



Evolution and Current Scenario of Crop Insurance in India

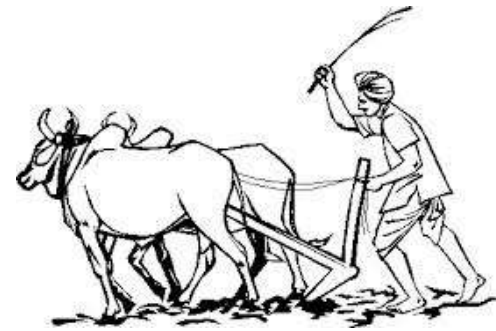
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**D. D. Dange, Regional Manager
Agriculture Insurance Company of India Ltd.**



MAJOR CHALLENGES FACED BY INDIAN AGRICULTURE

- 1. Stagnation in Production of Major Crops:
- 2. High cost of Farm Inputs:
- 3. Soil Exhaustion:
- 4. Depletion of Fresh Ground Water:
- 5. Adverse impact of Global Climate Change:
- 6. Impact of Globalization:
- 7. Providing Food Security:
- 8. Farmers Suicide:





Indian Agriculture

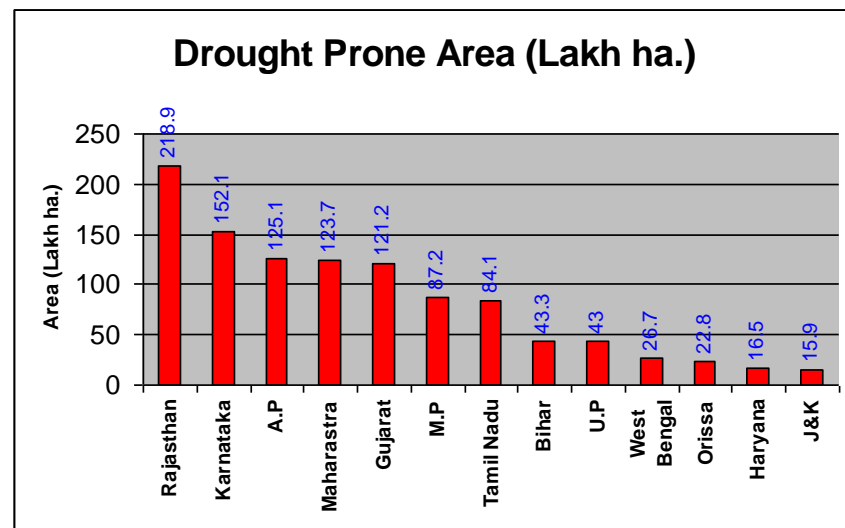
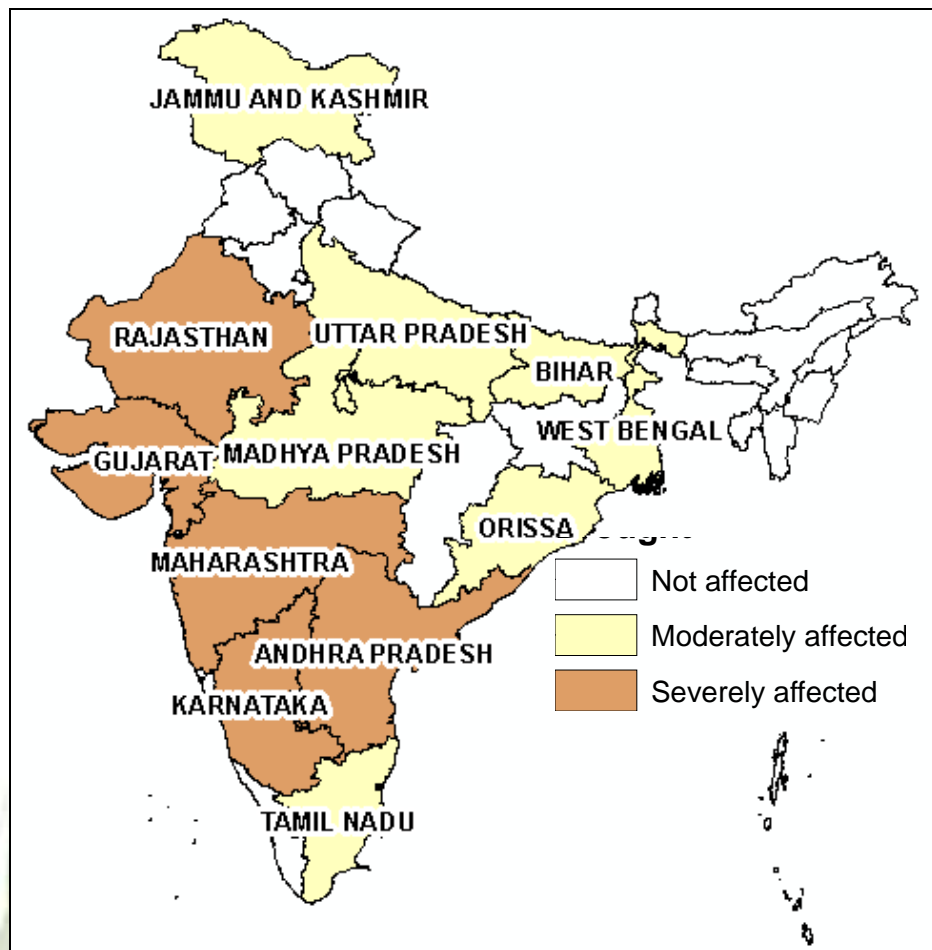
Gross cropped area	19.89 Crore ha
Cropping Intensity	141 %
Operational Holdings	13.8 Crore
Gross Irrigated Area	8.93 Crore ha
Contribution to GDP	13.7 %
Employment	51%
Dependency for livelihood	70%
Annual Avg. Rainfall	1170 mm (75% from SW Monsoon - JJAS)
Maximum Rainfall	North East
Minimum Rainfall	Western Rajasthan



