

## **Performance of Crop Insurance Schemes in India – A Study of North-Western States**

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### **Abstract**

*Agriculture is one of the important economic activities in India. The agriculture sector alone provided employment to about 50 per cent population of the country whereas its share in GDP of India is only 17 per cent at the constant prices of 2011-12. It is one of the vulnerable sectors as it involves the risk and uncertainty which making the conditions of farmers unstable. Crop insurance can be effective tool to reduce the uncertainty in agriculture. The various crop insurance schemes have been introduced in India since independence. This paper has analysed the growth and performance of crop insurance schemes in north-western states of India. Under the weather based crop insurance scheme and Pradhan Mantri Fasal Bima Yojana the Rajasthan has the highest percentage of farmers who have insured their crops. The amount of claims made and number of beneficiaries is the highest in Rajasthan shows the overall performance of this scheme is better in Rajasthan than other North-Western states of India.*

**Keywords:** Agriculture, Climate change, Crop insurance

**JEL Classification:** Q14, N5, O13

### **Introduction**

With the substantial population of about 118.7 million farmers and cultivators, the Indian economy is largely dependent on agriculture sector, which is considered as the most common occupation of Indian families and agrarian communities across the country. Although there has been a significant decline in share of agriculture sector in the Indian economy yet the country still depends on agricultural productivity in order to meet demands of faster growing population.

The erratic and unpredictable behavior of Monsoon, accentuated by Climate Change has caused widespread financial losses to the farmers in terms of crop failures, loss of lives and properties etc. This has aggravated food insecurity in the India (Swain, 2014). In order to combat this challenge, there is need to adopt strategy which may provide comprehensive solution to farming communities for safeguarding the agricultural productivity. Crop Insurance is one such strategy which can reduce the impact of agricultural risks (FICCI, 2018).

The idea of crop insurance was emerged in India during twentieth century. Yet it could not be operated in a big way till recent years. J.S. Chakravarti proposed a rain insurance scheme initially for the Mysore State and then for whole India with view to insuring the crops from drought. This scheme was based on the area approach. The similar attempt was followed by other states like Dewas, Baroda, Madras etc to introduce crop insurance (Vyas and Singh, 2006).

Crop insurance received more attention in India after independence. The subject was discussed in 1947 by Minister of Food and Agriculture, Dr. Rajendra Prasad who gave an assurance that the government would examine the possibility of crop and cattle insurance. In 1965, Crop Insurance Bill and a Model Scheme of Crop Insurance were introduced in order to enable the States to introduce crop and cattle insurance scheme. None of the states was ready to implement these schemes due to paucity of funds. In 1970, the draft Bill and the Model Scheme were prepared and referred to an Expert Committee headed by Dr. Dharm Narain. By obtaining the conditions prevailed in the country the committee concluded that it was not possible to introduce the crop insurance schemes in the country (Sinha, 2004).

However, the first crop insurance scheme was introduced in the country in 1972 in Gujarat only for H4 cotton. Later on, the scheme was implemented in other states like Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu and West Bengal. Under the scheme 3110 farmers were covered, this scheme was based on individual approach (Rathore *et al.*, 2011). The indemnity under the scheme was paid to each individual separately by ascertaining the

crop output of each individual. It was difficult and economically costly to ascertain the crop output of each individual and paid indemnity to each individual separately therefore, Prof. Dandekar suggested a 'homogeneous area' approach for crop insurance. During 1979, the Pilot Crop Insurance scheme which was based on area approach was prepared by the General Insurance Corporation of India (GIC). The participation of farmers under the scheme was voluntary. This scheme was implemented in 13 states. The scheme covered cereals, millets, oilseeds, cotton, potato, gram and barley. The premium rate was ranged from 5 per cent to 10 per cent of the sum insured. The scheme covered 6,27,000 farmers (Anonymous, 2015). In order to increase the participation of the farmers the comprehensive crop insurance scheme was introduced in the country during 1985-86. The coverage of this scheme was linked to institutional credit i.e. the farmers who took loans for the specified crops were eligible for coverage under insurance. The premium rate was uniform all over the country; it was 2 per cent of the sum insured for cereals and millet crops, and only 1 per cent for pulses and oilseeds and 50 per cent subsidy on the premium rate was given to the small and marginal farmers, which had been shared equally by the central government and the State governments (Raju and Venkateshwarlu, 2015). The scheme was continued till 1999, it was implemented in 16 States and 2 Union Territories (UTs). There were 76.3 million farmers who have insured their crops under the scheme and the amount of claims paid was Rs. 23.19 billion (Mukherjee and Pal, 2017). The major schemes implemented in north-western states of India are national agriculture insurance scheme, weather based

