

India's Largest Micro Insurance Programs

Technological Innovations and
Agricultural Micro-insurance

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OVERVIEW

- ✓ India: The Agriculture Setting
- ✓ India: Agriculture Insurance Architecture
- ✓ NAIS and PMFBY – comparison
- ✓ Technology Use
- ✓ Industry Implications

India - Agriculture Insurance Architecture

India: Architecture of Crop Insurance Implementation

- **Almost 100% INDEX insurance**
- **YIELD index and WEATHER index dominate**
- **Credit linkage, and mandatory for borrowing farmers**
- **Risk covered is based on production cost (safety-net)**
- **Insurance acts as collateral, and lending agencies have the first lien on claim**
- **Minimal distribution costs**
- **Claims process is automated**
- **Yield estimation is done by the provincial government agencies , and based on 'single series'**
- **Weather data comes from both public as well as private data providers**
- **All empaneled insurance providers (16) enjoy same level of government support as Public Insurance Company (AICI)**

Index Insurance Products

- ✓ **Claim subsidy based Yield Index (NAIS)**
- ✓ **Premium subsidy based Yield Index (MNAIS / PMFBY)**
- ✓ **Premium subsidy based Weather Index (WBCIS)**

PMFBY

India: PMFBY

THREE Components

- **Prime Ministers Crop Insurance Scheme (PMFBY)**
 - Yield Index
- **Weather Index Scheme (WBCIS)**
- **Unified Package Insurance Scheme (UPIS)**
 - Building & Contents
 - Personal Accident
 - Agricultural Pump-set
 - Agriculture Tractor
 - Student insurance
 - Life insurance

PMFBY Value Proposition

Fair & Timely settlement of indemnities:

- **Product design**
- **Enrolment**
- **Objective loss assessment**
- **Quick settlement**

Yield Index Crop Insurance: NAIS Vs PMFBY

S.NO	Features	NAIS	PMFBY
1	Premium Rates	Administered (1.5% to 3.5%) for food crops & oilseeds (FCOS) and actuarial for annual commercial / horticultural (ACH) crops	Actuarial rates
2	Premium for Farmers	Administered (1.5% to 3.5%) for FCOS and actuarial for ACH crops. 10% subsidy for small / marginal farmers	Administered (1.5% to 2%) for FCOS and upto 5% for ACH crops
3	Indemnity Level	60%, 80% & 90%	70%, 80% & 90%
4	Sum Insured	Upto loan amount / value of Threshold Yield	Upto 'Cost of Production' / value of Threshold Yield
5	'On Account' payment facility	No	Yes (upto 25% of likely claim)
6	Localised Risks – individual farm assessment	No	Hail storm, Land slide & Inundation

Yield Index Crop Insurance: NAIS Vs PMFBY

S.NO	Features	NAIS	PMFBY
7	Prevented Sowing coverage	No	Prevented sowing, only Kharif season (upto 25% of sum insured). Insurance cover gets terminated
8	Post-Harvest Losses - individual farm assessment	No	All India – against cyclonic / unseasonal rains
9	Insurer	AICI	AICI + 15 empanelled Insurers
10	Bidding & Allocation of Territories	AICI alone	Cluster level (5-10 Districts)
11	Basis of Actuarial Rates	Standard method (ACH crops)	Method based on loss cost of 10 years + loading for admn. expenses, cost of capital, non-parametric benefits, lower insurance unit, etc.

Yield Index Crop Insurance: NAIS Vs PMFBY

S.NO	Features	NAIS	PMFBY
12	Loss Cap	100% for FCOS crops	350% (National level)
13	Non-Loanee coverage	Only through Banks	Banks, Insurance intermediaries, Direct & On-line Portal
14	Non-Loanee vis-à-vis Insurers	Only AICI	Only the allotted Insurer who wins the bid for Loanee farmers
15	Use of Technology (for quicker settlement of claims)	No	Mandatory
16	Awareness & Market Penetration Target	No	Yes (target to double penetration to 50%)

Technology

The New Scheme – The Indian Government Efforts

- **50% Penetration targeted by 2018**
- **Ownership at the TOP**
- **2016-17 Coverage**
 - **TSI: US \$ 24 billion**
 - **EPI: US\$ 3 billion**
- **Technology Push**

PMFBY – Technology Interventions

Technology

- **Dedicated Portal for enrollment / Premium rates / Notification**
- **Non-Loanee**
 - **Enrollment**
 - **Establishing Insurable Interest**
- **Loss Monitoring**
 - **Yield estimation**
 - **Android App for CCE posting**
 - **Rapid assessment of localized calamities – individual farm assessment**
 - **Use of UAVs for acreage correction, monitoring of CCE plots**

UAV Study

(Rajkot - Gujarat)

Purpose of UAV based study

- Accurate identification of crop (100% accuracy)
- Precise groundnut and cotton area delineation,
- Cadastral level correlation between ownership vs sown crop,
- Farm level policy correlation,
- Crop health due to loss of chlorophyll,
- Model based yield estimation at field and village level,
- Production estimation based on estimated yield
- Fraud detection

