

Headway to PMFBY 2.0: Prospects of crop insurance in Tamil Nadu

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Abstract

Risks in any sector including agriculture, manufacturing, etc. are inevitable and they are covered by crop insurance, which aims at supporting sustainable production in the agricultural sector. The objective of the present study is to elicit the present status and prospects of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Tamil Nadu. Since, the claim disbursed procedures will take some delay in time and disbursed in the subsequent years, a three-year average was taken for the study. The claim per farmer, average area insured, claim per hectare, threshold yield, etc. are calculated and interpreted and the results showed that settlement of claims is high in coastal and delta districts that is due to the frequent climatic aberrations. In conclusion, when a complete crop loss occurs, crop insurance covers only the financial losses encountered by the farmers. Hence, the focus may also be concentrated on other objectives to stabilize farm income and encourage technology adoption.

Key words : Agriculture, Crop insurance, claim compensation, threshold yield.

Risks in any sector including agriculture, manufacturing, *etc.* are inevitable⁴. The risk covering mechanisms are evolved for individuals and industries. The lack of risk compensation mechanism in agriculture; the major sector in terms of employment, income, and livelihood of the people, encountered lots of risk of crop loss due to the frequent failure of monsoon or incessant rainfall^{3,10}. These

sudden climatic events affect the farmers livelihood and income of farmers⁹.

The agricultural risks are mitigated by contract farming, crop diversification, pre-contractual savings, best agronomic practices, crop insurance, etc. Of these, contract farming, crop diversification and precautionary savings are considered risk management strategies to

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meet the marketing risks¹. The production risks can be mitigated by practicing best agronomic practices and crop insurance^{5,7}. The best agricultural practices can improve production but still weather extremities can lead to financial losses. Even though a complete crop loss occurs due to weather aberrations, the financial losses to a certain extent can only be covered by crop insurance and hence safeguard the livelihood of the farmers.⁶

India experiences different models of crop insurance for crops since the 1970s; they got transformed and rectified to overcome the problems in the schemes over time. In April 2016, *Pradhan Mantri Fasal Bima Yojana* (PMFBY)- an area-based scheme and Restructured Weather Based Crop Insurance Scheme (RWBCIS) was introduced in Kharif season in the year 2016. (Ministry of Agriculture, Cooperation and Farmers Welfare, 2016). It aimed at supporting sustainable production in the agricultural sector with the objective to provide financial support to farmers suffering crop loss, stabilizing the income, encouraging farmers to adopt best agricultural practices, and ensuring creditworthiness. (Operational guidelines of PMFBY, 2020). PMFBY has the uniqueness of covering sharecroppers and tenant farmers growing the notified crops in the notified areas, along with the farmers. The notified crops include food crops, oilseeds, annual commercial and annual horticultural crops. The objective of the present study aims in eliciting the present status and prospects of Pradhan Mantri Fasal Bima Yojana (PMFBY) in Tamil Nadu.

Methodology :

Tamil Nadu is susceptible to disasters

caused by climatic aberrations and non-seasonal rainfall. Tamil Nadu has a diversity of climatic conditions from North to South. PMFBY covered all agricultural districts of Tamil Nadu. The secondary data was collected from the State Department of Agriculture (crop insurance wing), the online sources of Pradhan Mantri Fasal Bima Yojana dashboard, Tamil Nadu Agriculture web portal, *etc.* The data pertaining to farmers enrolment, premium payment, sum insured, and claims disbursed were collected for the period of 2018-21. Since, the claim disbursed procedures will take some delay in time and disbursed in the subsequent years, a three-year average was taken for the study. In addition, the percentage and tabular analyses were used to study the crop insurance aspects in Tamil Nadu. Since there is a non-availability of the following data, we derived the methodologies for the study.

a) Claim per farmer :

The claim per farmer is obtained by dividing the average disbursement amount by the number of farmers who have received the claim.

$$\text{Claim per farmer (in Rs.)} = \frac{\text{Total disbursement amount (Rs.)}}{\text{Number of farmers who received the claim}}$$

b) Average insured area :

The average area insured was estimated by dividing the area insured by the number of farmers insured.