crop insurance scheme, modified national agriculture insurance scheme, Pradhan Mantri Fasal Bima Yojana and restructured weather based crop insurance scheme like with this background our study focuses to examine and analyse the growth and performance of crop insurance schemes in north-western states of India. The main objective of this paper is to examine the growth and performance of crop insurance and its schemes in north-western states of India.

### **Data Sources and Methodology**

This paper has examined the performance of crop insurance schemes in North-Western states of India except Punjab as crop insurance schemes are not implemented in Punjab. The paper is based on secondary data. The secondary data is taken from the reports of Agriculture Insurance Company of India (Anonymous 2015), Report of Comptroller and Auditor General of India on Performance of Agriculture Crop Insurance Schemes (Anonymous 2017) and Annual Report of Department of Agriculture, Cooperation and Farmers' Welfare (GoI 2016-17; GoI 2018-19).

### **Results and Discussion**

The agriculture insurance is a risk mitigation tool that can protect the farmers.

The number of agriculture insurance schemes has been introduced in the country since independence. This paper has analysed the growth and performance of national agriculture insurance scheme, weather based crop insurance scheme, modified national agriculture insurance scheme, Pradhan Mantri Fasal Bima Yojana and restructured weather based crop insurance scheme in north-western states of India.

### **Government Expenditure on Agriculture Insurance in North-West States of India**

The expenditure of government of India on agriculture insurance in the recent five years has been presented in the table 1. It reveals that during 2011-12, the government expenditure on agriculture insurance was more in Rajasthan i.e., 336.87 crore, in 2012-13 and 2013-14 the scenario has changed the amount of government expenditure was increased in Gujarat which decreased in 2014-15 again increased in 2015-16. The lowest amount of government expenditure can be seen in Himachal Pradesh i.e., only Rs. 32.37 crore during the time period. In case of Haryana the big jump in government expenditure can be seen in 2015-16, where the government expenditure increased to Rs. 34.31 crore.

**Table 1: Government Expenditure on agriculture insurance in North-West States of India (Rs in crore)**

<b>Years</b>	<b>Gujarat</b>	<b>Haryana</b>	<b>Himachal Pradesh</b>	<b>Rajasthan</b>
2011-12	56.86	7.37	3.78	336.87
2012-13	390.65	7.05	8.33	358.99
2013-14	629.71	37.24	7.92	249.55
2014-15	171.17	0.01	10.34	362.07
2015-16	517.36	34.31	2.00	269.96
<b>Total</b>	<b>1765.75</b>	<b>85.98</b>	<b>32.37</b>	<b>1577.44</b>

### National Agriculture Insurance Scheme

In order to provide the financial support to the farmers in the event of failure of crops as a result of natural calamities like, flood, drought, and pests diseases the national agriculture insurance scheme was introduced in the country in 1999-00 (Mahajan and Bobande, 2012). This scheme was available to all 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, commercial and horticultural crops. The premium rate charged under the scheme was 1.5 per cent for the food crops, 3.5 per cent for the oilseeds and higher premium rate was charged in case of horticultural and commercial crops. Under the scheme, 10 per cent subsidy on the premium rate was given to the small and marginal farmers (Singh, 2016).

