Platform
for Agricultural
Risk Management

Managing risks
to improve farmers'
livelihoods

Capacity Development

PARM
PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

Uganda

Capacity Development Seminar for Farmers' Organisations (CD1)

Presentations Vol. II

December 2015

AFD

Cooperazione Italiana allo Sviluppo
Ministero degli Affari Esteri

IFAD
Investing in rural people

german cooperation
DEUTSCHE ZUSAMMENARBEIT

KFW

NEPAD
TRANSFORMING AFRICA

PARM

PLATFORM FOR
AGRICULTURAL RISK
MANAGEMENT

Platform
for Agricultural
Risk Management

Managing risks to improve farmers' livelihoods

Uganda

Capacity Development Seminar (CD1) on Agricultural Risk Management

PARM learning event for farmers' organisations

Volume II

PRESENTATIONS

Mbale | 9th – 10th December 2015

Report prepared by:

Jan Kerer, PARM Consultant

In collaboration with:

The Ministry of Agriculture
Animal Industry and Fisheries (MAAIF)

Table of Contents

SESSION 1 : INTRODUCTION

THE REPUBLIC OF UGANDA

Risk Management for Farming

8-9 December, 2015 | Mbale, Uganda

INTRODUCTION OF THE GROUP

Take 2 minutes to discuss with your neighbor:

- What do you think of when you hear "agricultural risk management"?
- What is your expectation of this training and what do you hope to learn?

Introduction round:

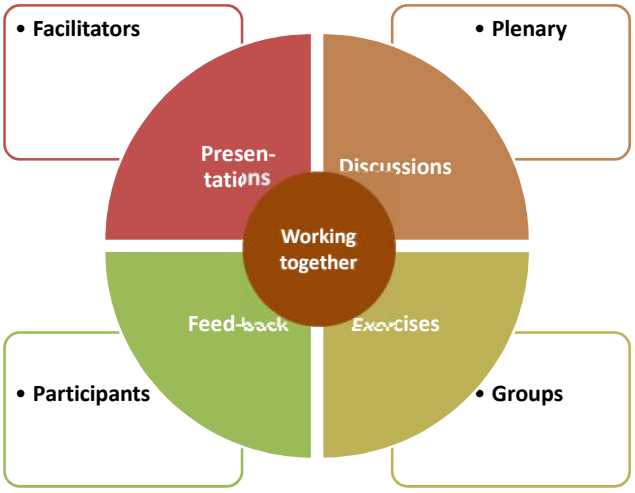
- Your name
- Your organization and position
- Your understanding of what agricultural risk management is
- Your expectations of the training

OBJECTIVES OF THE TRAINING

- **The seminar pursues the following learning objectives (for participants):**
  - Develop an understanding of risks and risk management
  - Learn how to assess risk and define priorities for risk management
  - Understand how risks influence business and investment decisions
  - Learn what tools are suited for different risk situations

- **The seminar also pursues the following additional objectives (for organizers):**
  - Identify knowledge needs of farmers to build up a plan on Capacity Development on ARM in Uganda
  - Gather feedback on current risk management to develop new initiatives for risk management in Uganda

STRUCTURE OF THE TRAINING



SESSIONS OF THE TRAINING

Session 2.	Understanding risk	How to understand and manage risks
Session 3.	Risk Assessment	How to measure risks
Session 4.	Access to finance	How to get access to finance in risky businesses
Session 5.	Information	Where to get relevant & timely information
Session 6.	Tools & Instruments	Which tools and roles of the stakeholders

AGENDA **FIRST DAY - MORNING**

First day from 9 a.m. to lunch:

- Session 1: Presentation of participants & introduction
- Session 2.1: Understanding risks in smallholder farming
- Session 2.2: Rethinking risks in smallholder farming through a holistic approach

AGENDA **FIRST DAY - AFTERNOON**

First day from lunch to 5:30 p.m.:

- Session 3.1: Risk assessment methods
- Session 3.2: Prioritization of risks
- Session 3.3: Risk assessment exercise

AGENDA **SECOND DAY - MORNING**

Second day from 9 a.m. to lunch:

