farmers.

The Comprehensive Crop Insurance Scheme (CCIS) was a multi-agency scheme in which the Government of India, departments of State Governments, Banking Institutions and the General Insurance Corporation (GIC) were involved. Central and state governments shared premiums and claims in a 2:1 ratio. The maximum sum insured was 100 percent of the crop loan which was later increased to 150 percent. Premiums were kept very low at just 2 percent for cereals and millets and 1 percent for pulses and oilseeds. The farmers' share of the premium was collected at the time of disbursement of the loan. The central and state Governments subsidized equally half of the premium payable by small and marginal farmers. The maximum sum insured per farmer was Rs 10,000. The scheme covered 16 states and 2 UTs during its tenure from kharif 1985 to kharif 1999. It covered 7.63 crore farmers on an area of 12.76 crore hectares for a sum insured of Rs. 24,949 crores at a premium of Rs. 403.56 crores during its tenure. Correspondingly, the total claims outgo was Rs. 2303.45 crores, thus having a claim ratio of 1:5.75. About Rs. 59.78 lakh farmers benefited from this scheme. But the scheme was unsuccessful in all the states due to low compensation and poor implementation. The scheme was discontinued after kharif 1999 when the National Agriculture Insurance Scheme (NAIS) was introduced in the rabi 1999 season.

EXPERIMENTAL CROP INSURANCE SCHEME (ECIS)

As demanded by various states from time to time attempts were made to change the existing CCIS. In the 1997–98 rabi season, a new scheme, experimental crop insurance was launched to cover even small and marginal farmers who do not borrow from institutional sources. This scheme was implemented in 14 districts in five states. This scheme was similar to Comprehensive Crop Insurance Scheme (CCIS) except that it was only for small or marginal farmers and had a 100% premium subsidy. The central and respective state governments shared the premium subsidy and claim in a ratio of 4:1. The ECIS covered 4,54,555 farmers for a sum insured of 168.11 crores at a premium of 2.48 crores against the 37.80 crores paid in claims during its one season. The scheme was discontinued after one season due to administrative and financial difficulties and based on its experience a new crop insurance scheme was introduced by the central government in 1999, the National Agricultural Insurance Scheme (NAIS).

NATIONAL AGRICULTURE INSURANCE SCHEME (NAIS) OR RASHTRIYA KRISHI BIMA YOJANA (RKBY)

The General Insurance Corporation of India (GIC) launched the National Agricultural Insurance Scheme (NAIS) or Rashtriya Krishi Bima Yojana (RKBY) from rabi 1999–2000 which was taken over by the Agricultural Insurance Company of India Limited (AICIL) after it began business on April 1, 2003. The scheme is operating based on both the area approach for spreading calamities and the individual approach for localized calamities such as hailstorms, landslides, cyclones and floods. The scheme was compulsory for the loanee farmers; however, it was voluntary for the non-loanee farmers. It was a government-sponsored crop insurance scheme with heavily subsidized premiums. The sum insured was equal to the loan amount or up to 150 percent of the value of the average yield as per the option of the farmer.

Premium rates ranged between 1.5 to 3.5 percent for food crops and oilseeds and actuarial rates for annual, commercial and horticultural crops. Small and marginal farmers were given up to 50 percent premium subsidy support initially and 10 percent throughout the scheme. The Government of India and the state/UTs Government equally shared the 50% subsidy in premium regarding small farmers and marginal farmers. The scheme was optional for states/union territories (UTs) and the 25 states and 2 union territories had implemented it in one or more seasons.

The scheme was in operation from 1999-2000 till 2015-16 and during this period 28 states and union territories participated in this scheme. The scheme continued up to 2016 and a total of 2712.54 lakh farmers over an area of 3917.17 lakh hectares were insured for a sum amounting to Rs. 467504.76 crores and total claims paid during the period amounted to Rs. 56007.67 crores. Around 850.52 lakh farmers benefited from this scheme and it has been replaced by Pradhan Mantri Fasal Bhima Yojana (PMFBY) from kharif 2016.