The data on performance of national agriculture insurance scheme has been presented in the table 2. It reveals that the highest percentage of farmers who have insured their crops were from Gujarat i.e. 49.11 per cent followed by Rajasthan (47.73 %), Haryana (2.02 %) and Himachal Pradesh (1.15 %). The total area insured under the scheme was about 676 lakh hectares, out of that the highest percentage can be seen in Gujarat i.e. 52.04 per cent and the lowest in Himachal Pradesh. The highest amount of claims was paid to Gujarat and lowest to the Himachal Pradesh simultaneously the highest number of farmers benefitted was from the Gujarat and the lowest from Himachal Pradesh.

### Weather Based Crop Insurance Scheme

The weather based crop insurance scheme was implemented in the country to cover the risk related to weather conditions such as excess or deficient rainfall. The premium rate

**Table 2: Performance of National Agriculture Insurance Scheme from year 1999-00 to 2015-16**

Particular	Haryana	Himachal Pradesh	Gujarat	Rajasthan	Total
No of farmers insured	635778 (2.02)	362700 (1.15)	15494171 (49.11)	15058674 (47.73)	31551323 (100)
Area insured (in Hectares)	769038.32 (1.14)	284370.70 (0.42)	35190624.63 (52.04)	31379980.35 (46.40)	67624014 (100)
Sum insured (in Rs. Lakh)	83496.10 (1.24)	74054.75 (1.10)	4930466.40 (73.50)	1620309.00 (24.15)	6708326 (100)
Gross premium (in Rs. Lakh)	2413.98 (0.96)	1589.93 (0.63)	202671.80 (80.29)	45754.35 (18.13)	252430.1 (100)
Claims (in Rs. Lakh)	4336.39 (0.39)	1828.78 (0.16)	841185.84 (75.82)	262165.99 (23.63)	1109517 (100)
No. of farmers Benefitted	129424 (1.17)	108562 (0.98)	5593245 (50.70)	5200566 (47.14)	11031797 (100)

Note: Figures in parentheses indicates percentages of their respective values

charged under the scheme was 8 per cent for the rabi crops, 10 per cent for the kharif season crops and 12 per cent for the horticultural and commercial crops (Nair, 2010).

The data on performance of weather based crop insurance scheme has been presented in the table 3. There were total around 454 lakh farmers who have insured their crops under the scheme, out of these, 97.25 per cent were from Rajasthan and the lowest percentage can be seen in Haryana i.e., 0.79 per cent. The highest percentage of area insured can be seen in the Rajasthan i.e. 91.15 per cent followed by Himachal Pradesh, Haryana and Gujarat i.e., 7.25 per cent, 0.95 per cent and 0.65 per cent respectively. The total amount of sum insured was Rs. 5171443.61 lakh, out of this the highest percentage of sum insured was for the Rajasthan i.e. 93.14 and the lowest for the Gujarat. The highest percentage of gross premium was paid by Rajasthan followed by Haryana, Himachal Pradesh and Gujarat. The highest percentage of claims were paid to

the Rajasthan i.e. 96.04 per cent followed by Himachal Pradesh, Haryana and Gujarat. The highest percentage of farmers benefitted was from Rajasthan.

### Modified National Agriculture Insurance Scheme

The modified national agriculture insurance scheme was introduced in 2010. Under this scheme the insurance unit was reduced from the block level to village level (Nair, 2010).

The data on performance of modified national agriculture insurance scheme has been presented in the table 4. It reveals that the highest percentage of farmers who have insured their crops under the scheme were from Rajasthan followed by Haryana and Gujarat as this scheme was not implemented in Himachal Pradesh. The percentage of area insured and sum insured under the scheme was 96.84 and 85.18 respectively for Rajasthan, while the area insured was only 3.15 per cent

