



AGRICULTURE INSURANCE IN INDIA

April 17, 2019

**Deepak Mishra
Sr. General Manager**

J.B. Boda Reinsurance Brokers Pvt. Ltd.

Our Presence

1000+

highly skilled and experienced employees with expertise in multiple fields and across

23 Locations

in India,

9 Locations

Across the Globe,

Full time operational office in London and Singapore.





Milestones & Achievements

- Established in 1943.
- Pioneers in Reinsurance Broking in Africa, Asia, Middle-East and Emerging Regions.
- The First Indian Multinational Broking House.
- The First Indian Broker accredited at Lloyds - U.K. , December 2002.
- A founder Member of FBCS (FAIR Brokers & Consultants Society) – 2007.
- Service with Sincerity, Honesty, Integrity and Commitment

The Journey continues...



WE BELIEVE Awards

The Group has achieved recognition by way of securing various prestigious Awards:



“Reinsurance Broker of the Year” from Zimbabwe Reinsurance Corporation in 1996, 1997 & 1999



“Reinsurance Broker of the Year” from Asia Insurance Industry Awards : 2000



“Certificate of Appreciation” from Ethiopian Insurance Corporation : 2009



“National Organizing Committee for support” during 15th African Reinsurance Forum : 2009



“Outstanding contribution to their business” from Bajaj Allianz, India : 2012 – 13



“Best Usage of e-Thru Platform” from GIC Re, India : 2013



“Sincere Appreciation” from Religare, India : 2013



“Plaque from Govt. House, Mongolia – Ulan Bator” : 2015

“Significant Contributor towards continued growth of Ghana Re, Ghana” : 2016

Federation of Afro-Asian Insurers & Reinsurers (FAIR) – Certificate of Recognition, “Hall of Fame” Award awarded to our Group Chairman Mr. Atul D. Boda during the FAIR Conference held at Bahrain on 10th October 2017 for contribution to the development of the insurance industry at the national level, commitment to regional cooperation among Afro-Asian countries and inspiration & support to FAIR.

Indian Agriculture at a Glance

- Total Number of Farmers in India- 118.8 million
- Contribution of Agriculture on country's GDP is 15.4 % (approx.)
- Farmers Subscribe to Crop Insurance- 30% (approx.)
- Agriculture heavily depends on monsoon with 60% Cropped Area are rain-fed.
- 75% Rainfall occurs in June- September
- Around 58 % of Rural Households are Farming Household
- 146 Million farm holdings
- Agriculture provides 50% of the Employment
- Sustains 70 % of Population

Indian Agriculture: Major Crops

- **Food Crops:** Paddy, Wheat, Maize, Sorghum, Pearl millet, Chickpea, Lentils
- **Oilseed Crops:** Groundnut, Mustard, Soybean, Sunflower
- **Cash Crops:** Cotton, Sugarcane, Tobacco
- **Vegetables:** Potato, Onion, Tomato, Brinjal, Okra, Cucurbits
- **Plantation Crops:** Tea, Coffee, Coconut, Cashew, Rubber, Oil-palm
- **Fruit Crops:** Mango, Banana, Apple, Citrus, Grapes, Pomegranate
- **Spices:** Cardamom, Clove, Pepper, Garlic, Ginger, Turmeric
- **Medicinal Plants:** Rauvolfia, Embilica, Withania, Ocimum, Bacopa

Indian Agriculture Crop Calendar

	Sowing				Harvesting								
Crops	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Wheat													
Rice													
Corn													
Barley													
Jowar (Millet, Sorghum)													
Bajra (Pearl Millet)													
Chana (Bengal Gram)													
Tur (Split Pigeon peas)													
Urad (K) (Split Black gram)													
Urad (R)													
Moong (Green Gram)													
Yellow Peas													
Guarseed (Cluster Bean)													
Sugarcane													
Cotton													
Coffee													
Pepper													
Turmeric													
Chillies													
Jeera (Black Cummin)													
Soy													
Groundnut													
Rapeseed													

Remark: Coffee: Coffee plant is an evergreen shrub. The planting is done at beginning of rainy season. **Sugarcane:** Depending upon the variety and sowing time it takes about 12 to 18 months to mature. In general January to march is the period of planting and December to March is the period of harvesting.

Source: Ministry of Agriculture, Spice Board, Coffee Board

Indian Agriculture: Credit Network

- Almost 90% farmers have been enrolled for credit through a special drive called Kisan Credit Card (KCC) Scheme
- Around 30% of the enrolled farmers avail credit annually
- 96,000 Agri-Cooperative Credit Societies
- 37,000 Rural and Semi urban branches of Commercial Banks
- 14,500 Branches of Regional Rural Banks
- Total Agricultural Credit for 2017-18 INR 11,685 Billion, USD166.93 Billion

Evolution of Crop Insurance in India

- First ever scheme on 'Individual' approach basis(1972-78)
- Pilot Crop Insurance Scheme –PCIS (1979-1984)
- Comprehensive Crop Insurance Scheme–CCIS(1985-1999)
- National Agriculture Insurance Scheme – NAIS (1999 -2016)
- Farm Income Insurance Scheme – FIIS (2003-04)
- Weather Based Crop Insurance Scheme - WBCIS (Kharif 2007....)
- Modified NAIS – MNAIS (Rabi 2010 -2016)
- Pradhan Mantri Fasal Bima Yojna (Kharif 2016...)