WEATHER-BASED CROP INSURANCE SCHEME (WBCIS)

The Weather-Based Crop Insurance Scheme (WBCIS) is exceptional weather-based insurance that looks after crop yield losses. It reimburses for adverse rainfall occurrences both deficit and excess rainfall during kharif and adverse weather issues like frost, heat, relative humidity, unseasonal rains etc. during the rabi season. Weather-based insurance was first introduced in 2003 by ICICI Lombard for groundnut and castor farmers in Mehabubnagar, Andhra Pradesh followed by the pilot rainfall insurance scheme by IFFCO-Tokio General Insurance (ITGI) in Andhra Pradesh, Karnataka and Gujarat in 2004–05. For the first time, more insurance companies such as IFFCO—TOICO, HDFC—ERGO, L and T, Future General etc. have taken part.

Agricultural Insurance Company of India (AIC) and public sector insurers also launched rain insurance (Varsha Bima) in Andhra Pradesh, Karnataka, Rajasthan and Uttar Pradesh in 20 rain gauge areas in 2004-05 which make available five different options namely sowing failure, rainfall distribution index, seasonal rainfall index, agronomically optimal rainfall and catastrophe cover which suit the varied requirements of the farming community. Again during kharif 2005, Varsha Bima-2005 introduced around 130 districts across Andhra Pradesh, Chhattisgarh, Gujarat, Karnataka, Maharashtra, Madhya Pradesh, Orissa, Tami Nadu, Uttarakhand and Uttar Pradesh. This scheme was introduced for the major crops. Varsha Bima was also implemented in 2006 in about 150 districts/rain gauge station areas covering 16 states across the country. The scheme was based on the area approach and on actuarial premium rates with a cap of 8–10 percent for food crops and oilseeds and 12 percent for commercial crops. The scheme is made attractive and the actual premium charged to farmers was limited to at par with the NAIS. The central government bore the difference between flat premium rates, actuarial premium rates and the implementing state government on a 50:50 basis. Participation in this scheme was mandatory for loanees and voluntary for non-loanee farmers. The scheme was launched in 2007-08 in selected states like

Bihar, Chhattisgarh, Haryana, Madhya Pradesh, Punjab, Rajasthan and Uttar Pradesh. Later it was extended to 21 states and union territories of the country. The government extends private companies the same level of financial support. Unlike NAIS, the insurers bear the entire claim under the scheme. Weather insurance is already being treated as an “alternative” to NAIS (at least in the pilot area) as the WBCIS is not available to the farmers in the areas where the NAIS is notified.

During the tenure of this scheme from 2007-2008 to 2015-2016, 21 states and union territories participated. Response received regarding this scheme from farmers was very poor. A total of 720.22 lakh farmers were insured in an area of 886.62 lakh hectares for an amount of Rs. 122,941.03 crores and total claims paid during the period amounted to Rs. 9665.47 crores. About 511.04 lakh farmers get benefited from this scheme. Rajasthan and Bihar have largely benefited from this scheme. The performance of WBCIS was not to the level of expectation due to the high cost of the premium, complex computational procedure and inadequacy in the number of Automatic Weather Stations (AWS).

MODIFIED NATIONAL AGRICULTURAL INSURANCE SCHEME (MNAIS)

Based on the recommendation of the joint group of the 11th five-year plan, the Government of India introduced MNAIS schemes with some modifications to existing NAIS from 2010–11 rabi crop season on a pilot basis in 50 districts. Later on, it extended all over the country. The main objectives of the new scheme were to provide insurance coverage and financial support to farmers in the event of crop failure of the notified crops in the notified area. MNAIS covered the risks of all-natural calamities, pests and diseases along with risk cover for prevented sowing/planting and post-harvest losses because of cyclones, MNAIS made sure to follow actuarial premium rates to ensure reinsurance opportunities at the international level.