- Session 4.1: Access to finance in risky environments
- Session 4.2: Group exercise: Mbale Happy Farmers Bank
- Session 5.1: Access to information

AGENDA **SECOND DAY - AFTERNOON**

Second day from lunch to closing:

- Session 6.1: Risk management tools

PARM
PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

LET'S START

SESSION 2 : RISKS IN SMALLHOLDER FARMING

THE REPUBLIC OF UGANDA

Overview of risks in smallholder farming

8 December, 2015 | Mbale Resort Hotel

OBJECTIVES

By the end of this session, participants should be able to:

- Understand the concept of risk (agriculture risks), key components and effects
- Identify the main sources of agriculture risks

CONCEPT OF RISK

Understanding risk and its factors is very important in dealing with agricultural systems, particularly in smallholder farming

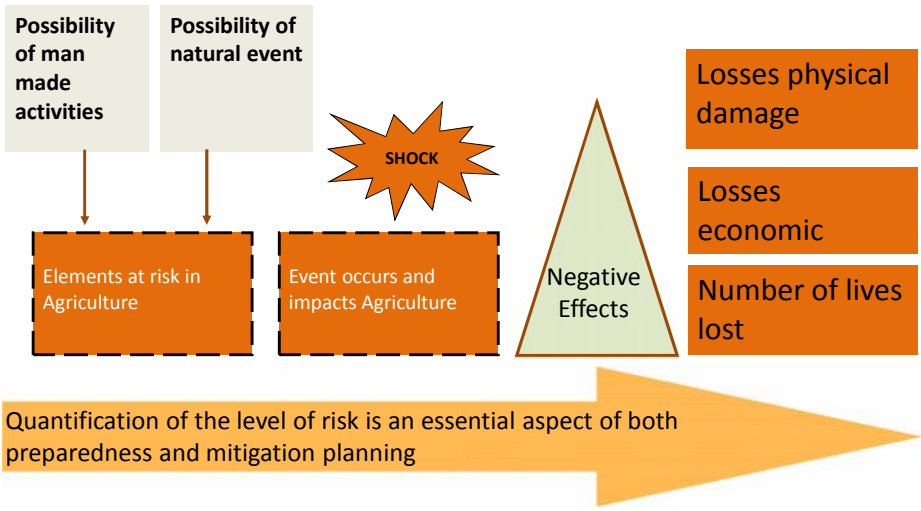
What is a Risk?

The possibility of an undesirable state of reality (adverse effects) may occur as a result of natural events or man made activities

KEY **COMPONENTS**

- **PROBABILITY**: the likelihood of experiencing any natural or human hazard at a location/region in a particular future time
- **ELEMENTS** at risk: identifying those elements which would be affected by the hazard if it occurred
- **POTENTIAL EFFECTS/IMPACT**: Expected losses from a hazard (severity) to a specific element at risk

RISK **CAUSES AND EFFECTS**



RISK **CONTEXT**

Risk vs. Probability - probability of the event occurring and the consequences of the event

The probability of a severe earthquake may be very small but the consequences are so catastrophic that it would be categorized as **a high-risk event**

Risk vs. Threat

A threat is a low probability (may be unable to assess the probability) event with very large negative consequences

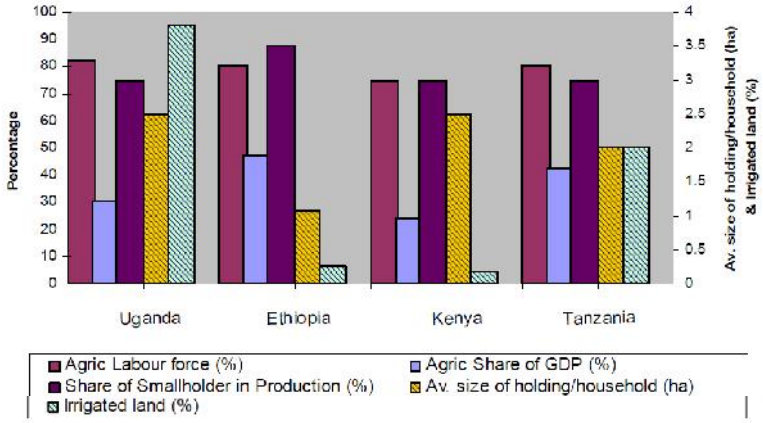
vs. a risk: a higher probability event, there is enough information to make assessments of both the probability and the consequences

Risk vs. outcome (always negative?)