$$\text{Average insured area (in ha)} = \frac{\text{Area insured (ha)}}{\text{Number of farmers insured}}$$

c) Average claim per hectare :

The average claim per hectare is calculated by dividing the amount claimed by the average insured area.

$$\text{Average claim per hectare (in Rs./ha)} = \frac{\text{Claimed amount per farmer (in Rs.)}}{\text{Average claimed area (in ha)}}$$

The average insured area is taken as a proxy for the average claimed area because the claimed farmers area is a subset of the insured farmers area, Hence, population (average insured area) is considered in place of sample (average claimed area) information.

d) Threshold yield :

The risks like drought, prolonged dry spells, floods, cyclones, pests and diseases, hailstorms, unseasonal rains, and frost accounted for the yield estimation for crop

insurance and thereby the eligibility for the claim is finalized. As a part of the process, the threshold yield plays a major role in claim disbursement. The threshold of the notified crop is equal to the average yield multiplied by the indemnity level. (Revamped operational guidelines of PMFBY, 2020).

$$\text{Threshold yield (Kg./ha)} = \text{Average of three years yield} * \text{Indemnity level (percent)}$$

Pradhan Mantri Fasal Bima Yojana was implemented for mitigating the risks arising out of natural calamities, weather vagaries, climate extremities etc. To draw meaningful inferences and effectiveness of the scheme the analysis was made in different views viz., a district-wise overview of PMFBY beneficiaries, claim disbursement, premium collected, sum insured, crop-wise and season-wise claim per farmer for selected crops of principal crops were analysed and discussed in the following sections.

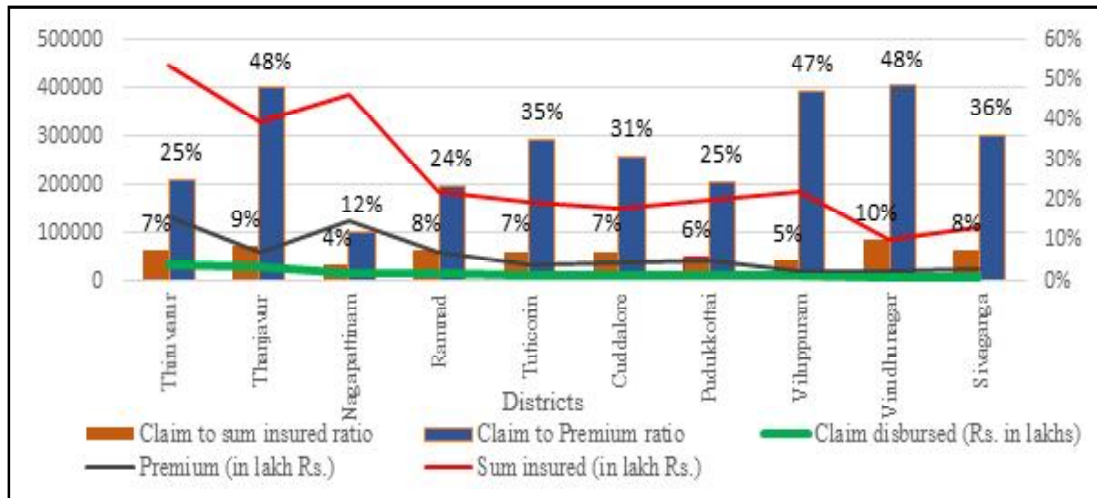


Fig. 1. Comparative analysis of premium, sum insured, and claim disbursement, 2018-21

Table-1. District-wise overview of PMFBY beneficiaries and claim disbursal, 2018-21