Inputs proposed

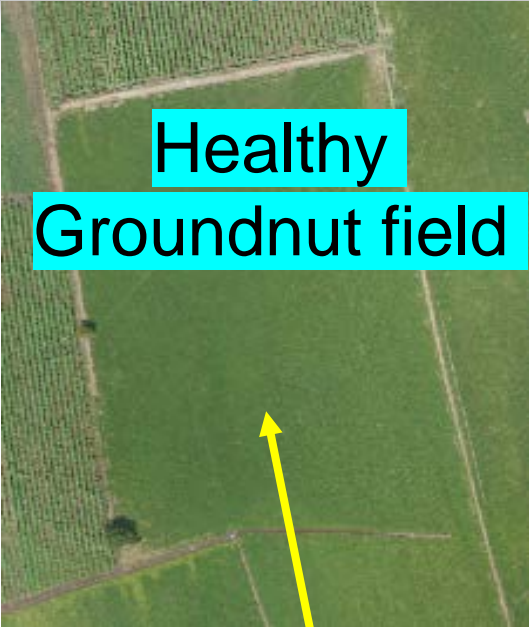
- Landsat/LISS III/AWiFS satellite image,
- UAV flying over 28 villages in 6 different tehsils of Rajkot district,
- Cadastral maps and ownership data,
- Insured farmers and farm fields,
- Intensive field survey and dense point network for crop health,
- CCEs for input to yield estimation

Crop type Discrimination and Area

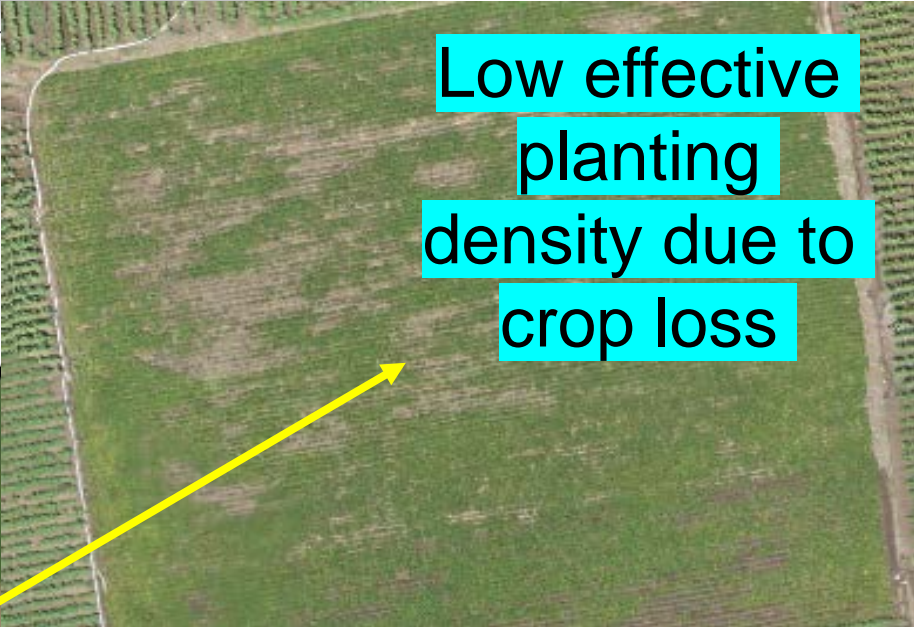


- Within this 1sqkm tile:
- 21 Cotton fields = 36.63 Ha.
 - 31 Groundnut fields = 38.53 Ha.

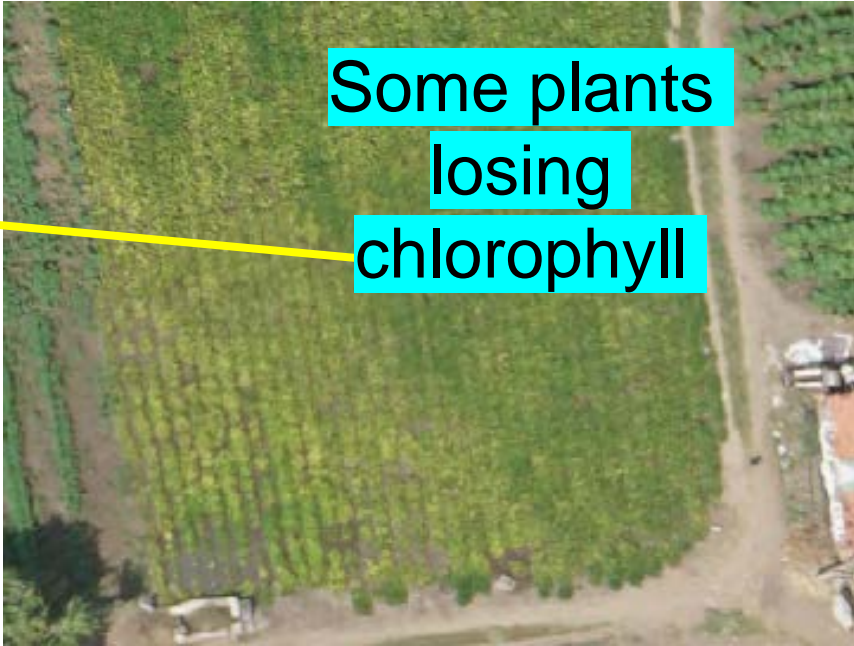
Crop type and health



Healthy
Groundnut field



Low effective
planting
density due to
crop loss



Some plants
losing
chlorophyll



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