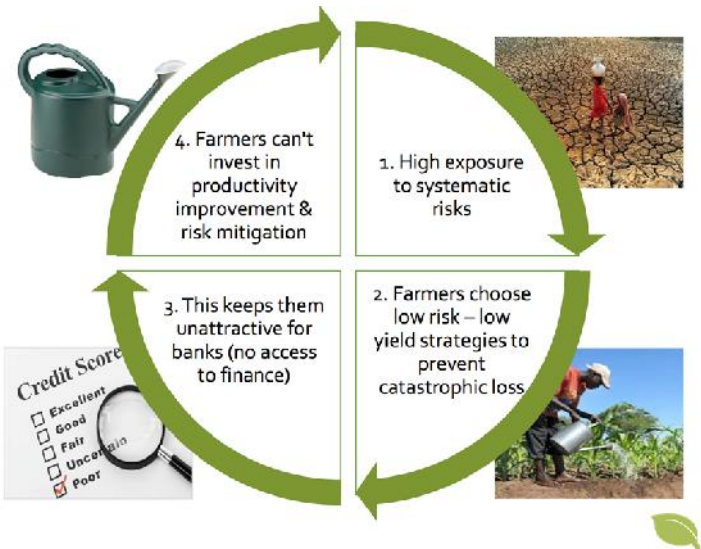
- Combination of danger (crisis) and opportunity
- Risk and reward
- Risk and Innovation

RISK AFFECTED FARMERS

Who is at risk? Smallholder farmers: Their significant role in the economy



POVERTY CYCLE OF SYSTEMIC RISK



GROUP DISCUSSION: **RISK EXAMPLE**

…the peak of rains is expected to occur around mid-April; however short-lived dry spells are expected to interrupt the seasonal rains ... By mid-May, the rains are expected to relax with cessation occurring around early/mid June 2015

What are the adverse effects on agriculture

How such effects could be mitigated

GROUP DISCUSSION: **RISK EXAMPLE**

…there is an outbreak of Foot and Mouth disease in Kigweri and Kiteyongera Parishes in Ngoma Sub County and Ngoma Town Council.

What are the adverse effects on livestock

How such effects could be mitigated

TYPES OF **RISKS**

Risks faced by farmers are numerous and varied, and are specific to the country, climate, and local agricultural production systems.

Sources?

1. Weather-related risks
2. Biological and environmental risks
3. Market-related risks
4. Policy and political risks
5. Infrastructural risks
6. Management and operational risk
7. Human or personal risks

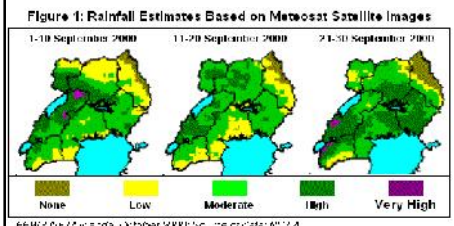
FARMING RISK

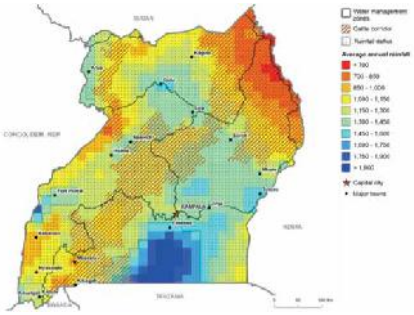
WEATHER RISKS

Weather risk may affect both the quantity and quality of agricultural products

Risks	Factors / Drivers	Effects / Impact
Weather risks	Rainfall variability	Lower yield, Loss of productive assets or income
Weather risks	Temperature variability	Lower yield, Loss of productive assets or income
Weather risks	hail storms	Lower yield, Loss of productive assets or income
Weather risks	strong winds	Lower yield, Loss of productive assets or income

