

Module name:

Session name:



Analysis to Action:

An Executive Education Program
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Module 3.5

Agricultural Insurance: Evidence from Rwanda

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Features of Agriculture sector in Rwanda

- **Agriculture:**
 - Main stay of economy with >1/3 GDP; >80% workforce
 - Heavy investments in terms of agri inputs (subsidized seeds, fertilizers...)
- **Constrained:**
 - Climate change hazards (drought, floods, storms, hail...): USD132 million (2015)
 - Low agri financing: credit to farmers: 5,9% in 2015 and 4,6% in 2016; high NPL
- **Insurance Solutions**
 - ❖ Manage Risks and losses
 - ❖ Increase productivity through access to input loans

Prevalence of risks at farm level: Rwandan experience

| Risks experienced | Almost every year | Every 1 - 3 years | Every 3 - 5 years | Every 5 - 7 years | Every 7 - 10 years | > Every 10 years | Never |
|------------------------------|-------------------|-------------------|-------------------|-------------------|--------------------|------------------|-------|
| Drought/ deficient rainfall | 68.0% | 23.0% | 5.7% | 0.8% | 0.0% | 0.0% | 0.8% |
| Unseasonal rainfall | 54.9% | 30.3% | 9.0% | 0.0% | 0.0% | 0.0% | 2.5% |
| High winds/ storm | 35.2% | 26.2% | 14.8% | 5.7% | 0.8% | 1.6% | 11.5% |
| Excess rainfall | 27.9% | 39.3% | 12.3% | 7.4% | 0.8% | 0.8% | 10.7% |
| Hailstorm | 13.1% | 31.1% | 27.9% | 13.9% | 4.1% | 0.0% | 8.2% |
| Pests and diseases | 64.8% | 23.8% | 8.2% | 0.8% | 0.0% | 0.8% | 0.0% |
| Adverse price movements | 77.0% | 10.7% | 5.7% | 2.5% | 0.0% | 0.0% | 1.6% |
| Quality and access to inputs | 50.8% | 35.2% | 4.1% | 0.8% | 0.0% | 0.0% | 5.7% |
| Lack of labour supply | 41.8% | 14.8% | 5.7% | 1.6% | 0.0% | 0.0% | 27.9% |
| Loss from wild Animals | 29.5% | 10.7% | 2.5% | 2.5% | 1.6% | 0.0% | 39.3% |







Insurance perspective - The most prevalent (common) risks experienced by farmers in this study include **adverse prolonged droughts (68%), pests and diseases (64.8%), unseasonal rains (54.9%)**

Common insurance products

| | What is it? | Transaction Cost | Moral Hazard/ Adverse Selection | Basis Risk |
|-----------------------------------|---|------------------|------------------------------------|----------------|
| Multi-Peril Crop Insurance | Is a traditional indemnity insurance product against all perils Payouts are determined through a farm level loss assessment process | High | Medium | Low |
| Area yield Index insurance | Is based on average losses at the regional level rather than farm level It is often based on historical yields records | Medium | Low | Medium |
| Weather Index Insurance | Is based on weather parameters (such as rainfall, temperature, or soil moisture) correlated with farm level yields or revenue outcomes | Low | Low | High to medium |

Basis risk with index insurance arises when indices are imperfectly correlated with farmers' losses. Some farmers with losses may not receive pay-outs while some farmers without losses may receive pay-outs (Flashcard)

Full Season Cover

| Cover Start <i>(10mm of rainfall recorded in 5 days during planting window)</i> | Germination <i>Example Value Covered: 30%</i> | Vegetative <i>E.g. Value Covered: 30%</i> | Flowering <i>E.g. Value Covered: 40%</i> | Ripening/Dry Down <i>E.g. Value Covered: 40%</i> | | Total = <i>Sum of all losses (100% max.)</i> |
|---|---|---|--|---|---|--|
|  |  |  |  |  |  | |