Salient Features of PMFBY

- Covers all Food crops, Oilseeds & Commercial /Horticultural Crops
- Compulsory for Loanee & voluntary for non-loanee Farmers
- Risks and special perils covered are :
 - Area approach: All non-preventable natural risks viz., drought, flood, hailstorm, landslide, cyclone, pests & diseases etc.
 - Prevented sowing/transplantation: all natural preventable risks
 - Localized perils: Hailstorm, landslide & Inundation
 - Post-Harvest losses: Cyclone/Cyclonic rain & Unseasonal rains (for crops in cut & spread condition after harvesting)
 - On account payments for Mid-Season adversity

Salient Features of PMFBY (Contd..)

PMFBY

- Premium rates fixed at 2%(Kharif) & 1.5%(Rabi) & 5% (horticulture)
- Upfront premium subsidy by Government
- Single series data should be used for CCEs and crop production estimation

PMFBY

- No premium and sum insured capping
- Clustering of districts
- Treatment of yield observed in a calamity year

PMFBY

- Extensive use of technology
- Government (Central & State) to act as the Reinsurer for last resort (for Claims beyond 350% or 35% of TSI at National level)

Salient Features of PMFBY (Contd...)

- Individual farm level assessment for perils covered under Localized and Post- Harvest losses.
- Sum Insured: Broadly Scale of Finance for loanee & and non- loanee farmers
- Scheme to be implemented through insurance (IAs) empanelled by Ministry of Agriculture
- Tender process for price discovery and allocation.
- Allocation of Districts on Cluster basis
- Actuarial Premium Rate
- Government provides upfront subsidy in premium
- All claim liability on Insurance Companies

Salient Features of PMFBY (Contd...)

- Three Indemnity levels (IL): 70%, 80% & 90%
- Calculation of Threshold yield which is the average yield of last 7 years (Minus max of 2 calamity years) multiplied by IL
- Claims calculated on actual yield data furnished by State Govt. based on Crop Cutting Experiments (CCEs).
- Extensive use of Technology
- Use of Smart Phones in conduct of CCE's and Transmission of data

Major Contributors for Successful Implementation

- Single- minded effort by the Govt. of India to have a crop insurance scheme and current Government's moto to double farmers' income & improve farmers' status
- Govt. Subsidy Ranging from 50% - 60% - 80% depending on the Scheme
- Covering the major food crops & various other crops like oil seeds, pulses & horticulture crops
- Using available Govt. machinery mainly Banking, Dept of Statistics, Dept of Agriculture & Farmers Welfare, District Administration & PSU insurance cos.
- Keeping the operating cost low
- Keeping the farmers share of premium low; affordable to farmers
- For several years, the liability was on Center & States Governments; but implementation/ operations was with GIC Re & Agriculture Insurance Company of India

Major Contributors for Successful Implementation

- Increase in Public & Private partnership
- Adoption of technology with continues improvement
 - ✓ Use of Smart Phones
 - ✓ Geo Coding of experimental fields
 - ✓ OTP for verification, confirmation & identification
 - ✓ Instant photo & video uploading to data repository
 - ✓ Central portal for all data sets
 - ✓ Weekly Video Conference for status updates at all levels
 - ✓ Incentive to field level staff
 - ✓ Direct monitoring at PMO level
 - ✓ Appointment of CEO for PMFBY
- Adoption of technology leads to transparency & improvement in services