India: Land-holding Demographics

Description	Size	Average Size (ha)	Total holdings (%)	Area (%)	Irrigated Area (%)
Marginal	< 1 ha.	0.4	62	17	21
Small	1-2 ha.	1.42	19	19	20
Semi-Medium	2-4 ha.	2.73	12	24	24
Medium	4-10 ha.	5.84	6	25	24
Large	>10 ha.	17.2	1	15	11
All		1.31	100	100	100

DROUGHT VULNERABILITY



- **68% of the net area sown in the country is prone to drought**
- **Out of this 33% is chronically drought prone, receiving rainfall less than 750mm per annum**
- **35% is drought prone that receive rainfall between 750-1125 mm per annum**



Available Options to insure

- **Yield Index Insurance**
 - Flood, Widespread uncontrollable diseases and un-indexed weather events, etc.
- **Weather Index Insurance**
 - Drought measured in terms of rainfall deviation, other indexed weather events, etc.
- **Traditional Insurance on loss assessment basis** – Difficult to implement and costly



Crop Insurance System in India

- Predominantly Index based products
- Crop and season specific notification issuance & coverage
- Linked to Crop loan,
- Premium additionally financed for loanee farmers
- Insurance acts as collateral, lending agency has the first lien on claim
- Sum Insured based on production cost / Value of yield
- Multi-Agency Platform – convenient but insurer doesn't have full control.
- Automated Claim process.
- Insurance with social dimension as Government provides for about 2/3rd cost of the program and has a larger say
- Private insurers enjoy same level of support as public insurer



Implementation Mechanism

- All major schemes supported Governments.
- GOI announces the scheme to be adopted by State Govt.
- State wise Season wise Notification by State Govt.
- Coverage through Banking Network-Compulsory coverage of crop loans.
- Non borrowing farmers- through banks/PACCS or intermediary.
- Claims payment- Direct credit to Bank Accounts.