The scheme encouraged the farmers to adopt the best innovative technology and high-value inputs in agriculture. The scheme was based on the area approach and participation was compulsory for loanee farmers and voluntary for non-loanee farmers. This scheme covered crop losses from the pre-sowing period to the post-harvest period. Only MNAIS was available to the farmers in the districts notified under MNAIS, they could not take other insurance schemes. However, the states had the option of notifying a particular crop or tehsil/block under MNAIS and for the other crops, tehsils/blocks of other schemes could be operated.

The major improvements and highlights of the scheme are the on-account settlement of claims, the minimum indemnity level of 70 percent instead of 60 percent as in NAIS and besides Agricultural Insurance Company Limited (AICL), private companies with adequate infrastructure and experience will be allowed selectively to implement the scheme.

The Government of India allowed private insurance companies to participate in this scheme and created a Catastrophe Relief Fund at the national level with the support of the state Government contributing to the ratio of 50:50 to protect the insurance companies in the event of a premium claim ratio exceeding 1:5 at the national level. Under MNAIS, the premium rate charged was actuarial. The government has made provisions for up to a 70% premium subsidy for all farmers.

The MNAIS scheme was implemented in 21 states and union territories and continued up to 2016. During the period of this scheme (2010-11 to 2015-16) a total of 276.62 lakh farmers and an area of 297.59 lakh hectares were insured for Rs. 62,079.32 crores. The gross premium collected was Rs. 4935.77 crores with claims paid amounting to Rs. 5578.42 crores and the farmers benefited from this scheme was 99.26 lakhs.

RESTRUCTURED WEATHER-BASED CROP INSURANCE SCHEME (RWBCIS)

The Restructured Weather Based Crop Insurance Scheme was implemented in kharif in 2016 by modifying the WBCIS with the objective of protecting the farmers from anticipated crop loss resulting from adverse weather conditions such as humidity, rainfall, extreme temperature, fast-flowing winds etc. At first, the scheme was applied in 12 states during kharif 2016 and in nine states during rabi 2016–2017. The Ministry of Agriculture and Farmers' Welfare administered the scheme.

This scheme used weather parameters as a substitute for crop yields in paying the farmers for expected losses of the crop. The present scheme operates based on an area approach. Pay out structures were developed to cover the range of losses deemed to have been suffered using the weather triggers. The insurance period is also referred to as the risk period which is basically the period from sowing to the maturity of the crops. Both the central and state Government are actively involved in the scheme's implementation. All farmers including sharecroppers and tenants were covered by this scheme.

Participation in this scheme was necessary for loanee farmers and voluntary for non-loanee farmers. All food crops, oilseeds and annual commercial or horticultural crops are covered in this scheme. The crops for which historical yield data is not available can also be covered. The scheme capped the premium rate to 5 percent of the sum insured in the case of annual commercial and horticulture crops and 2 percent of the sum insured for food crops. The difference between the premium paid by the farmer and the actual premium is shared by the central government and the state government as a subsidy to the premium.

The scheme was implemented by 13 states from 2016–2017 to 2022–2023. A total of 115.22 lakh applications received over an area of 210.49 lakh hectares were insured for a sum of 73154.7 crores. The gross premium collected was Rs. 15586.85 crores with total claims amounting to Rs. 13554.48 crores. The total claims paid during this period amounted to Rs. 13283.33 and 398.06 crore farmers benefited from this scheme.

PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY)

The announcement of the Pradhan Mantri Fasal Bima Yojana (PMFBY) is considered a major evolution in the insurance sector of the country and was introduced by the government of India on January 13, 2016. It was lined up with the One Nation-One Scheme idea by replacing the previous two schemes the National Agricultural Insurance Scheme (NAIS) and the Modified National Agricultural Insurance Scheme (MNAIS) with their best features and cutting off their inherent drawbacks (shortcomings) and setting up a national portal for effective implementation and monitoring of crop insurance schemes. It is the third-largest crop insurance scheme in the world and is on its way to becoming the world's largest crop insurance scheme with around 5 crore farmer applications being received under the scheme every year.