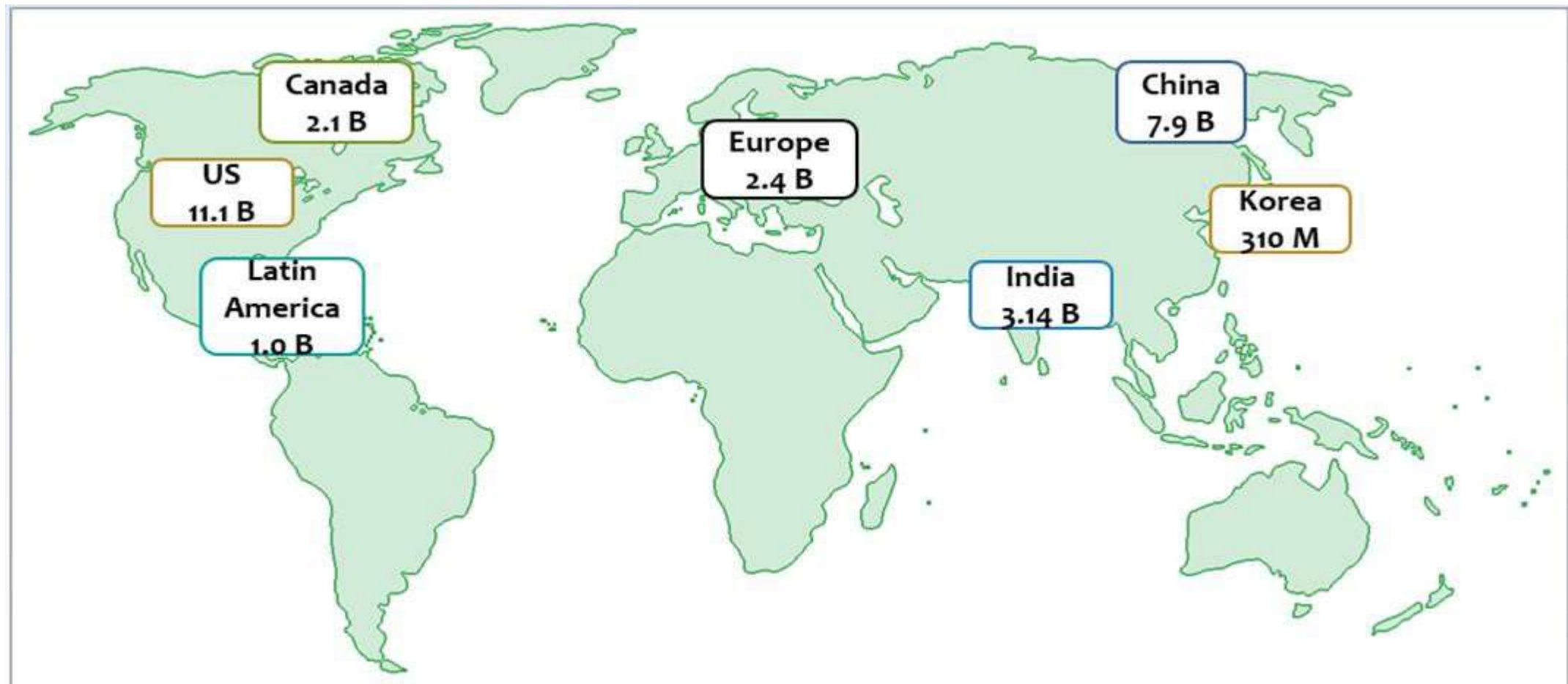
Major Contributors for Successful Implementation

- National Reinsurer GIC Re provides Reinsurance Capacity. Reinsurance Capacity is hard to come by for Agriculture. Strong support by local reinsurers required.
- National Portal by Ministry of Agriculture, Govt. of India is a path breaking initiative
- Linking of Land records /Aadhar Data (Citizenship card)/ Banking system eliminates duplication and fraud
- Efficient use of remote sensing
- Robust dispute resolution system is being developed
- National Technical Support Unit at New Delhi and State Level Technical support units at state level.
- Penalties for poor implementation.

Season-wise & Year-wise Performance of PMFBY

Particulars	2016-17			2017-18		
	<u>Kharif</u>	<u>Rabi</u>	<u>Total</u>	<u>Kharif</u>	<u>Rabi</u>	<u>Total</u>
Gross Premium (Million US\$)	2,336	833	3,169	2,732	761	3,493
Farmers Share (Million US\$)	418	208	626	418	170	588
Center's Subsidy (Million US\$)	946	311	1,258	1,149	292	1,441
States Share (Million US\$)	971	314	1,285	1,166	299	1,464
Approved Claims (Million US\$)	1,596	636	2,232	1,951	1,426	3,377
Farmers Covered (lakhs)	4,060	1,690	5,750	3,270	1,520	4,790
Area Insured (lakh HA)	3,790	1,920	5,720	3,320	1,430	4,750

World Crop Insurance Premium - India becomes the Third Largest Crop Insurance Market