**Table 3: Performance of Weather Based Crop Insurance Scheme from year 2007-08 to 2015-16**

Particular	Haryana	Himachal Pradesh	Gujarat	Rajasthan	Total
No of farmers insured	359388 (0.79)	390609 (0.86)	497661 (1.10)	44125707 (97.25)	45373365 (100)
Area insured (in hectares)	602022.74 (0.95)	4618667.49 (7.25)	413126.40 (0.65)	58032258.65 (91.15)	63666075.28 (100)
Sum insured (in Rs. Lakh)	190262.00 (3.68)	141956.95 (2.75)	22394.75 (0.43)	4816829.91 (93.14)	5171443.61 (100)
Gross premium (in Rs. Lakh)	16768.49 (3.28)	15287.32 (2.99)	2239.48 (0.44)	477033.57 (93.29)	511328.86 (100)
Claims (in Rs. Lakh)	6208.42 (1.52)	9096.27 (2.23)	857.35 (0.21)	392447.00 (96.04)	408609.04 (100)
No of farmers Benefitted	250497 (0.85)	246360 (0.83)	170576 (0.58)	28941314 (97.75)	29608747 (100)

Note: Figures in parentheses indicates percentages of their respective values

of Haryana and 0.004 per cent of Gujarat. The highest percentage of claims was paid to Rajasthan i.e., 96.34 per cent followed by Haryana (3.66 per cent), no amount of claims was paid to Gujarat and hence none of the farmer was benefitted of Gujarat, on the other hand, 99.02 per cent farmers of Rajasthan were benefitted under the scheme.

### **Pradhan Mantri Fasal Bima Yojana and Restructured Weather Based Crop Insurance Scheme**

During the kharif season 2016, the Pradhan Mantri Fasal Bima Yojana has been implemented in the country by replacing the MNAIS. Under this scheme the premium rate are reduced to 2 per cent for the kharif season crops, 1.5 per cent for the rabi season crops and 5 per cent for the commercial crops (Nagentran and Rajendran, 2017). The difference between the actuarial premium rate and farmer's burden is equally shared by central and state government. This insurance

scheme covers mainly yield losses due to unpreventable risk, post harvest losses and localized calamities. The Restructured Weather Based Crop Insurance Scheme was introduced in 2016 by replacing the weather based crop insurance scheme. The premium rate was reduced to 2 per cent for the kharif season crops, 1.5 per cent for rabi season and 5 per cent for the horticultural and commercial crops (Kumar and Ghosh, 2018).

The combined performance of Pradhan Mantri Fasal Bima Yojana and restructured weather based crop insurance has been presented in the table 5. It reveals that the highest number of farmers who have insured their crops were from Rajasthan i.e. 91,50,224 followed by Gujarat, Haryana and Himachal Pradesh. The total area insured under the scheme was around 156 lakh hectares, out of that 105 lakh hectares was of Rajasthan followed by Gujarat (28 lakh hectares), Haryana (21 lakh hectares) and Himachal

**Table 4: Performance of Modified National Agriculture Insurance Scheme from year 2010-11 to 2015-16**

<b>Particular</b>	<b>Haryana</b>	<b>Himachal Pradesh</b>	<b>Gujarat</b>	<b>Rajasthan</b>	<b>Total</b>
No of farmers insured	262687 (2.04)	NA	17084 (0.13)	12620454 (97.83)	12900225 (100)
Area insured (in Hectares)	446689.58 (3.15)	NA	590.66 (0.004)	13719000.70 (96.84)	14166280.94 (100)
Sum insured (in Rs. Lakh)	184769.36 (14.80)	NA	261.22 (0.02)	1063428.05 (85.18)	1248458.63 (100)
Gross premium (in Rs. Lakh)	6192.78 (5.04)	NA	28.23 (0.02)	116633.85 (94.94)	122854.86 (100)
Claims (in Rs. Lakh)	5021.04 (3.66)	NA	0.00 (0.00)	132231.21 (96.34)	137252.25 (100)
No of farmers Benefitted	46374 (0.98)	NA	0 (0.00)	4666254 (99.02)	4712628 (100)