Excess Rain
Effect: Leaching

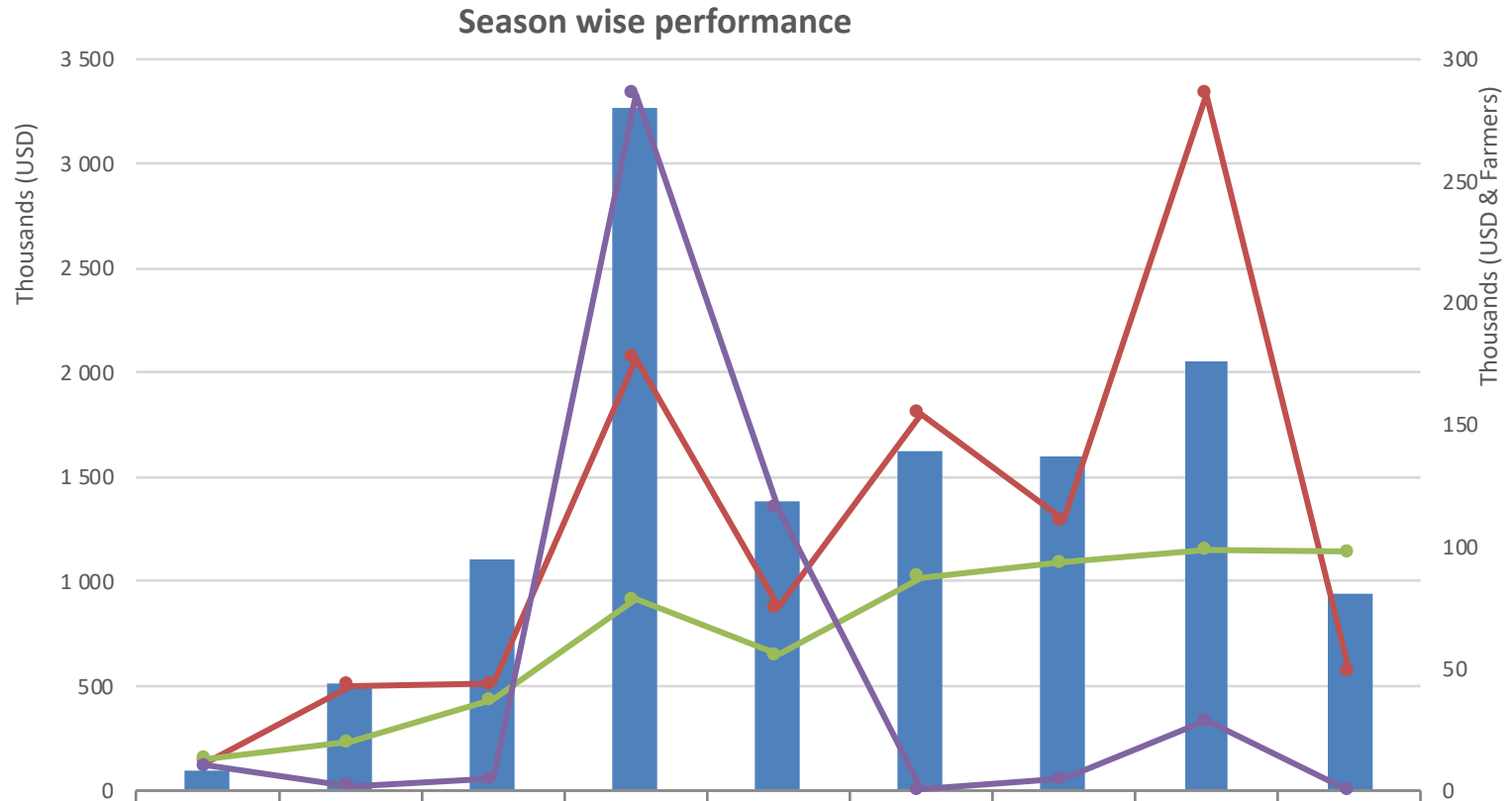
Drought
Effect: Replanting, Stunted growth, Poor grain filling and Crop death