➤ It is estimated that 104 countries had some form of agricultural insurance

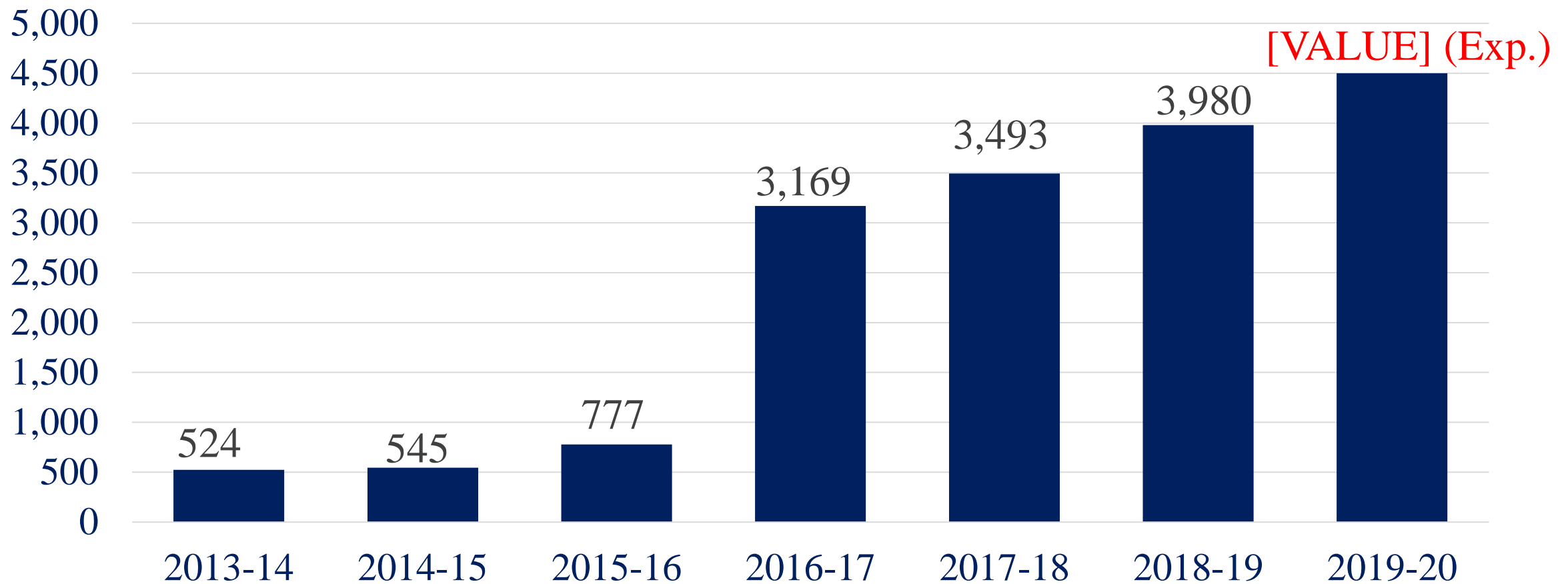
PMFBY – Premium Rates

Based on Actuarial Premium Rate (APR), the rate of insurance paid by the farmer is governed by a slab mentioned in PMFBY guidelines which is mentioned below. Rest of premium the premium us shared between state and central Govt. on 50 : 50 basis as subsidy

Season	Crop	Maximum Insurance charges payable by farmer (% of Sum Insured)
Kharif	All food grain and oil seeds (all cereals , millets, pulses and oil seeds crop)	2% of Sum Insured or Actuarial rate, whichever is less
Rabi	All food grain and oil seeds (all cereals , millets, pulses and oil seeds crop)	1.5% of Sum Insured or Actuarial rate, whichever is less
Kharif and Rabi	Annual Commercial and horticulture crops	5% of Sum Insured or Actuarial rate, whichever is less

Crop Insurance Market in India

EPI (Million USD)



Crop Insurance Premium is the fastest growing segment in the Indian Market.