The PMFBY functioned on an area approach in particular notified areas. This scheme was mandatory for farmers taking loans from any financial source and optional for non-loanee farmers but from kharif 2020 the scheme was made optional for loanee farmers. The scheme is executed through a multi-agency framework by impaneled insurance companies working in association with the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW), the Ministry of Agriculture and farmers welfare, state and central government, financial institutions and different government departments such as Statistics, Horticulture, Agriculture, Revenue, IT and Panchayat Raj etc.

The farmers are given a set of rules regarding the premium they have to pay to get their crops insured and the balance premium or subsidy will be paid by the government. A premium of 2% is to be paid on kharif crops and a premium of 1.5% on rabi crops. For cash/horticultural crops, the premium is declared at 5%. The premium subsidy is equally shared by the central and state governments. The important feature of this scheme is that there is no upper limit for government subsidies.

The advantages of this scheme compared to previous schemes are: the stipulation on the number of crop cutting experiments (CCEs) is fixed at 4 for main crops and 8 for other crops at the village level; harnessing the advantage of mobile phone technology and GPS for enhancing the quality and quicker estimation of loss; involvement of other public and private insurance companies in addition to AIC; wider risk coverage at different stages of crop growth and post-harvest losses incurred because of natural calamities. The achievement of 41% inclusion of farmers within a few years after the commencement of PMFBY seems noteworthy, notably when compared with the 28% inclusion of farmers accomplished under three merged plans (WBCIS, NAIS and MNAIS) before the implementation of PMFBY. Several changes were introduced in the scheme after it was first implemented to expand the coverage of both the number of farmers and the area.

In 2017–2018, the new crop insurance portal www.agriinsurance.gov.in was launched and a further new crop insurance portal www.pmfby.gov.in was launched for all states in 2018–2019. In 2018–2019, the scheme covered crop losses caused by wild animals. Since 2017–2018 Aadhar card has been mandatory under this scheme. In 2020–2021 some changes were made by the Government of India as suggested by several policymakers which included the voluntary participation of all farmers, business allocation to insurance companies for three years as an alternative of one year during 2016–2017 to 2019–2020, limited premium subsidies (i.e., 30 percent for unirrigated areas and 25 percent for irrigated areas), the premium subsidy increase from 50 percent to 90 percent for the North Eastern States, fixed cut-off dates for the states to release the premium subsidy payments (i.e. 31 March and 30 September for the kharif and rabi seasons, respectively), flexibility for states to decide crop loss limits and new provisions made for insurance companies (i.e., 0.5 percent of total premium to be spent on information and education). Till now 27 states/union territories have implemented the PM Fasal Bima Yojana (PMFBY) Scheme in one or more seasons.

The scheme provided financial assistance to the most vulnerable farmers as approximately 85 percent of farmers enrolled in the scheme are small and marginal farmers. Farmers have to report crop loss within 72 hours of the incidence of any happening through the Crop Insurance App, CSC Centre or to the adjacent agriculture officer and benefits of the claim will be electronically transferred into the bank accounts of the eligible farmer.

The scheme successfully entered its seventh year of implementation and the government has launched a doorstep distribution drive to deliver insurance policy to the farmers ‘Meri Policy Mere Hath’ in all implementing states/union territories. The aim of this campaign is to ensure that all farmers are well informed and have all the information about their policy, land records, compensation process and grievance redressal under PMFBY.

This campaign aims to ensure that all farmers are fully informed about their policies, land records and the procedures for filing claims and grievances under PMFBY.

CONCLUSION

From the above discussion, it is believed that crop insurance systems introduced by the government are in the interest of farmers. But getting there failed to meet the expected results due to weak policy implications, a lack of awareness and illiteracy among farmers about crop insurance schemes and poor performance by implementing agencies. Hence, there is a necessity to make use of them; in that way creating awareness about schemes, the procedure of providing insurance with knowledge of its benefits and the implementation process for farmers is necessary to get the purpose fulfilled.

