

Crop Insurance Schemes in India: A Glance

Dr. Manisha¹, Harpreet Kaur²

¹Associate Professor, of Economics, ²Research Scholar, Department of Distance Education

^{1,2}Punjabi University, Patiala, Punjab, India

How to cite this paper: Dr. Manisha | Harpreet Kaur "Crop Insurance Schemes in India: A Glance" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-3 | Issue-5, August 2019, pp.480-485, <https://doi.org/10.31142/ijtsrd25354>



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The decrease in agriculture's contribution to GDP has not been accompanied by equal reduction in the share of agriculture sector in employment. About fifty percent of the total workforce is still employed by this sector. Agriculture sector faces various types of natural hazards. Agriculture insurance is significant instrument to give protection to the farmers under risky activities and playing an important role in cultivation decision, agricultural production decision and chemical use decision. Although sharecropping is an important policy to give protection to the farmers under risky activities yet it gives protection to landless peasants only. It fails to protect the small and medium sized farmers from risk. Agriculture insurance is more effective instrument to deal with this problem as it provides the financial security to the farmers (GOI, 2013).

Although the idea of crop insurance was introduced in India during 1915 yet the formal attempt for the introduction of agriculture insurance was started after the independence of the country. An officer on special duty was appointed who prepared the two insurance schemes that were cattle insurance and crop insurance. These both the schemes were not implemented in the country due to the paucity of funds among the states. After that, the draft bill and a model scheme were prepared and these were circulated among states for express their views. The different states were given different views about the model scheme. Then these were referred to expert committee (1970) which was chaired by Dharam Narain for fuller examination of their economic, administrative and financial implications. By

ABSTRACT

Agriculture is a main stay of Indian economy. About fifty percent population of India is dependent upon agriculture sector for their sustenance notwithstanding its reduced share in GDP of India. Agricultural production is frequently affected by natural disasters like floods, earthquake, drought, cyclone etc. these events severely affect the income of the farmers through loss in agricultural production as these events are beyond the control of farmers. With the commercialization of agriculture, magnitude of loss due to these events is increasing. The important strategy which can effectively address the risk to output and farm income is agriculture insurance. Since independence the various agriculture insurance schemes have been introduced in the country. The main objective of this paper is to examine the growth and performance of agriculture insurance in India. The farmers who have insured their crops during the rabi season were 78362063 and during kharif season were 192794173 from 1999-00 to 2015-16 under the NAIS.

KEYWORDS: Agriculture, Agriculture Insurance, NAIS, WBCIS, Growth and Performance

I. INTRODUCTION

Agriculture is a critical sector of India. It has undergone major structural changes in the form of decrease in its share in country's GDP from 50 percent during 1948 to 17.0 percent in 2016-17 indicating a shift from the agrarian economy towards a service sector.

obtaining the conditions which were prevailed in the country, the committee concluded that it was not advisable to introduce crop insurance on pilot or an experimental basis in the country (Nain et.al., 2017).

However, the first agriculture insurance scheme was introduced in 1972, in Gujarat mainly for the H-4 cotton. Later on, the scheme was extended to other states and other crops. This scheme was based on the individual approach which means that the indemnity was paid to each farmer by ascertaining the crop output of each farmer separately. It was difficult to ascertain the crop output of each individual separately as it was expensive therefore; Dandekar recommended that the agriculture insurance scheme should be introduced on the basis of homogeneous area approach rather than the individual approach (Dandekar, 1976). After that a number of agriculture insurance schemes are introduced in India like, Pilot Crop Insurance Scheme, Comprehensive Crop Insurance Scheme, Experimental Crop Insurance Scheme, National Agriculture Insurance Scheme, Weather Based Crop Insurance Scheme, Modified National Agriculture Insurance Scheme, Coconut Palm Insurance Scheme and recently, the Pradhan Mantri Fasal Bima Yojana has been introduced. All these schemes are based on the homogeneous area approach.

Objective

The main objective of the paper is to examine growth and performance of agriculture insurance in India.

Methodology

The proper implementation of the agriculture insurance schemes in India can be seen from the year 1999-2000. Since 1999-00, major schemes implemented in India are National Agriculture Insurance Scheme, Weather based Crop Insurance Scheme, Modified National Agriculture Insurance Scheme, Coconut Palm Insurance Scheme and Pradhan Mantri Fasal Bima Yojana. Therefore, the paper has analysed these five schemes by using secondary data. The main sources of secondary data are Agriculture Statistics at a Glance, Government of India Ministry of Agriculture, Cooperation and Farmers' welfare.