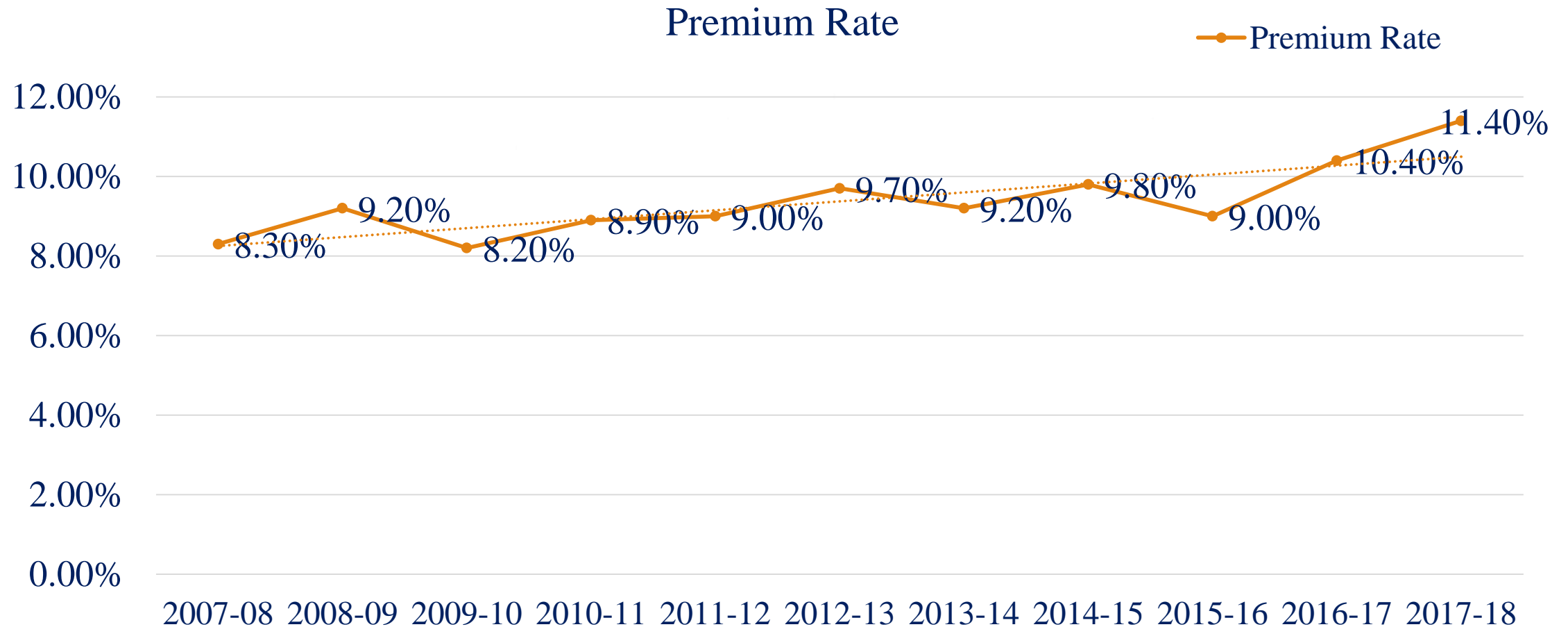
Crop Insurance Market : 2018-19

Million USD

State / UT	Kharif		Rabi		Estimated SI	Estimated GWP
	Sum Insured	GWP	Sum Insured	GWP		
Andhra Pradesh	1,587	152	328	56	1,915	208
Assam	38	0	0	2	43	2
Chhattisgarh	1,076	128	117	12	1,193	140
Gujarat	1,825	498	219	18	2,044	516
Haryana	1,087	66	924	41	2,012	107
Himachal Pradesh	23	1	104	11	127	11
Jammu & Kashmir	41	6	40	3	81	9
Jharkhand	226	44	21	3	248	46
Karnataka	1,458	241	32	21	1,490	262
Kerala	24	2	26	2	50	4
Madhya Pradesh	4,032	300	4,243	284	8,274	584
Maharashtra	2,833	664	531	209	3,364	872
Odisha	1,185	134	69	3	1,253	137
Rajasthan	1,690	352	1,799	117	3,489	469
Tamil Nadu	138	10	943	219	1,081	228
Telangana	887	54	238	10	1,125	63
Uttar Pradesh	1,508	107	1,838	115	3,346	222
Uttarakhand	89	6	53	5	141	11
West Bengal	1,010	21	955	66	1,966	87
Grand Total	20,757	2,785	12,479	1,195	33,237	3,980

Movement in Pricing

Underlying national level average premium rate (excluding-NAIS) has increased from 8% in 2007-08 to close to 11.5% in 2017-18



Risk Coverage

- Prevented sowing/ Planting Risk
- Standing Crop(Sowing to Harvesting)
- Post- Harvest Losses
- Localised Calamity

Pricing Methodology

Pure Premium

- Historical yield data
- Data cleaning
- Threshold yield calculation
- De-trending
- Average burning cost/ Annual expected loss
- Risk Premium

Loading

- Heterogeneity loading
- Data uncertainty loading
- CAT loading 5 to 10%
- Multi year loading 5 to 15%

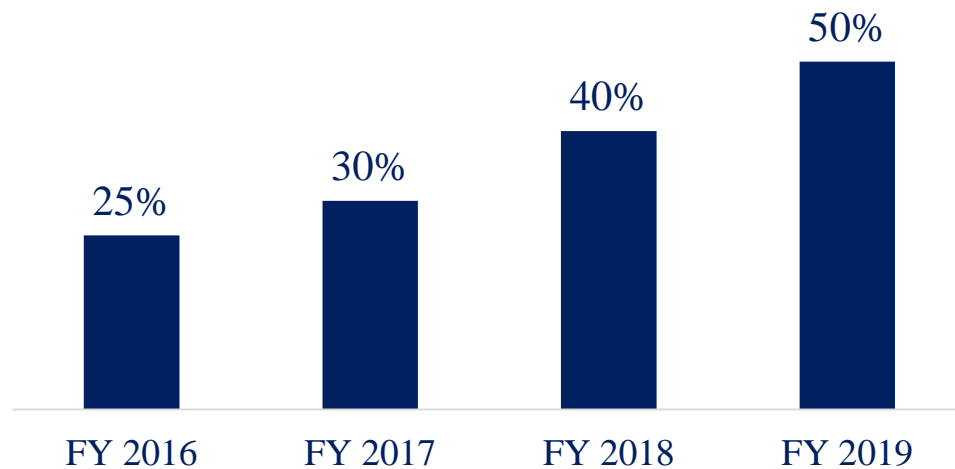
Need Of Pricing Discipline in Agriculture Insurance

- Rainfall is the major risk factor in Indian Agriculture, especially for yield index insurance.
- About 35% (Approximate) of the gross crop area is irrigated
- There are several aspects of rainfall-uncertainty. Other than the variation in the total rainfall during a given period of time, there are significant temporal and spatial variations.
- While the annual all-India total rainfall has a coefficient of variation of about 11%, the coefficient of variation of the annual southwest monsoon rainfall ranges from 44% to 10% for each of the meteorological divisions
- The pattern of rainfall across time is also important since crops require appropriate rainfall during critical periods in the crop cycle. The variability of rainfall over short time horizons is significantly greater than over longer time horizons.
- There are three levels of indemnity — 90%/80%/70%, corresponding to low/medium/ high risk areas for all crops, which is high in comparison to indemnity offered in other countries.