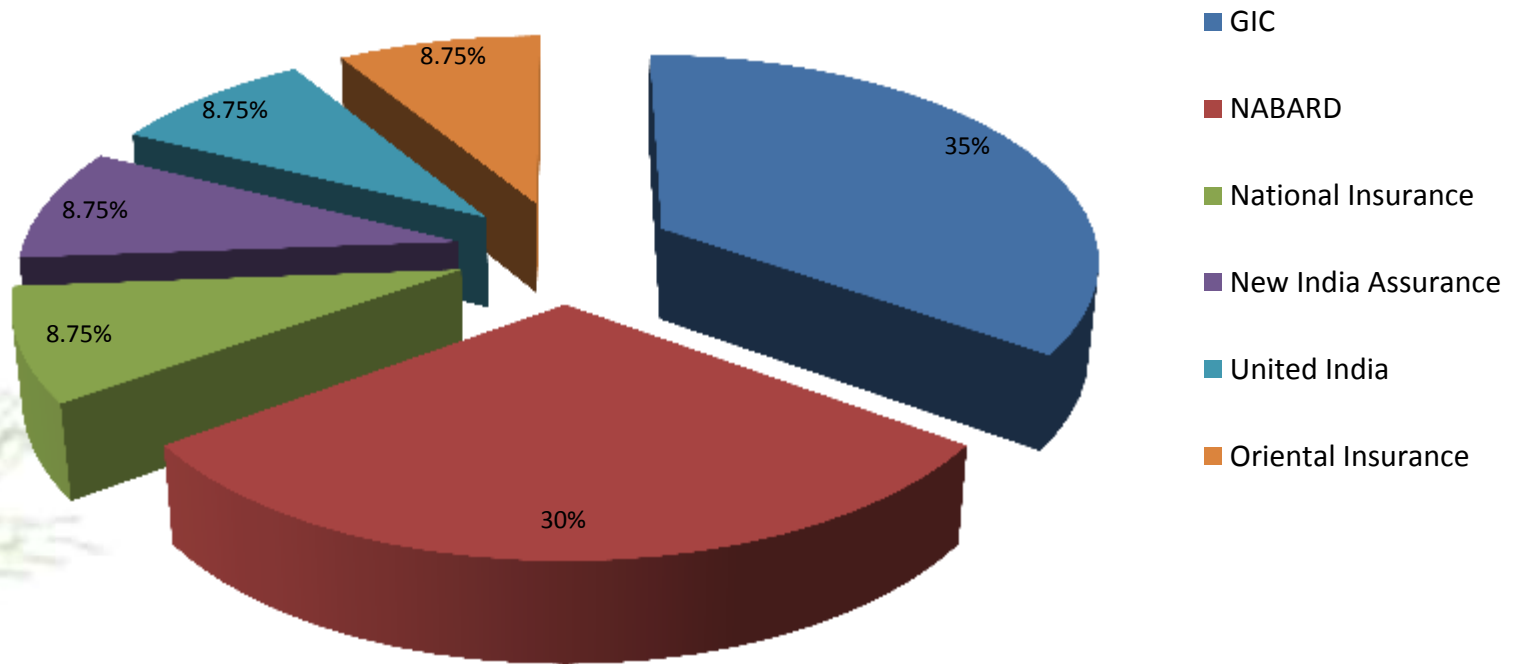
Evolution of Crop Insurance

- J S Chakravarthi proposed 'Drought Insurance' based on rainfall index in 1920
- First ever crop insurance started in 1972 for H-4 cotton based on 'individual farm'
- In 1979 a pilot insurance was introduced based on 'homogenous area' based yield index (Pilot Crop Insurance Scheme – PCIS)
- In 1985 the PCIS was converted into a country-wide 'yield index' based crop insurance covering cereals, millets, pulses and oilseeds (Comprehensive Crop Insurance Scheme – CCIS)
- Scope of CCIS expanded in 1999 as National Agricultural Insurance Scheme – NAIS
- Weather Based Crop Insurance Scheme – WBCIS was introduced from 2007
- Modified NAIS as pilot in 50 Districts from Rabi 2010-11 season
- National Crop Insurance Programme (NCIP) introduced from Rabi 2013-14



Agriculture Insurance Company of India Ltd. (AIC)

Promoters (Share Holding)





Crop Insurance Products

Crop insurance products presently underwritten could be categorized as:

1. Index based insurance products -

- Yield Index based i.e. National Agricultural Insurance Scheme (NAIS) , Modified NAIS
- Weather Index based products (WBCIS)
- Biomass or crop health based products

2. Named Peril or Traditional Insurance

3. Hybrid of (1) and (2) of above



Why India adopted area Index base Products?