National Agriculture Insurance Scheme

In order to, provide the financial support to the farmers in the event of financial loss due to failure of crops as a result of natural calamities like, flood, drought, pests and diseases the national agriculture insurance scheme (NAIS) was introduced in the country during the rabi season of 1999-00. This scheme was available to all the farmers i.e., loanee as well as non- loanee farmers irrespective of their size of holding and the scheme was compulsory for the loanee farmers and voluntary for non-loanee farmers. It covered all the food grains, oilseeds, horticultural and commercial crops. The premium rate charged under the scheme was 1.5

percent for wheat, 2 percent for the food crops and 3.5 percent for the oilseeds. Under the scheme, 10 percent subsidy on the premium rate was given to the small and marginal farmers (Singh, 2016).

The performance of the National Agriculture Insurance Scheme (NAIS) during the Rabi season has been shown in the table 1. The table revealed that there were 579940 farmers who have insured their crops in 1999-2000, which increased to 6210648 in 2008-09, the number declined in 2013-14, simultaneously the area insured under the agriculture insurance scheme and sum insured was also declined, reason being, the modified national agriculture insurance scheme was introduced in 2010-11 on pilot basis, which become the full fledged part of the national crop insurance program in 2013-14, this scheme was improvement over NAIS as the insurance unit was reduced to the village level from the block level. The gross premium paid for the insurance of crops from 1999-00 till 2015-16, was Rs. 415404.54 lakh which had 25.09 percent CAGR. The amount of claims reported at constant prices of 2011-12 was Rs. 1719.02 lakh in 1999-00, which increased to Rs. 215349.89 lakh in 2008-09 and the amount of claims declined in 2013-14.

Table 1 Performance of National Agriculture Insurance Scheme during Rabi Season (Amount in Rs. Lakh)

Season	No. of Farmers Covered	Area Insured (in Hec)	Sum Insured	2011-12=100	
				Gross Premium	Claims
1999-2000	579940	780569.36	79644.04	1212.24	1719.02
2000-01	2091733	3111423.25	348031.40	6034.22	12917.76
2001-02	1955431	3145872.65	314141.19	6324.29	13563.67
2002-03	2326811	4037824.35	372651.63	7808.64	38237.35
2003-04	4421287	6468662.75	592709.83	12450.67	96618.79
2004-05	3531045	5343243.62	718622.49	14442.65	30576.16
2005-06	4048524	7218417.22	933835.61	19301.05	62290.92
2006-07	4977980	7632881.68	1107348.36	24183.48	87334.82
2007-08	5044016	7387156.02	1170136.86	24872.28	126967.43
2008-09	6210648	8857836.10	1590174.05	42179.55	215349.89
2009-10	5681148	7899761.05	1387908.47	36780.33	74048.42
2010-11	4967878	6938628.49	1187121.96	32147.41	705312.94
2011-12	5239299	7689277.50	1128393.63	25767.81	54320.16
2012-13	6141677	8691156.99	1410119.16	40188.49	184250.40
2013-14	3973984	6472309.81	374555.63	24152.38	84708.81
2014-15	7009527	9180141.42	1670310.40	43012.44	103126.67
2015-16	10161135	11780316.73	2116412.36	54546.61	142969.60
Total	78362063	112635479	16502117.07	415404.54	2034312.81
CAGR (percent)	18.34	17.31	21.28	25.09	29.69

Source: Agriculture Statistics At A Glance 2016

The performance of national agriculture insurance scheme during the kharif season has been shown in the table 2. The table revealed that there were 8409374 farmers who have insured their crops in 2000, which increased to 18253072 in 2009 after that the number of farmers who have insured their crops was continuously decreased till 2014, simultaneously the area insured under the scheme was also declining whereas the variations can be seen in the sum insured. The gross premium paid for the insurance of crops till the kharif season 2015 was Rs. 1336954.7 lakh. The amount of claims reported was Rs. 273180.22 lakh in 2000, which increased to Rs. 647189.89 lakh in 2009, the amount of claims reported declined in 2014.