Crop Insurance - Major Drivers for growth

Proposed Coverage of Gross Copped Area

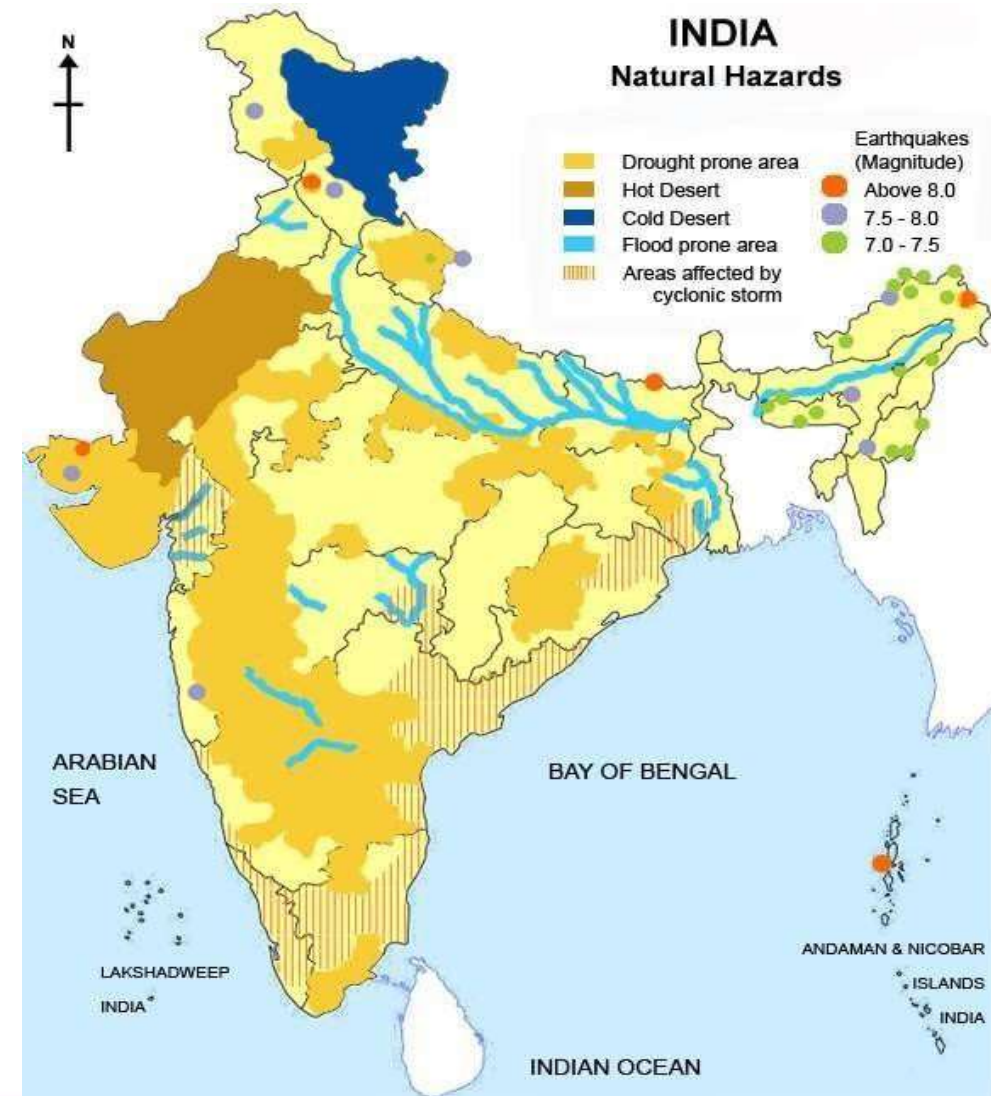
■ Proposed Coverage of Gross Copped Area



- Govt. target for proposed coverage of 50% of gross cropped area by FY 2019
- Active Involvement from the Govt. of India and state Governments.
- Premium Rates are technically calculated
- More crops being covered under crop insurance
- Increases in scale of finance for major crops thus increase in Sum Insured
- Increased use of Technology like Digitisation of Land Records, Aadhar Ceding, Satellite Imaging, Use of Smart Phones, Geo tagging, Farmers' Portal etc.