It also notes that various crop insurance schemes have been introduced to protect farmers from crop failure. But suicide rates in the country have been increasing day by day. The main reason is that the implementing agencies do not understand the problems facing our farmers. They continue with their insurance experiments, sometimes for specific crops, stable farm incomes and specific areas. Further research should include all other crops under the insurance scheme to explain the effect of crop insurance participation on the livelihood security of small and marginal farmers. As such, the government should focus on making crop insurance schemes more effective and farmer-friendly by enforcing proper legislation.

REFERENCES

- Agricultural Census (2014). *Agricultural Statistics Division*. New Delhi: Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India.
- Agriculture Insurance Company of India Ltd. (2021). *Evolution of Crop Insurance*.
- Agriculture Statistics at a Glance. (2020). *Directorate of Economics and Statistics*. New Delhi: Ministry of Agriculture and Farmers Welfare, Government of India.
- Agriculture Statistics at a Glance. (2021). *Directorate of Economics and Statistics*. New Delhi: Ministry of Agriculture and Farmers Welfare, Government of India.
- Agriculture Statistics at a Glance. (2022). *Directorate of Economics and Statistics*. New Delhi: Ministry of Agriculture and Farmers Welfare, Government of India.
- Agriculture Insurance Company of India Ltd. (2021). *Evolution of Crop Insurance.*
- Bharati, R. C., Azad, N. K., Singh, K. M., Chakraborti, S., Chandra, N., & Singh, S. P. (2014). Factors Affecting Adoption of Crop Insurance in Bihar. *Journal of Agri Search*, *1*(2), 102-107.
- Bhende, M. J. (2005). *Agricultural Insurance in India: Problems and Prospects*. Department of Economic Analysis and Research, National Bank for Agriculture and Rural Development.
- Bhende, M. J. (2002). An analysis of Crop Insurance Scheme in Karnataka. Bangalore: Agricultural Development and Rural Transformation Unit. *Institute for Social and Economic Change (ISEC)*.
- Bhattacharya, Saheli., & Biswas, Bappaditya. (January & July, 2018). Evolution of Different Crop Insurance Schemes in India: An Analytical Study. *Business Studies*, *XXXIX*, (1 & 2), 59-72.
- Devi, Neerja. (2022, January). Agriculture Insurance: Special Reference to Crop Insurance Scheme in India. *International Journal of Creative Research Thoughts (IJCRT)*, *10*(1), 541-549.
- Dandekar, V M. (1976, June 26). Crop Insurance in India. *Economic and Political Weekly (EPW)*, *11*(26).

- Garg, Ritika. (2022, August). Crop Insurance in India. *International Journal of Economic Perspectives,16*(8), 5-11.
- Ghosh, N., & Yadav, S. S. (2008). *Problems and Prospects of Crop Insurance: Reviewing Agricultural Risks and NAIS in India*. New Delhi: Institute of Economic Growth.
- Government of India (GOI). (2005). *All India Report on Number and Area of Operational Holdings*. New Delhi: Dept. of Agriculture and Cooperation, Ministry of Agriculture, Government of India.
- Government of India. (2020). *Pradhan Mantri Fasal Bima Yojana: Revamped Operational Guidelines.* New Delhi: Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture and Farmers Welfare, Government of India.
- Gupta, P. K. (2016). *Essential of Insurance and Risk Management*. Himalaya Publishing House, Mumbai, India.
- Jaffee, S., Siegel, P., and Andrews, C. (2010). *Rapid Agricultural Supply Chain Risk Assessment: A Conceptual Framework.* The World Bank. Washington, DC.
- Kaur, Sandeep., & Raj, Hem., Singh, Harpreet., & Chattu, Vijay Kumar. (October, 2021). Crop Insurance Policies in India: An Empirical Analysis of Pradhan Mantri Fasal Bima Yojana. *Risks 9* (191), 1-26. Available at https://www.mdpi.com/2227-9091/9/11/191/xml
- Kumar, Vikas. (2020). Performance Analysis of National Agricultural Insurance Scheme (NAIS) and Pradhan Mantri Fasal Bima Yojana (PMFBY). *Agro Economist - An International Journal, 7*(2), 145-152.
- Kumar, Keshav. (2022). *Critical Appraisal of Crop Insurance Schemes: A Study of Haryana State* (Ph. D. Thesis). Faculty of Management Sciences & Commerce, Institute of Management Studies and Research Maharshi Dayanand University, Rohtak, Haryana.
- Karthik, T. T. (2013). *A Study on Crop Insurance in Madurai District* (Ph. D. Thesis). Department of Commerce and Research Centre, Sourashtra College, Madurai, Tamil Nadu.
- Mansingh, J. Paul., A Nisha. (2020). Crop Insurance in India: Evolution, Issues and Way Forward. *Journal of Critical Reviews, 7*(11), 2851-2869.
- Nair, Reshmy. (2010, February 6). Crop Insurance in India: Changes and Challenges. *Economic & Political Weekly, XLV*(6), 19-22.