*Note: Figures in Parentheses are percentages of their respective values*

**Table 5: Performance of Pradhan Mantri Fasal Bima Yojana and Restructured Weather Based Crop Insurance Scheme till October 2018**

Particulars	Haryana	Himachal Pradesh	Gujarat	Rajasthan	Total
No of farmers insured	1336028	379925	1975139	9150224	12841316
Area insured (in hectares)	2084575.9	129431.44	2841567.15	10533199.8	15588774.29
Sum insured (in Rs. Lakh)	1178213.12	89767.19	1232347.92	1773300.75	4273628.98
Gross premium (in Rs. Lakh)	1332930.37	7151.17	236070.57	259130.22	1835282.33
Claims (in Rs. Lakh)	29255.35	4466.29	126172.45	184083.56	343977.65
No of farmers Benefitted	212410	112601	678693	19105749	20109453

Pradesh (1 lakh hectares). The highest amount of gross premium was paid by the Haryana, whereas the highest amount of claims was paid to Rajasthan reason being the damage of crops in Rajasthan due to natural calamities was greater than that of other states.

The combined proportionate performance of Pradhan Mantri Fasal Bima Yojana and restructured weather based crop insurance scheme has been presented in the table 6. It

reveals that highest percentage of farmers who have insured their crops were from Rajasthan i.e. 71.26 per cent followed by Gujarat 15.38 per cent, Haryana 10.40 per cent and Himachal Pradesh 2.96 per cent. The highest percentage of area insured can be seen in Rajasthan i.e., 67.57 per cent followed by Gujarat (18.23%), Haryana (13.37%) and Himachal Pradesh (0.83%). The highest percentage of sum insured can be seen in Rajasthan reason being

**Table 6: Proportionate Performance of Pradhan Mantri Fasal Bima Yojana and Restructured Weather Based Crop Insurance Scheme till October 2018**

Particulars	Haryana	Himachal Pradesh	Gujarat	Rajasthan	Total
No of farmers insured	10.40	2.96	15.38	71.26	100
Area insured	13.37	0.83	18.23	67.57	100
Sum insured	27.57	2.10	28.84	41.49	100
Gross premium	72.63	0.39	12.86	14.12	100
Claims	8.51	1.30	36.68	53.52	100
No of farmers Benefitted	1.06	0.56	3.37	95.01	100

Source: Computed from table no. 5

higher risk is involved in production of crops in Rajasthan as compared to other states. The highest percentage of gross premium was paid by the Haryana i.e., 72.63 per cent followed by Rajasthan (14.12%), Gujarat (12.86%) and Himachal Pradesh (0.39%). The highest amount of claims was paid to Rajasthan i.e., 53.52 per cent followed by Gujarat, Haryana and Himachal Pradesh i.e., 36.68 per cent, 8.51 per cent and 1.30 per cent respectively. The number of farmers benefitted from Rajasthan was 95.01 per cent followed by Gujarat, Haryana and Himachal Pradesh i.e., 3.37 per cent, 1.06 per cent and 0.56 per cent respectively. The amount of claims and number of beneficiaries is the highest in Rajasthan. Although the amount of claims is 36.68 per cent in Gujarat yet the number of beneficiaries is 1.06 per cent therefore the overall performance of this scheme is better in Rajasthan.

### Conclusion and Policy Implications

Agriculture is an important source of livelihood for the Indian people. This sector suffered from various types of natural calamities. Crop insurance is an important instrument to cover the risk involved in agriculture. There are number of crop insurance schemes introduced in the country whereas this paper has analysed the performance of NAIS, WBCIS, MNAIS, PMFBY and RWBCIS mainly in north-west states of India. The major benefits of NAIS were received by the farmers of Gujarat. The highest percentage of claims under WBCIS, PMFBY and RWBCIS were made by the farmers of Rajasthan. The government of other states should follow Rajasthan as it has shown impressive growth and performance of different insurance schemes, so that other

states farmers could also be benefitted from agriculture insurance.

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