Cat Events In India

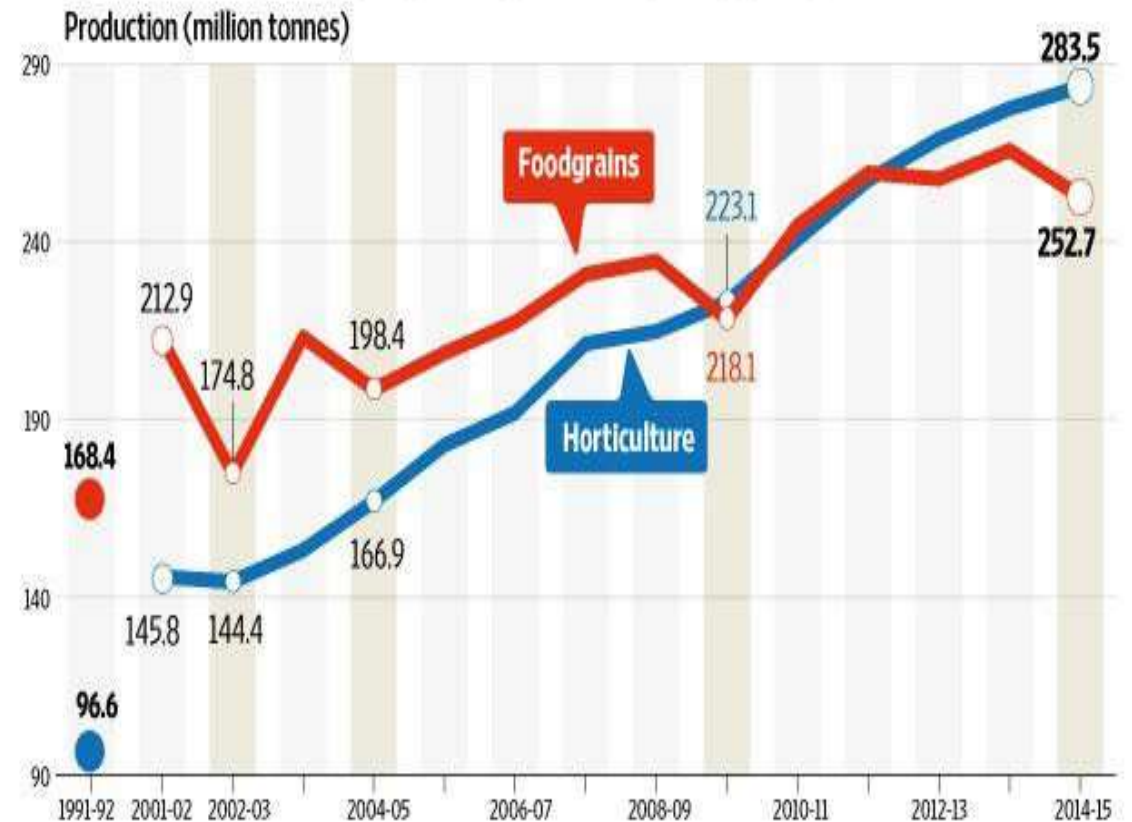
- According to the **statistics**, 68% of India's land is prone to **drought**, 59 % to **earthquakes**, 12% to **floods** and 8% to **cyclones**.
- Only eastern coast of west Bengal , Odisha , Andhra Pradesh and Tamil Nadu is cyclone prone
- Out of 278 cyclones that crossed the east coast, Orissa had the largest share with 98 cyclones (35%), followed by Andhra Pradesh with 73 (26%), West Bengal with 55 (20%), and Tamil Nadu with 52 (19%).
- However, it is interesting to observe that out of the 60 very severe cyclonic storms that crossed the coast, Andhra Pradesh had the highest number with 18 (30%), followed by West Bengal with 16 (27%), Orissa with 15 (25%), and Tamil Nadu with 11 (18%)



Cat Events In India

- W.r.t agriculture in India major peril is drought
- The major drought years in India were 1877, 1899, 1918, 1972, 1987 and 2002.
- The drought-prone areas of the country are confined to peninsular and western India (Maharashtra, Karnataka and Andhra Pradesh) – primarily arid, semi-arid and sub-humid regions.
- An analysis of 100 years of rainfall data reveals that the frequency of 'below-normal rainfall' in arid, semi-arid and sub-humid regions is 54-57%, while severe and rare droughts occurred once every eight to nine years in arid and semi-arid zones. In these zones, rare droughts of severe intensity occurred with almost every third year being a drought year.
- More than 80 districts having a return period less than 5 for a moderate drought
- More than 30 Districts having a return period less than 10 for severe drought