Table 2 Performance of National Agriculture Insurance Scheme during the Kharif Season**(Amount in Rs. Lakh)**

Season	No. of Farmers Covered	Area Insured (in Hec)	Sum Insured	Gross Premium	Claims Reported
			2011-12=100		
2000	8409374	13219828.68	1542655.59	46197.43	273180.22
2001	8696587	12887710.38	1629198.94	56811.77	107195.59
2002	9768711	15532348.53	1978538.61	68274.97	382712.82
2003	7970830	12355513.83	1645533.46	57459.32	132362.85
2004	12687104	24273393.97	2559886.47	89201.71	201806.45
2005	12673833	20531037.95	2574085.70	85672.01	206863.88
2006	12934060	19672280.35	2717613.88	86041.50	327051.90
2007	13398822	20754746.67	2878802.25	88747.93	154935.17
2008	12992272	17636186.74	2455112.51	80229.35	372637.91
2009	18253072	25769817.24	3939053.83	123070.73	647189.89
2010	12682242	17108888.27	2989669.39	91008.13	207007.63
2011	11554561	15776488.93	2532302.27	77018.77	179559.87
2012	10649354	15693700.52	2719906.05	87874.18	278578.9
2013	9746595	14230707.02	2596431.86	87766.96	278312.97
2014	9683572	11545892.10	1979532.01	68559.92	236883.76
2015	20693184	22020703.98	4108484.61	143020.05	1165741.45
Total	192794173	279009245.2	40846807.43	1336954.7	5152021.26
CAGR	6.18	3.46	6.74	7.82	10.15

Source: Agriculture Statistics At A Glance 2016 and Annual Report of Insurance regulatory Authority of India.

Weather Based Crop Insurance Scheme

In order to bring more farmers under the fold of crop insurance, the weather based crop insurance scheme (WBCIS) was introduced in the union budget of 2007-08. This scheme intends to provide the insurance protection to the farmers from the adverse weather conditions, like excess and deficit rainfall, humidity, high or low temperature which adversely affect the production of crops. The premium rate was capped at 10 percent in the kharif season, 8 percent in the rabi season and 12 percent for the horticultural and commercial crops. The loanee as well as non-loanee farmers were covered under the scheme irrespective of their size of holding. The subsidy up to 50 percent on the premium rate was provided to the farmers by the government which was shared by the centre and state government equally i.e., on 50:50 basis. (GOI 2016-17).

The performance of weather based crop insurance scheme during the kharif season has been shown in the table 3. The table revealed that the number of farmers who have insured their crops was increasing continuously since the inception of the scheme to 2013, after that the declining trend can be seen for the years 2014 and 2015, simultaneously the area insured and sum insured was also declined. The gross premium paid for the insurance of the crops till 2015 was Rs. 688822.03 lakh. The amount of claims reported was Rs. 887.14 lakh in 2007, which increased continuously and become Rs. 107341.72 in 2013, afterwards the amount of claims reported, declined in 2014 and 2015.

Table 3 Performance of Weather Based Crop Insurance Scheme during Kharif Season**(Amount in Rs. Lakh)**

Season	No. of Farmers Covered	Area Insured (in Hec)	Sum Insured	Gross Premium	Claims Reported
			2011-12=100		
2007	43790	50074.12	8972.58	1190.05	887.14
2008	183481	221202.06	55023.09	5667.28	2515.65
2009	1161055	1530782.47	301769.25	30253.74	22520.74
2010	4916784	7393241.52	715785.61	75085.68	24201.11
2011	6905831	9787965.59	1116077.16	111022.10	45925.06
2012	8008123	11124733.65	1287053.19	129474.13	87611.88
2013	8854162	11172435.74	1312704.58	131983.94	107341.72
2014	8173252	9634995.54	1075514.87	127069.22	100771.54
2015	5399549	6294554.64	665779.74	77075.89	102717.89
Total	43646027	57209985	6538680.07	688822.03	494492.73
CAGR	82.54	82.98	71.31	68.42	81.11

Source: Agriculture Statistics At A glance 2016.

The performance of weather based crop insurance scheme during the rabi season has been shown in the table 4. The table revealed that the total number of farmers who have insured their crops was 634635 in 2007-08, the number increased to 5606265 in 2012-13, afterwards the number of farmers continuously decreased during the years 2013-14 and 2014-15, simultaneously the area insured under the scheme was also declined. The total gross premium paid for the insurance of crops during the time period was Rs. 472544.81 lakh which had 10.83 percent CAGR. The amount of claims reported was Rs. 15734.12 lakh in 2007-08 which increased to Rs. 66635.56 lakh in 2011-12, afterwards the amount of claims reported declined.