S. No	Districts	No. of Beneficiaries	Amount Disbursed (Rs. in crores)	Claim per farmer (Rs./farmer)	Average insured area (ha)	Claim per hectare (Rs./ha)
1	Tiruvarur	162926	333.44	20466.1	1.41	14492.6
2	Thanjavur	159954	289.19	18080.1	1.11	16219.4
3	Thoothukudi	149325	153.41	10273.8	2.55	4021.93
4	Nagapattinam	88197	151.98	17232	1.17	14632.9
5	Ramnad	84590	151.83	17949.2	1.13	15872.1
6	Cuddalore	46599	110.48	23710.5	1.18	20022.1
7	Pudukottai	81569	97.89	12001.9	1.02	11703
8	Virudhunagar	74026	95.65	12921.4	1.49	8661.53
9	Villupuram	134113	93.1	6942.55	0.89	7784.32
10	Sivagangai	49578	92.67	18692.1	0.96	19467.6
11	Tiruvallur	32749	74.55	22765.6	1.34	16894.8
12	Namakkal	52753	60.03	11380.3	1.06	10674.5
13	Tiruvannamalai	58807	54.4	9250.88	0.82	11242.3
14	Tiruchirapalli	19233	40.56	21091.5	0.98	21376.4
15	Kallakurichi	57978	38.14	6579.51	0.86	7571.28
16	Ranipet	20297	32.93	16226.7	0.89	18211.3
17	Ariyalur	41530	29.83	7183.41	0.9	7940.39
18	Tenkasi	30302	25.73	8493.69	1.62	5212.42
19	Kancheepuram	14657	22.84	15587.6	0.91	17053.6
20	Madurai	16232	17.2	10596.3	1.18	8906.52
21	Karur	10481	16.95	16174	0.83	19341.4
22	Perambalur	8106	13.43	16568.2	0.97	17039.2
23	Dharmapuri	9075	13.29	14653.9	0.55	26462.7
24	Salem	15344	12.5	8152.4	0.6	13411.5
25	Dindigul	9330	11.01	11805.6	1.4	8380.06
26	Tirunelveli	6684	9.31	13928.7	1.35	10270.8
27	Vellore	4990	8.44	16917.2	0.67	25143.1
28	Tiruppur	4844	7.45	15394.3	1.19	12831.6
29	Chengalpattu	6058	3.89	6426.22	1.01	6302.05
30	Coimbatore	1938	3.57	18428.1	0.72	25267.4
31	Erode	1416	3.08	21804.8	0.86	25073.8
32	Krishnagiri	3096	2.13	6883.21	0.47	14558.9
33	Nilgiris	792	2.03	25725.5	0.44	58031.4
34	Kanyakumari	3377	1.65	4887.75	0.43	11317.4
35	Theni	1039	1.51	14538.6	0.97	14872.5
36	Tirupathur	626	1.26	20206.5	0.8	25198.7

Source: Compiled from different sources of insurance data

Table-2. PMFBY claim disbursal details for major crops insured, 2018-21

S. No	Crops	Amount disbursed (Rs. in crores)	Amount disbursed (%)
1	Paddy	4601.49	74.73
2	Maize	592.13	9.62
3	Blackgram	406.13	6.59
4	Greengram	188.37	3.06
5	Groundnut	124.31	2.02
6	Cholam	118.8	1.93
7	Cotton	46.57	0.76
8	Sugarcane	46.11	0.74
9	Cumbu	17.26	0.28
10	Redgram	7.61	0.12
11	Sunflower	5.52	0.09
12	Gingelly	1.83	0.03
13	Ragi	1.55	0.03

Source: Directorate of Agriculture (Crop Insurance wing), Chennai

The five coastal districts of Tamil Nadu viz., Tiruvarur, Thanjavur, Thoothukudi,

Nagapattinam, Cuddalore, farmers received a high quantum of compensation to the extent of 44 percent of the total claims, which encountered several disasters in the period of study. At the same time, claims per farmer is highest in the Nilgiris district, it may be due to the low enrolment rate, highest premium, and sum insured of horticultural crops. It also found that the district average insured area ranged from 0.43 ha in Kanyakumari to 2.55 ha in Thoothukudi districts.

The comparative analysis on premium, sum insured, and claim disbursal analysis showed that claim disbursal was low at 12 percent of the gross premium paid and it was around 50 percent in Thanjavur, Virudhunagar, and Villupuram districts. It inferred that in the vulnerable area, the majority of the farmers pay the premium to cover the insurance against the loss. At the same time, four to ten percent of the sum insured is received as the claim.

Table-3. Season-wise claim per farmer of principal crops, 2018-21 (in Rs.)