Challenges of “Individual Farm” Insurance

- Large number of small sized Farm-holdings
- Large variety of crops
- Small ticket insurance
- Varied agro-climatic conditions
- Diverse agricultural management practices
- Simultaneous harvesting of crops all over the country
- Non availability of past record of farm level Yields



National Agriculture Insurance Scheme (NAIS)

- **'Homogenous Area' and Yield Guarantee based**
- **Unit of Insurance - Decided in SLCCCI meeting**
- **Available to all States / UTs**
- **Covers Food crops & Oilseeds (group 1) & Annual Commercial / Horticultural Crops (group 2)**
- **Covers all Farmers - Borrowing on compulsory & Non-borrowing on voluntary basis**
- **Sum Insured - Loan amount to 150% of value of Yield**
- **Premium - 2.5% to 3.5% during Kharif & 1.5 to 2% during Rabi (group 1-FCOS) and Actuarial (group 2-ACH)**
- **Premium subsidy - 10% to Small / Marginal farmers**
- **Claims in excess of 100% for group (1) and 150% for group (2) are shared by GOI & States equally**



NAIS – Premium Rates

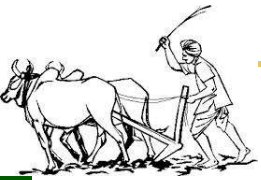
Kharif	Bajra & Oilseeds	3.5% or actuarial premium rate whichever is lower
	Cereals,Pulses	2.5% or actuarial premium rate whichever is lower
Rabi	Wheat	1.5% or actuarial premium rate whichever is lower
	Other crops	2% or actuarial premium rate whichever is lower
Kharif & Rabi	Annual Commercial/ Horticulture crops	Actuarial rates

NAIS - Claim Formula

CROP: Bajra					
YEARS	2004	2005	2006	2007	2008
YIELD (Kg/Ha.)	2100	1350	1875	1550	1200
Average Yield (Kg/Ha.)	1615				
Indemnity Level	80%				
Threshold Yield (Kg/Ha.)	1292				
Actual Yield -2009	450				
Shortfall	65.17%				
Sum Insured (Rs.)	50000				
Claim Payable (Rs.)	32585				

- **Claim = (Shortfall in Yield/Threshold yield) X S.I.**
- **Yield Estimation- Crop Cutting Expt.**





National Agricultural Insurance Scheme (NAIS)- Rabi-1999-Till 2014

- Achievements:
 - Coverage:- 27States/UT's.
 - Farmers Insured:- 21.86 Crores.
 - Premium:- Rs. 9760 Crores
 - Claims:- Rs. 33426 Crores



MNAIS-Main Features

- Modified Version of NAIS
- Improved threshold Yield and Indemnity level.
- Actuarial Premium rates, upfront premium subsidy.
- Unit of insurance (Area approach) – reduced up to Gram panchayat.
- Claims liability- Insurance company.
- Additional Indemnity approaches : Localized calamity, Post harvest losses, Failed sowing , on account payment.
- Uniform cut-off dates for participation of farmers.



MNAIS Premium Rate & Subsidy

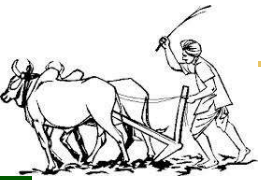
Actuarial rates based on past years yield data

Premium slab	Subsidy to Farmers
Up to 2%	Nil
>2-5%	40%, subject to net Premium 2%
>5-10%	50%, subject to net Premium 3%
>10-15%	60%, subject to net Premium 5%
>15%	75%, subject to net Premium 6%



Modified NAIS: How it Works?