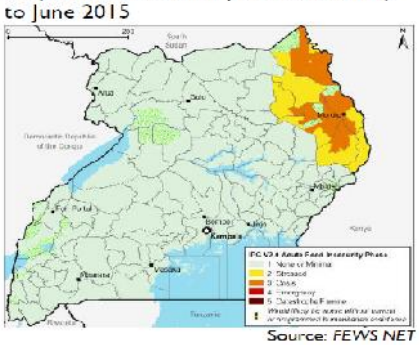
WEATHER RISKS: EXAMPLES





Below average rainfall likely to reduce yields leading to food insecurity

Projected food security outcomes, May to June 2015



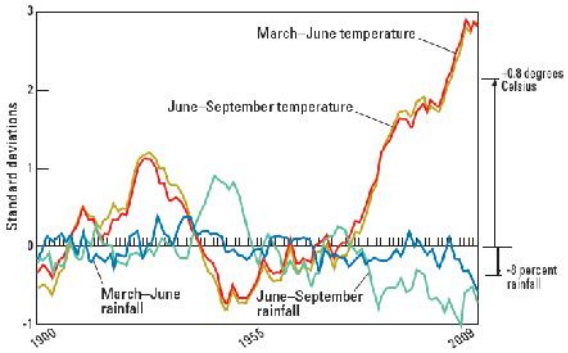
Source: FEWS NET

WEATHER RISKS: **CLIMATE CHANGE**

Observed drying and warming of Uganda's climate

Potential EFFECT :

- Reduced maize and coffee production
- Exacerbated impact of drought



BIOLOGICAL RISKS

Risks	Factors / Drivers	Effects /Impact
Pest & diseases	Crop and livestock pests and diseases	Lower agricultural production & yield Loss of income …
Contamination	Contamination related to poor sanitation	Reduced food safety and health impacts on population Loss of income …

PEST AND DISEASE RISKS: EXAMPLES (2013)

Crop pests & disease: reported in central and eastern Uganda by 11% and 8% of households respectively

EFFECT :

- 3/4 households experiencing this shock it hits their INCOME and, inevitably, for almost all (…) it hits **FOOD PRODUCTION**
- 1/5 households were forced to change their **DIETARY PATTERNS**

MANAGEMENT AND OPERATIONAL RISKS

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Poor management decisions in asset allocation and livelihood/enterprise selection;	Lack of knowledge and information	Poor yields and lack of market
Poor decision making in use of inputs;	Lack of knowledge and information	Poor yields and lack of market
Poor quality control; forecast and planning errors; breakdowns in farm or firm equipment; lack of preparation to change product, process, markets; inability to adapt to changes in cash and labor flows	Lack of knowledge and information	Poor yields and lack of market
Use of inappropriate seeds;	Low access to reliable input dealers	Poor yields

INFRASTRUCTURE RISK

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Storage	Lack of storage facilities at farm level Lack of storage facilities at market level (warehouses)	Loss of harvest due to attacks from insects, mice, etc. Loss of income due to sale of produce directly after harvest
Transport	Insufficient investment in rural areas Degraded, inadequate maintenance	High transport cost Low market access
Communication	Insufficient investment in rural areas	Lack of information on markets, prices, etc.
Energy	Inadequate rural electification	Loss of production