Table 4 Performance of Weather Based Crop Insurance Scheme in India during Rabi Season**(Amount in Rs. Lakh)**

Season	No. of Farmers Covered	Area Insured (in Hec)	Sum Insured	Gross Premium	Claims Reported
2007-08	634635	1018253.59	272512.52	22147.12	15734.12
2008-09	191647	260907.89	76497.90	6493.85	4767.25
2009-10	1201525	1891091.45	360356.64	29696.97	23518.56
2010-11	4383504	5745537.01	930867.18	74809.78	47695.75
2011-12	4766033	5844670.10	985846.15	81471.94	66635.56
2012-13	5606265	7001317.08	963483.65	83437.36	63305.22
2013-14	5302443	5335370.45	884605.03	74949.54	57228.79
2014-15	3078605	4750655.06	353358.06	43622.86	49723.29
2015-16	3629990	3139524.24	472984.14	55915.39	57349.94
Total	28794647	34987326.87	5300511	472544.81	385958.48
CAGR	21.38	13.32	6.31	10.83	15.45

Source: Annual Report of Insurance Regulatory Authority of India 2014-15 and Agriculture Statistics At A Glance 2016.

Modified National Agriculture Insurance Scheme

In order to remove the shortcomings of the national agriculture insurance scheme the modified national agriculture insurance scheme (MNAIS) was introduced in 2010. Under this scheme, the unit of insurance was reduced to the village level, private insurance companies were also involved for implementation and in order to provide competitive service to the farmers. The premium rate was capped at 11 percent for the kharif season, 9 percent for rabi season and 13 percent for the horticultural and commercial crops. The subsidy on the premium rate was increased up to the 75 percent and the minimum indemnity was increased up to 70 percent instead of 60 percent under NAIS (Kiren and Umesh, 2012).

The performance of the modified national agriculture insurance (MNAIS) during the rabi season has been shown in the table 5. The table revealed that the number of farmers who have insured their crops was increasing continuously from 2010-11 to 2015-16, simultaneously the area insured and gross premium was also increasing whereas the variations can be seen in the amount of claims reported.

Table 5 Performance of Modified National Agriculture Insurance Scheme during Rabi Season in India**(Amount in Rs. Lakh)**

Season	No. of Farmers Covered	Area Insured (in Hec)	Sum Insured	Gross Premium	Claims Reported
2010-11	358421	323734.24	74786.03	5101.97	1741.11
2011-12	754999	707381.12	201008.37	16521.27	8428.11
2012-13	949009	741753.02	186458.46	16992.69	4812.88
2013-14	2997404	3253404.75	520016.92	35263.40	42822.63
2014-15	3205571	3552800.24	711350.17	39163.94	69326.52
2015-16	3799463	3513944.31	878717.03	43093.59	50192.62
Total	12064867	12093017.7	2572336.98	156136.86	177323.87
CAGR	48.21	48.79	50.77	42.70	75.10

Source: Annual Report of Insurance Regulatory Authority of India 2014-15 and Agriculture Statistics At A Glance 2016.

The performance of modified national agriculture insurance scheme during the kharif season has been shown in the 6. The table revealed that the number of farmers who have insured their crops was increasing continuously from 2011 to 2014 and declined in 2015, simultaneously the area insured and sum insured was also declined. The gross premium paid for the insurance of crops till the kharif season 2015 was Rs. 265826.79 lakh. The amount of claims reported under the scheme was continuously increasing from 2011 to 2015 except the year 2014.

Table 6 Performance of Modified National Agriculture Scheme during the Kharif Season**(Amount in Rs. Lakh)**

Season	No. of Farmers Covered	Area Insured (in hec)	Sum Insured	Gross Premium	Claims Reported
2011	458157	665653.80	145107.78	13130.88	10361.15
2012	2062445	2239316.33	489695.03	56432.04	62344.62
2013	2361334	2274451.46	522947.27	57471.07	76722.38
2014	5896600	7000241.98	769624.39	75326.04	51134.51
2015	4813664	5532155.96	646245.85	63466.76	86753.33
Total	15592200	17711819.53	2573620.32	265826.79	287315.99
CAGR	80.03	69.78	45.27	48.27	70.10

Source: Agriculture Statistics At A Glance 2015

Coconut Palm Insurance Scheme

The coconut palm insurance scheme was introduced in 2009-10, in the selected areas of Andhra Pradesh, Karnataka, Goa, Kerala, Odisha, West Bengal, Tamil Nadu and Maharashtra. This scheme was implemented mainly in coconut producing states and administered by the Coconut Development Board. Under this scheme fifty percent of the gross premium was paid by the government of India, 25 percent by the concerned state government and remaining 25 percent by the farmers (Raju and Chand, 2007).