PRODUCTION OF FOODGRAINS AND HORTICULTURE

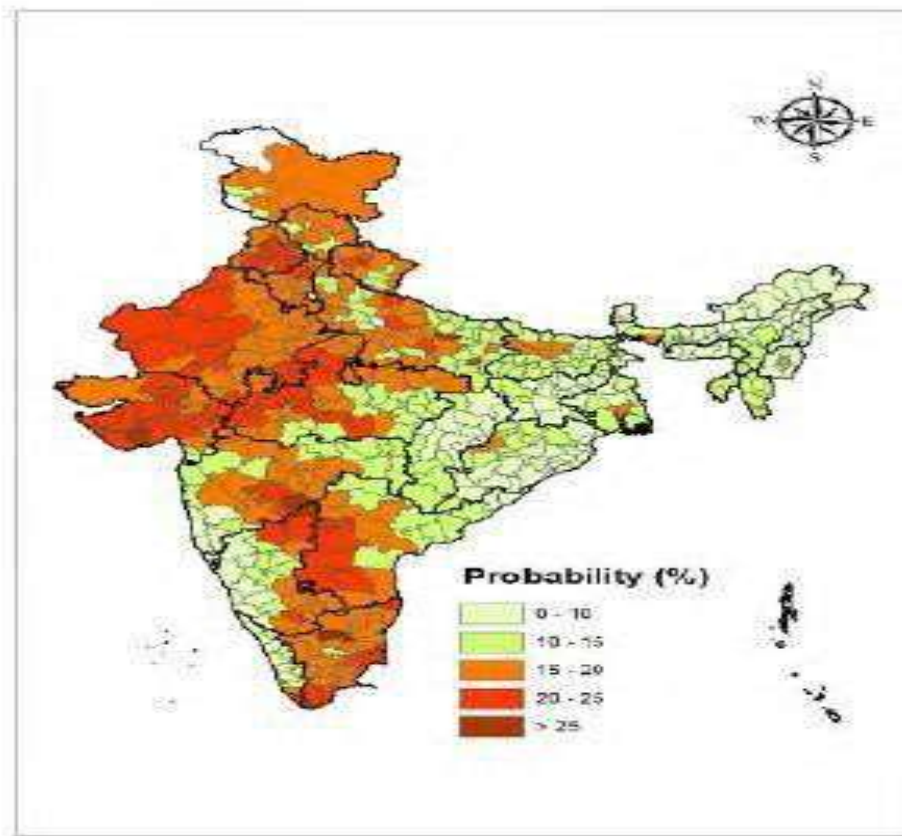


Note: Years 2002, 2004, 2009, 2014 were deficit monsoon years affecting foodgrains' production

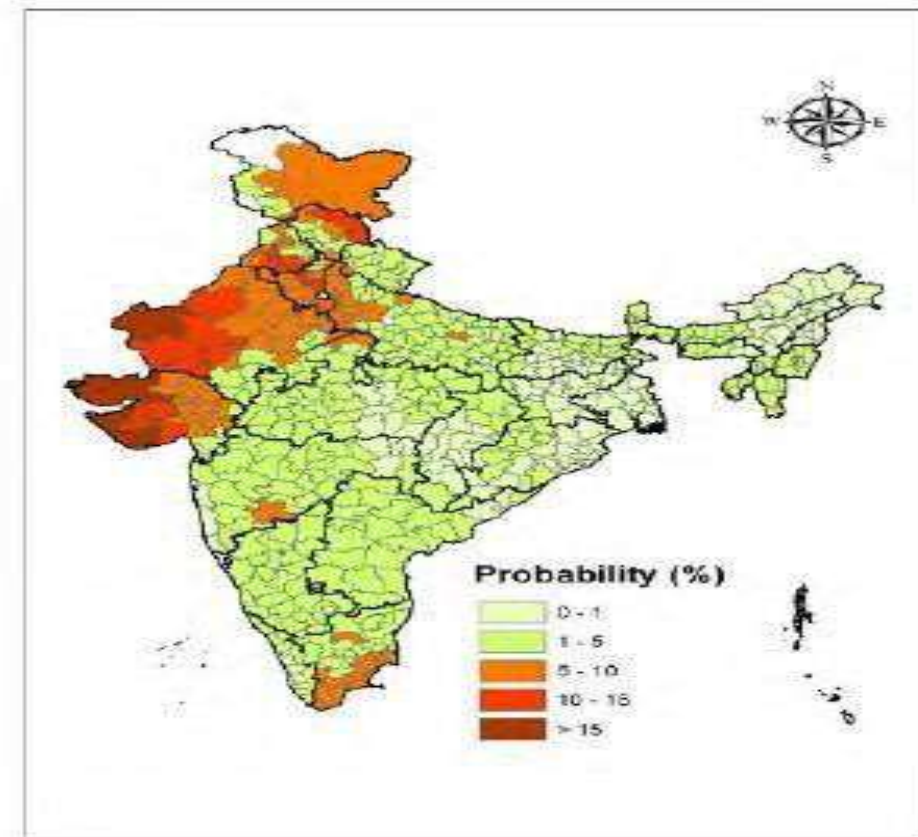
Source: Horticultural Statistics at a Glance, 2015

Probability of Drought in India

Probability of drought (%)
(Based on data of 1901-2000)



Moderate drought



Severe drought



Thank You!

GRACE OF TRADITION