Storm (in some regions)
Effect: Physical Damage

Excess Rainfall
Effect: Rotting/sprouting of seed

RISKS COVERED

Four years index pilot in Rwanda



| | | | | | | | | | |
|--------------------------|--------|---------|-----------|-----------|-----------|-------------|-----------|-----------|---------|
| ■ Agri Investments (USD) | 93 300 | 511 073 | 1 100 300 | 3 268 876 | 1 381 700 | 1 628 775,1 | 1 603 167 | 2 050 486 | 936 293 |
| —● Premium paid (USD) | 11 680 | 43 206 | 43 694 | 177 278 | 75 009 | 154 754 | 110 978 | 285 486 | 48 935 |
| —● Farmers insured | 13 000 | 20 000 | 37 000 | 78 550 | 55 415 | 87 484 | 93 735 | 98 728 | 97 796 |
| —● Claims (USD) | 10 348 | 2 119 | 4 766 | 285 591 | 115 769 | 210 | 4 720 | 28 292 | 0 |



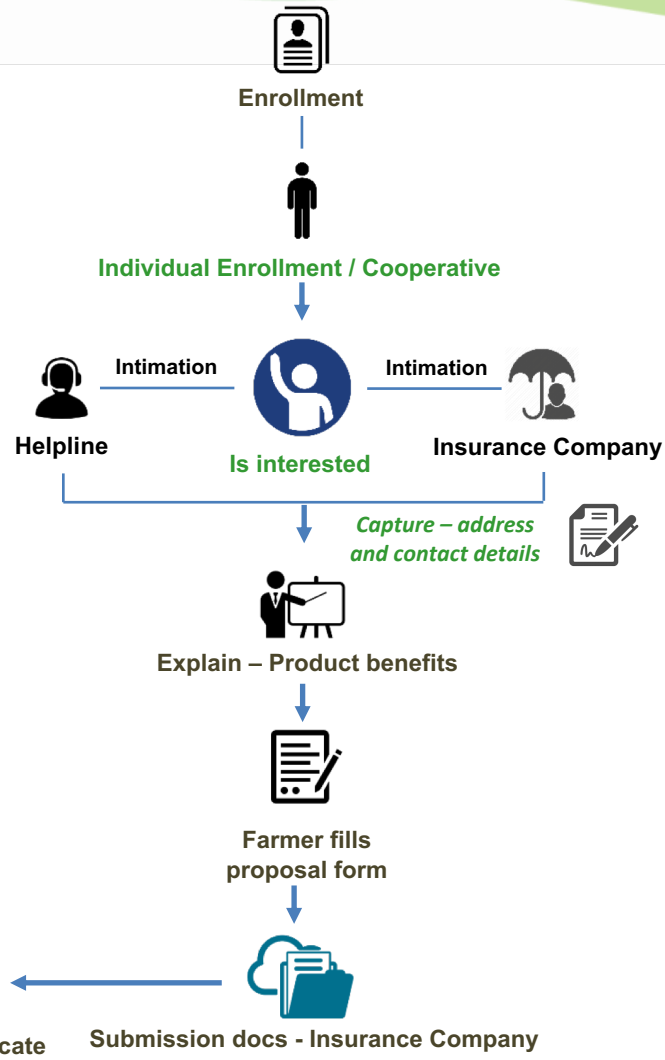


Challenges

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- **Data:** quantity, quality and availability
- **Infrastructure:** AWS distribution, road network to access to farms, digital tools...
- **Legal & Regulatory frameworks:** Licensing, fiscal environment, supervisory role, consumer protection mechanisms, limited barriers and enable innovations, alternative distribution channels
- **Unorganized & fragmented markets:** Insurable risks, size of risk pools, distribution infrastructures, access to finance
- **Actuarial & underwriting capacity:** Professional skills, domestic capacity building
- **Insurance literacy / education:** Policy holders, insurers, policy makers, insurance culture, awareness