S. No	Crops	Kharif	Paddy II/ Special season	Rabi
1	Paddy	8345.47 (8.42)	16700.07 (35.85)	9252.99 (9.32)
2	Groundnut	8419.17 (8.4)	0 (0)	6696.26 (6.74)
3	Black gram	5889.03 (5.88)	0 (0)	2542.7 (2.56)
4	Maize	6954.13 (6.94)	17439.57 (37.43)	14944.45 (15.06)
5	Cotton	10869.03 (10.85)	12443.36 (26.71)	7223.86 (7.28)
6	Sugarcane	0 (0)	0 (0)	14626.91 (14.74)

Source: Directorate of Agriculture, Chennai.

Note: The figures in parenthesis indicates the percentage to total claim per farmer of all crops in the respective season.

Table-4. District and crop-wise claim details of Tamil Nadu, 2018-21

S. No	Districts	Amount Disbursed (Rs. in crores)	Amount Claimed (%)	Claim per farmer (Rs.)	Threshold yield (kg./ha)
I.	Paddy				
1	Tiruvarur	300.40	19.58	20342	2671.8
2	Thanjavur	288.81	18.82	18087.9	2902.9
3	Ramnad	138.24	9.01	18158.9	1064
4	Nagapattinam	136.50	8.89	17860.4	2191
5	Pudukottai	97.28	6.34	12025.8	1785
6	Cuddalore	89.54	5.83	29158.5	3026.1
7	Sivagangai	84.04	5.47	19411.9	1120
8	Tiruvallur	73.78	4.81	22925.9	3662.7
9	Villupuram	58.21	3.79	6568.27	3361.5
10	Tiruvannamalai	32.89	2.14	1029.35	3184
	Subtotal	1299.69	84.68	165569	24969
II.	Sugarcane				
1	Tiruvannamalai	6.49	42.25	17465	74464
2	Villupuram	4.18	27.2	11374.1	86602.2
3	Kallakurichi	2.14	13.97	19436.9	78885
4	Dharmapuri	0.77	5.02	15247.5	75501
5	Vellore	0.51	3.38	11724.1	83097
6	Kancheepuram	0.32	2.09	34042.6	69791.4
7	Tirupathur	0.24	1.62	13259.7	80604
8	Ranipet	0.16	1.05	4747.77	71096
9	Theni	0.15	0.99	14563.1	98829
10	Tiruvallur	0.11	0.74	9090.9	81753.9
	Subtotal	15.07	98.31	150952	800624
III.	Groundnut				
1	Namakkal	14.69	35.46	9403.4	1800
2	Tiruvannamalai	7.88	19.02	11990.3	2290.8
3	Villupuram	6.11	14.75	4507.89	2088
4	Virudhunagar	2.42	5.84	7407.4	2208
5	Salem	1.63	3.93	6609.89	2514.3
6	Dharmapuri	1.28	3.09	9149.39	3717
7	Krishnagiri	1.07	2.6	5558.44	2997
8	Vellore	0.9	2.18	14705.9	2799
9	Kallakurichi	0.89	2.15	4067.64	1404
10	Erode	0.75	1.82	93750	1071
	Subtotal	37.62	90.84	167150	22889.1