The performance of the coconut palm insurance scheme has been shown in the table 7. The table revealed that the highest number of farmers who have insured their crops were from Kerala i.e., 52464 and lowest from Goa i.e., 240. The highest number of palms insured, sum insured, premium and claims was also paid to Kerala whereas the zero amount of claims was paid to Andhra Pradesh, Odisha and West Bengal.

Table 7 State Wise Performance of Coconut palm insurance scheme

(Amount in Rs. Lakh)

State	No. of farmer covered	No. of palms	Sum insured	Gross Premium	Claims Reported
Andhra Pradesh	845	55623	1368	15	0
Goa	240	59643	693	4	2
Karnataka	704	96422	1068	6	3
Kerala	52464	2096851	22705	120	336
Maharashtra	14659	1066749	12845	90	29
Odisha	687	21558	354	3	0
Tamil Nadu	4085	855105	8073	58	47
West Bengal	692	28558	328	2	0
TOTAL	74376	4280509	47433	298	417

Source: Annual Report of Department of Agriculture, Cooperation and Farmer's Welfare 2017-18

Pradhan Mantri Fasal Bima Yojana

To remove the problems of the modified national agriculture insurance scheme the Pradhan Mantri Fasal Bima Yojana (PMFBY) was introduced during the kharif season 2016. Under the scheme the maximum premium paid by the farmers was fixed 2 percent for the kharif crops, 1.5 percent for the rabi crops and 5 percent for the horticultural and commercial crops. The remaining premium rate paid by the central and state government equally on 50:50 basis. There was no fixation of the upper limit of the subsidy paid to the farmers on the premium rate (Singh, 2018).

The season wise performance of the Pradhan Mantri Fasal Bima Yojana has been shown in the table 8. The table revealed that the total number of farmers who have insured their crops from the kharif season 2016-17 to rabi season 2017-18 was 542300, the gross premium paid was Rs. 4657400 lakh and amount of claims reported was Rs. 2813900 lakh.

Table 8 Season Wise Performance of the Pradhan Mantri Fasal Bima Yojana
(Amount in Rs. Lakh)

Season	Farmer's covered	Gross premium	Claims Reported
Kharif 2016-17	40600	1636100	1006300
Rabi 2016-17	16700	582800	442100
Kharif 2017-18	333000	1915800	1365500
Rabi 2017-18	152000	522700	NA
Total	542300	4657400	2813900

Source: Annual Report of Department of Agriculture, Cooperation and Farmer's Welfare 2017-18

Conclusion

Agriculture is an important sector of Indian economy. It faces different types of natural hazards. Agriculture insurance is a significant instrument to give protection to farmers under risky activities. Since independence the various agriculture insurance schemes have been introduced in the country. The proper implementation of the agriculture insurance schemes in India can be seen from the year 1999-2000. Therefore, the paper has analysed those schemes which are implemented in India since 1999. The NAIS was implemented in the country during 1999-00, there were 579940 farmers, who have insured their crops in 1999-2000, which increased to 6210648 in 2008-09, the number declined in 2013-14, simultaneously the area insured under the agriculture insurance scheme and sum insured was also declined, reason being, the MNAIS was introduced in 2010-11 on pilot basis, which become the full fledged part of the national crop insurance program in 2013-14, this scheme

was an improvement over NAIS as the insurance unit was reduced to the village level from the block level and it was decided to discontinue the NAIS during 2013-14. In some states this scheme was continued till 2015-16. There was the delay in the payment of claims under NAIS, in order to overcome this drawback the WBCIS was introduced in the country during 2007-08 and modified national agriculture insurance scheme in 2010. The number of farmers who have insured their crops was increasing continuously from 2010-11 to 2015-16, simultaneously the area insured under the MNAIS was also increasing. The main drawback of the MNAIS was the higher rate of premium, to remove this problem the PMFBY was introduced during the kharif season 2016. Under the scheme the maximum premium paid by the farmers was fixed 2 percent for the kharif crops, 1.5 percent for the rabi crops and 5 percent for the horticultural and commercial crops.

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