Enrollment Process



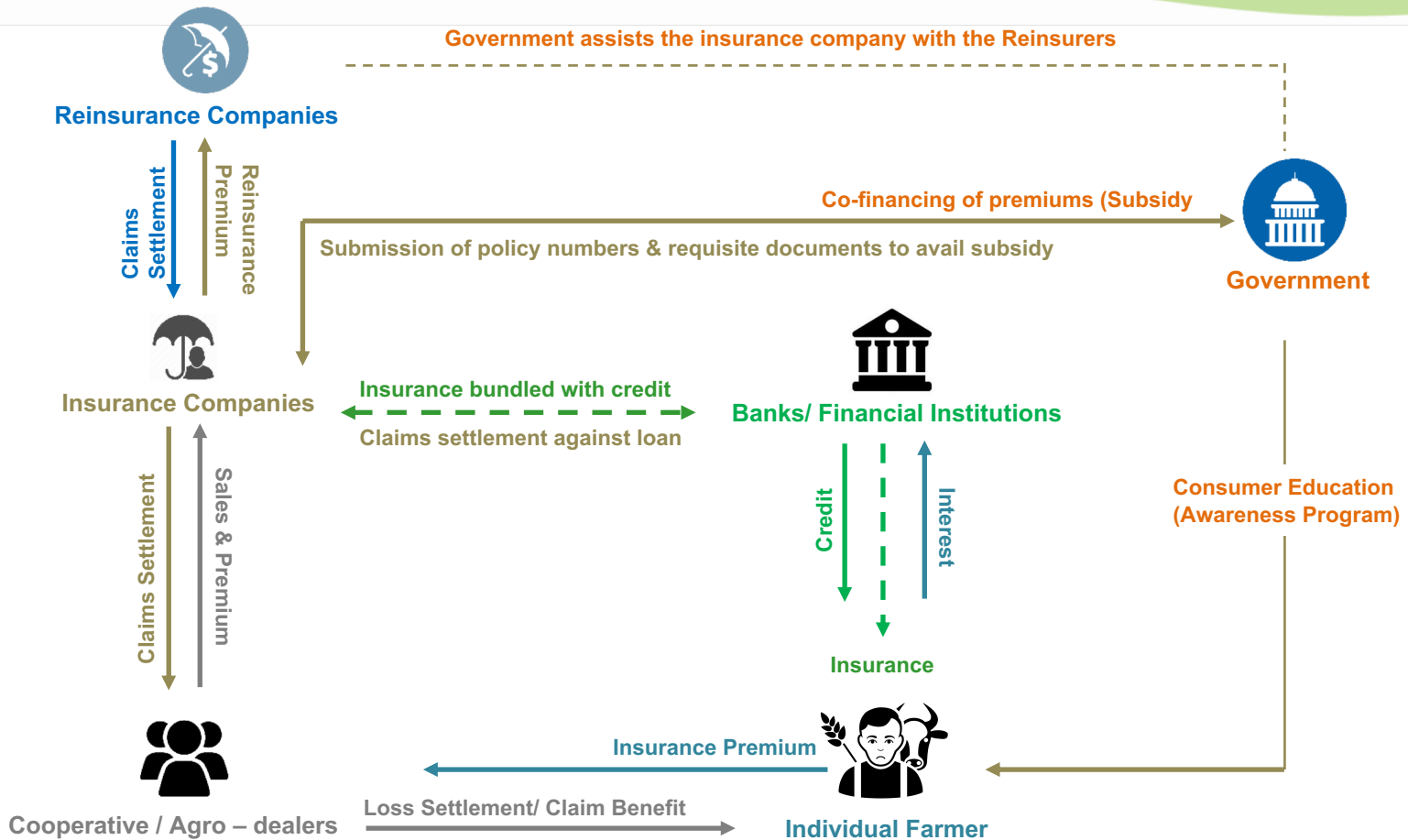
Policy is couriered to the Cooperative / Farmer



Underwriting & Issuance - Policy Certificate

Submission docs - Insurance Company

A PPP Model for scale in Agriculture insurance



Roles of stakeholders

| MINAGRI | METEO | INSURANCE | ACRE | Reinsurer |
|-------------------------|-----------------------|------------------|---------------------|---------------------|
| Define targets | Provide rainfall data | Enrol farmers | Product design | |
| Co-finance premiums | | Issue Policies | Process Meteo data | |
| Notify localized perils | | | Monitor risks | |
| | | | Report index losses | Verify loss reports |
| | | Settle claims | | Finance Claims |



Thank you

Merci



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