Crop: Sorghum		Sum Insured (INR):	10000			
Year	Yield					
2004	350	calamity year1				
2005	950					
2006	1200					
2007	875					
2008	250	calamity year2				
2009	950					
2010	1200					
Current Yield - 2011 (Kg/Ha.):	650	$\text{Indemnity} = \text{Max} \left(0, \frac{\text{Threshold Yield} - \text{Actual Yield}}{\text{Threshold Yield}} \right) \times \text{Sum Insured}$				
Average Yield of latest 7 years: (Kg/Ha.):	825.00					
Average Yield of latest 7 years less 2 calamity years (Kg/Ha.):	1035					
	Risk category	Indemnity level	TY (Kg/Ha.)	Shortfall (Kg/Ha.)	shortfall %	claim (INR)
	high risk	70%	724.5	74.5	11.46%	1146.15
	medium risk	80%	828	178	27.38%	2738.46
	low risk	90%	931.5	281.5	43.31%	4330.77



Modified National Agricultural Insurance Scheme (mNAIS) From 2010-11 till 2013-14

- Achievements:
 - Coverage:- Selected districts of 18 States/UT's.
 - Farmers Insured:- 75.03 lakhs.
 - Premium:- Rs. 1935.86 Crores
 - Claims:- Rs. 1465.75 Crores



WBCIS - Risks Covered

- **Covers anticipated yield losses due to**
 - **Kharif weather parameters**
 - Rainfall - Excess & Deficit
 - Dry Spell
 - Disease proxy weather index (Temp., RH, etc)
 - **Rabi weather parameters**
 - Unseasonal rainfall
 - Temperature – High, Low, Daily average
 - Frost measured through Temperature
 - Humidity
 - Wind speed



WBCIS - Broad features

- **Trigger Event:** Based on historical data of up to 25 years
- Homogenous Area (RUA) and Weather Index based
- Available to all States/UTs
- Covers all crops.
- Covers all Farmers: Borrowing (Loanee) – **compulsory**
- **Sum Insured**–Based broadly on cost of cultivation
- RWS & BWS provide data for the insured season.
- Actuarial Premium Capped at-
 - Kharif – 10% for FC/OS crops
 - Rabi – 8% for FC/OS crop Commercial/Horticultural Crops – 12%



WBCIS Premium Subsidy

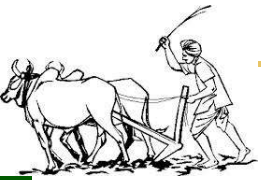
S. No.	Premium Slab	Subsidy by Central & State on 50:50 basis	Minimum net premium payable by farmer
1.	Up to 2%	No Subsidy	
2.	>2-5%	25% Subsidy Subject to	2%
3.	>5-8%	40% Subsidy subject to	3.75%
4.	>8%	50% Subsidy subject to	Min. 4.8% & Max. 6%



WBCIS - Claims

- Actual Weather data recorded at RWS (AWS).
- Data recorded for risk period is weighed against the product term sheet
- Term sheet is specific to a RUA and a crop
- **Payout** – Automatic & paid within 45 days of data availability if payout is triggered





Weather Based Crop Insurance Scheme (WBCIS) From 2007 till 2014

- Achievements:
- **States covered: 19 States/UT's**
- **Farmers Insured:- 31.70 Lakhs**
- **Premium:- Rs. 5322.49 Crores**
- **Claims:- Rs. 3624.43 Crores**