MARKET RISKS

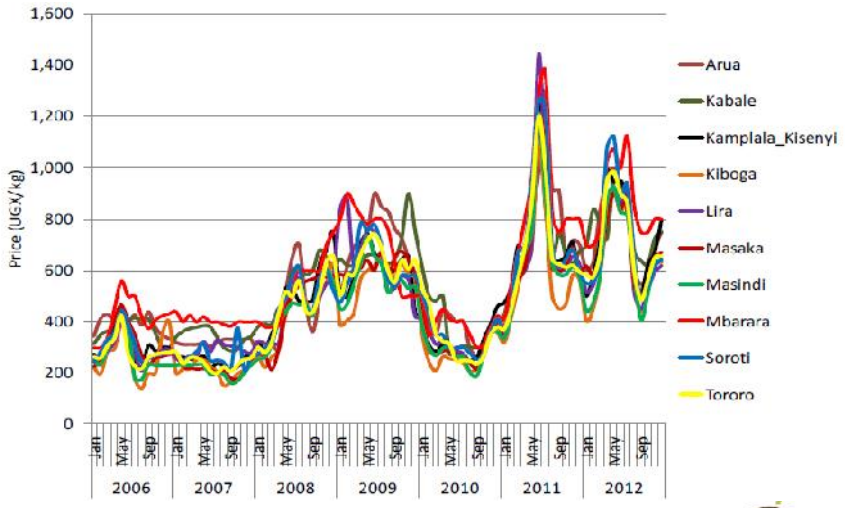
PRICE RISK

refers to the uncertainty about the prices producers will receive for commodities or the prices they must pay for inputs

Risks	Factors / Drivers	Effects / Impact
Price risks	Low prices, market and demand, volatility	Loss of income, savings and investments

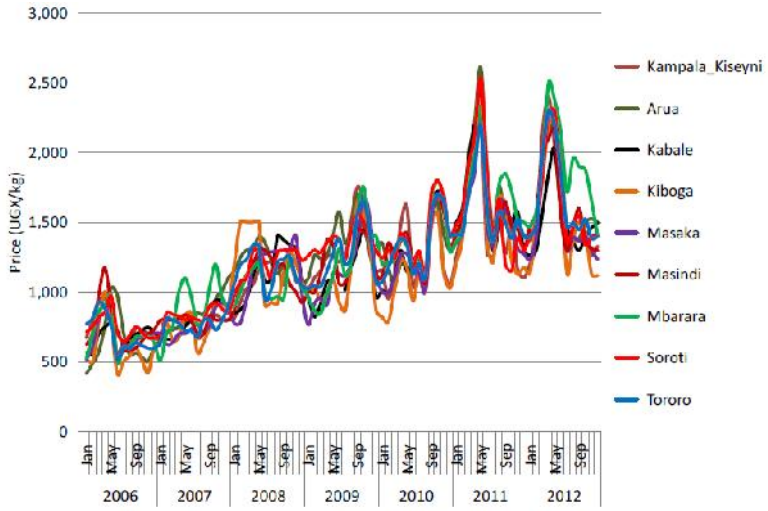
PRICE VARIABILITY MAIZE

Nominal wholesale price of Maize: similar fluctuations across country



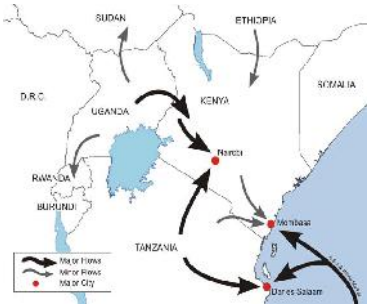
PRICE VARIABILITY BEANS

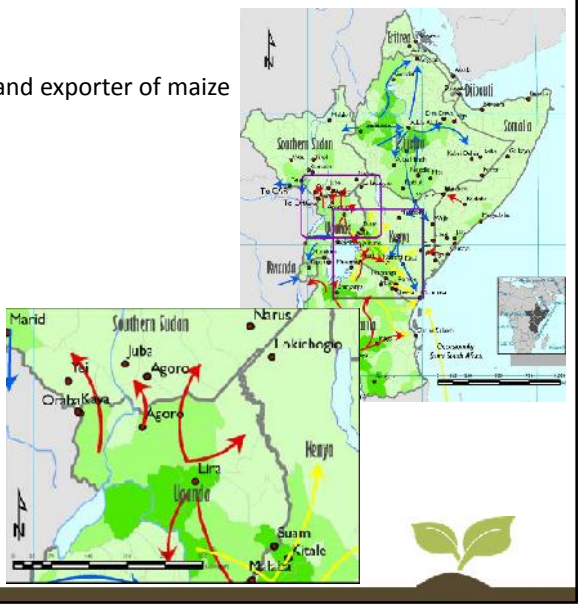
Nominal wholesale price of Beans: similar fluctuations across country



MARKET RISK: TRADE

Uganda: major surplus producer and exporter of maize





MARKET RISK: TRADE – EXAMPLE

EU WARNS ON AGRICULTURAL EXPORTS FROM UGANDA (2015)

WHY?