IV.	Blackgram				
1	Tuticorin	38.08	28.13	13836.7	315
2	Kallakurichi	19.4	14.33	10139	968
3	Villupuram	18.91	13.97	10682.4	1195.2
4	Tenkasi	15.15	11.19	10563.4	664
5	Cuddalore	11.51	8.5	18186.1	765
6	Tiruvannamalai	9.19	6.78	5174.25	592.9
7	Tirunelveli	5.99	4.42	16505.9	270.1
8	Nagapattinam	5.52	4.08	15393.2	378
9	Tiruvarur	3.23	2.39	20560.2	632
10	Ariyalur	2.25	1.66	1295.26	624
	Subtotal	129.23	95.45	122336	6404.2
V.	Maize				
1	Virudhunagar	7.41	47.74	8330.52	6128
2	Tuticorin	4.2	27.08	5834.14	2730
3	Trichy	0.8	5.21	16701.5	7060.9
4	Ariyalur	0.69	4.46	14053	6158.6
5	Perambalur	0.44	2.87	13134.3	8673.9
6	Cuddalore	0.37	2.4	10109.3	6221.6
7	Tenkasi	0.31	2	7045.45	4077
8	Erode	0.21	1.37	20588.2	7470
9	Namakkal	0.21	1.36	8467.74	6368
10	Madurai	0.15	1.01	7936.5	4745
	Subtotal	14.79	95.5	112201	59633
VI.	Cotton				
1	Tuticorin	57.11	28.93	13714.2	1351
2	Virudhunagar	52.59	26.64	23158.2	1312
3	Trichy	16.21	8.21	33827.2	1701.7
4	Madurai	12.7	6.43	11761.4	1613.3
5	Perambalur	11.34	5.74	18409.1	2029.6
6	Cuddalore	9	4.56	9865.17	1963.5
7	Dindigul	8.6	4.35	17158.8	2763.9
8	Ariyalur	7.25	3.67	13217.9	1577
9	Tenkasi	6.89	3.49	6315.3	1278
10	Tiruppur	5.48	2.77	19641.6	2748.9
	Subtotal	187.17	94.79	167069	18338.9

Source: Authors' compilation from different sources of PMFBY reports, 2018-21

Note: The amount claimed (%) is the percentage to total amount claimed of a particular crop for all districts

The crop-wise claim analysis for the major crops showed that paddy tops the table with 74.73 percent of the total claim, followed by maize and blackgram with 9.62 percent and 6.59 percent respectively. With the information in table-2, one crop is selected from cereals, oilseeds, pulses, millets, cash crops, and sugar crops for further analysis. The crop-wise insurance claim details indicated that 13 out of 17 notified agricultural crops have received compensation through the PMFBY scheme.

Of the crops insured, the paddy crop is predominant in all the seasons and hence the claim per farmer (CPF) is highest for the same, followed by others crops viz., Maize, Cotton, Black gram, Groundnut, and Sugarcane. In the Kharif season, CPF is 10869.03 (10.85 percent) for Cotton, followed by Paddy (8.42 percent) and Groundnut (8.4 percent). The notified crops for Paddy II/ Special season are few. The crops include paddy, Maize, etc., and the CPF is around Rs.10000 to 20000 in this season. The average CPF for paddy crop is Rs. 16700 in the study period (2018-21). In the Rabi season, CPF for Maize is Rs.14944.45 followed by sugarcane (Rs. 14626.91) and Paddy (Rs. 9252.99).

The claimed amount, claim per farmer and threshold yield for different crops is presented in table-3. For paddy, around 30 percent of the claim amount is obtained by Thanjavur and Tiruvarur districts. Furthermore, for sugarcane crop around 70 percent of the claimed amount is disbursed in Tiruvannamalai, Villupuram and Kallakurichi districts. Overall, around 95 percent of claimed amount is comprised in top ten districts for all above mentioned crops.

The claim is disbursed to the farmer when the actual yield of the insured year is less than the threshold yield. The shortfall of yield is nearly 980 kg/ha for paddy in the Tiruvarur district. This district occupies the top of ten districts in terms of threshold yield because they lie in the category of high-risk level and their average indemnity level is around 73 per cent for the study period. Likewise, for all other crops the shortfall in yield from threshold yield was around 10-40 percent, to obtain the claim compensation.

Climate aberrations are one of the major formidable challenges in agricultural operations of Indian agriculture. Pradhan Mantri Fasal Bima Yojana not only evolved strategies to compensate for the crop loss, but it also envisaged stabilizing the farm income and encouraging technology adoption in farming. This investigation is evident that widespread dissemination of the scheme led to a higher enrolment rate in the PMFBY and claim disbursement also made the success of the scheme. When a complete crop loss is occurs, crop insurance covers the financial losses and ultimately ensures the livelihood and food security of the farmers to a certain extent. There seems a decline in enrolment rate after 2020 when it was made voluntary. Hence, compulsory enrolment in the scheme should be revived to safeguard the farming community. The focus may be concentrated on other objectives to stabilize farm income and encourage technology adoption.

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