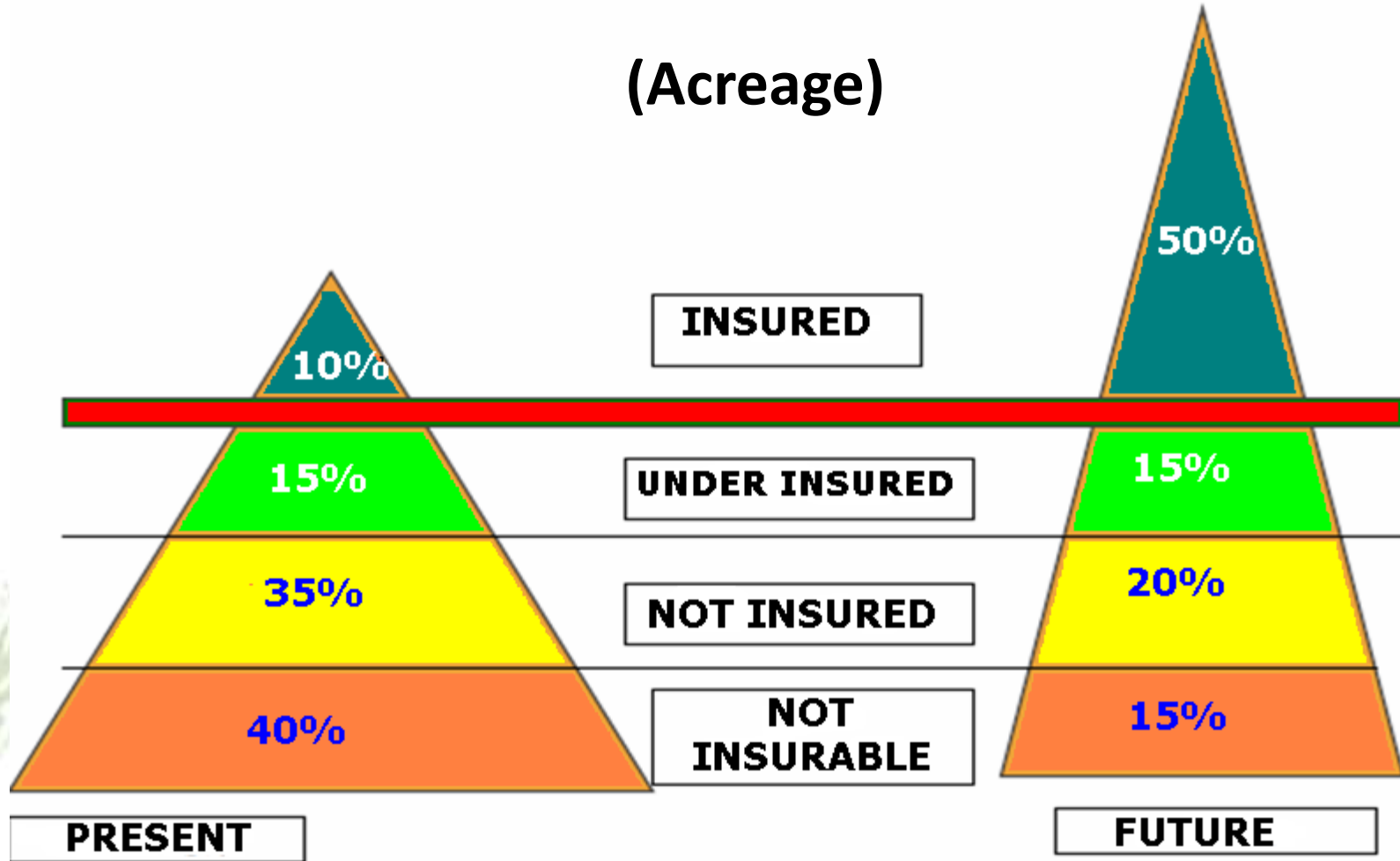


Agriculture Insurance: Going Forward

- Government continue to support agriculture insurance
- Channelize disaster relief funds through agriculture insurance
- Insurance will incentivize sustainable agricultural practices
- Agriculture insurance to be a prerequisite for availing other benefits under Agriculture Risk management
- Weather index based insurance is likely to get push
- Weather Station Network has to greatly increase
- Double trigger products, Hybrid products with mix of individual approach.
- Crop insurance scheme providing both production and price risks.

Crop Insurance : Potential

(Acreage)





Major Challenges

➤ **Crop Cutting Experiments (CCEs)**

Large no. of CCEs; Manpower shortage;

Multiple / multi picking crops;

varying crop life cycles/season;

CCE fields remote and inaccessible;

limited use of technology

➤ **Credit delivery system**

End use verification;

consumption loans

Prompted & concentrated loaning around cut-off date;

delayed submission of premium;

static crop plan;

multiple coverage

Contd...



Major Challenges Cont..

- Weather Station Infrastructure, Maintenance, & Weather Data
Selective and inconsistent participation
- Premium Rates and rating techniques.
- Claim Settlement: Time & Basis Risk (mismatch - Pay-outs & Loss)
- Awareness & Insurance Literacy including stakeholders and intermediaries
- Delivery Channels for Non-Borrowing Farmers



Namaskar