- Raju, S. S., & Chand, Ramesh. (2008). *Agricultural Insurance in India: Problems and Prospects.* Working Paper No. 8 was submitted to the National Centre for Agricultural Economics and Policy Research (Indian Council of Agricultural Research), New Delhi.
- Raju, S. S., & Chand, Ramesh. (2008). A Study on the Performance of National Agricultural Insurance Scheme and Suggestions to Make It More Effective. *Agricultural Economics Research Review, 21*, 11-19.
- Report of the Working Group on Risk Management in Agriculture for the Eleventh Five-Year Plan (2007-2012). New Delhi: Planning Commission of India.
- Shehrawat, Aditya., Sharma, Nidhi., Shehrawat, Pardip., & Bhakar, Sandeep. (2020, June). Awareness and Performance of Agricultural Development Schemes in Context of Farmers' Welfare in Haryana. *Economic Affairs, 65*(2), 167-172.
- Singh, Archana. (2016, July). Agriculture Insurance in India. *Bimaquest, 16*(2), 69-95.
- Singh, Gurudev (June, 2010). *Crop insurance in India*. Working Papers. Research and Publication, Indian Institute of Management, Ahmadabad.
- Singh, Shitar. (2004). Crop Insurance in India - A Brief Review. *Journal of the Indian Society of Agricultural Statistics, 57* (Special Volume), 217-225.
- Susil Kumar Sarangi and Dibakar Panigrahi (2016, January). Crop Insurance, the Backbone of Indian farming community Issues and Challenges. *Journal of Engineering Research and Applications*, *6*(1), 39-47.
- Skees, Jerry., Hazell, Peter., & Miranda, Mario. (1999, November). *New Approaches to Crop Yield Insurance in Developing Countries.* EPTD Discussion Paper No 55, Environment and Production Technology Division, International Food Policy Research Institute, Washington, DC. available at http://www.ifpri.org/sites/default/files/ publications/eptdp55.pdf
- McMahon, Mary (2023, April). *What is Crop Insurance?* Available at http://www.wisegeek.com/what-is-crop-insurance.htm
- Tiwari, Rajesh., Chand, Khem., & Anjum, Bimal. (2020). Crop Insurance in India: A Review of Pradhan Mantri Fasal Bima Yojana (PMFBY). *FIIB Business Review, 9*(4), 249–255.

- Tom, Jiya. (2019, April – June). Crop Insurance Schemes in Kerala: Extent, Challenges and Solutions. *International Journal of Interdisciplinary Research and Innovations, 7*(2), 480-485.
- http://164.100.47.193/Refinput/New_Reference_Notes/English/CROP%20INSURANCE%20IN%20INDIA.pdf
- https://english.jagran.com/business/pmfby-farmers-paid-125-lakh-crore-in-claims-till-october31-10056038
- https://www.managementstudyguide.com/crop-insurance.htm
- https://pib.gov.in/PressReleasePage.aspx?PRID=1799297
- http://planningcommission.nic.in
- https://financialservices.gov.in
- https://pmfby.gov.in
- https://krishijagran.com/
- https://agroinsurance.com/
- www.aicofindia.org.
- https://pib.gov.in
- www.Indiastat.com
- https://desagri.gov.in
- https://www.aicofindia.com