… Interception of products with harmful organisms: … not meeting set of regulation of the EU rules → restriction of the TRADE (exports) → estimated loss of more than 64 million USD -→ Impact on 2.5 million farmers mostly producing red pepper and roses

POLICY AND POLITICAL RISKS

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Policy risk	Regulatory changes	Changes in costs, taxes, market access, production, income
	E.g. inspection system, pack houses, certification, traceability system etc.	Changes in costs, taxes, market access, production, income
Political risk	Political upheaval	Changes in costs, taxes, market access
	Disruption of markets	Changes in costs, taxes, market access
	Unrest	Changes in costs, taxes, market access

HUMAN RISKS

Refer to factors such as problems with human health or personal relationships that can affect the farm business

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Illness and death	Low health standards Malnutrition	Loss of productivity, loss of income, increased costs
Accidents	Low labour standards	Loss of productivity, loss of income, increased costs
Personal tragedies (divorce, death of relatives, etc.)		Increased costs

HEALTH RISK – EXAMPLE 2013

Serious illness/accident of income earner reported by 10% households in central Uganda

EFFECT:

- Hits their income (more thank 90%) because of the reduced earning capacity.
- 8% changed their eating patterns

KEY **QUESTIONS**

1. Based on your experience and working environment, what are the main sources of risks for smallholder farmers?
2. For each identified type of risk, which are the main factors/drivers?
3. What are the main effects/impacts on smallholder farmers?

PARM

PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

THANK YOU

THE REPUBLIC OF UGANDA

Session 2.2.
Holistic risk management

OBJECTIVES OF SESSION

By the end of this session, participants should be able to:

- Understand the relationship between different risks in agriculture.
- Understand the correlation of risks: i.e. widespread risks versus localized risks
- Understand what a holistic approach to risk is

WHY **HOLISTIC** RISK MANAGEMENT?

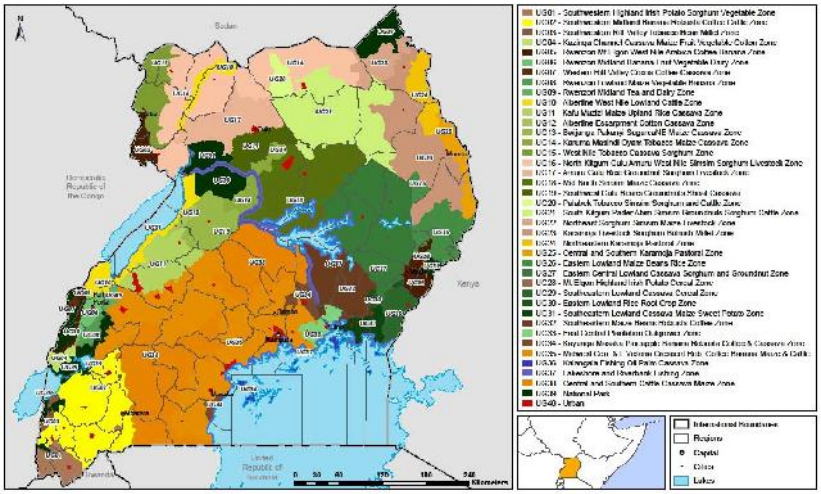
A story of 2 dogs…

A holistic approach means the focus on:

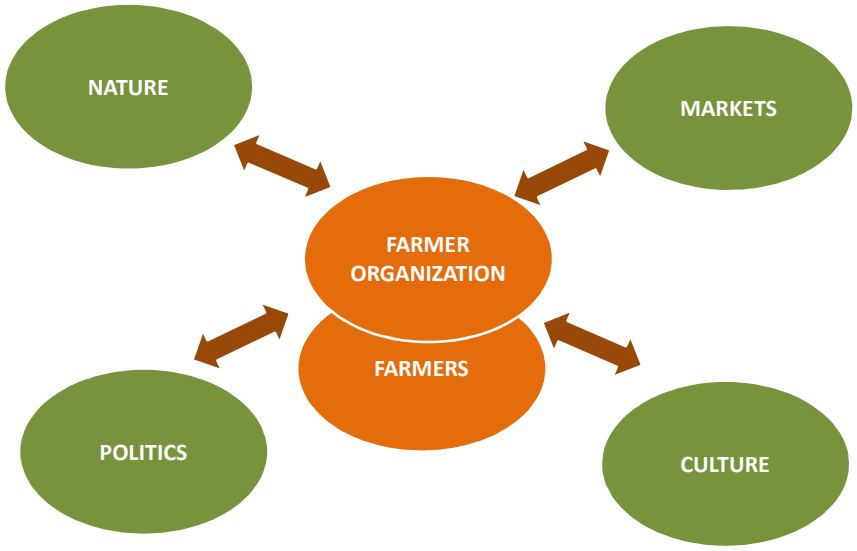
- the whole farm / farm household income
- all sources of risk and correlation of risks
- all options and tools available

VARIETY OF RISKS

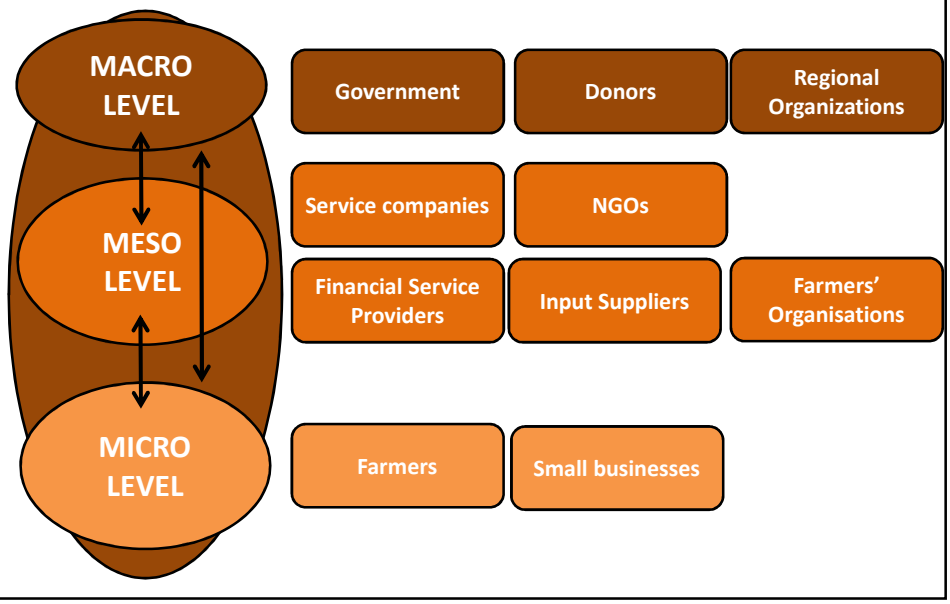
The types and severity of the risks confronting farmers vary by farming system, agro-climatic region



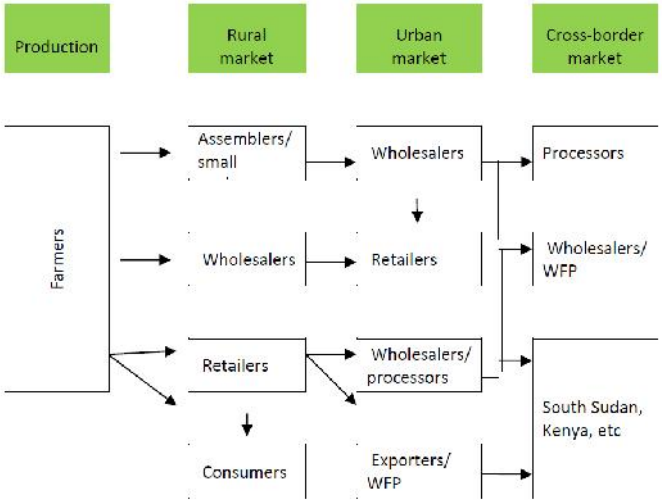
RISK **ENVIORNMENT**



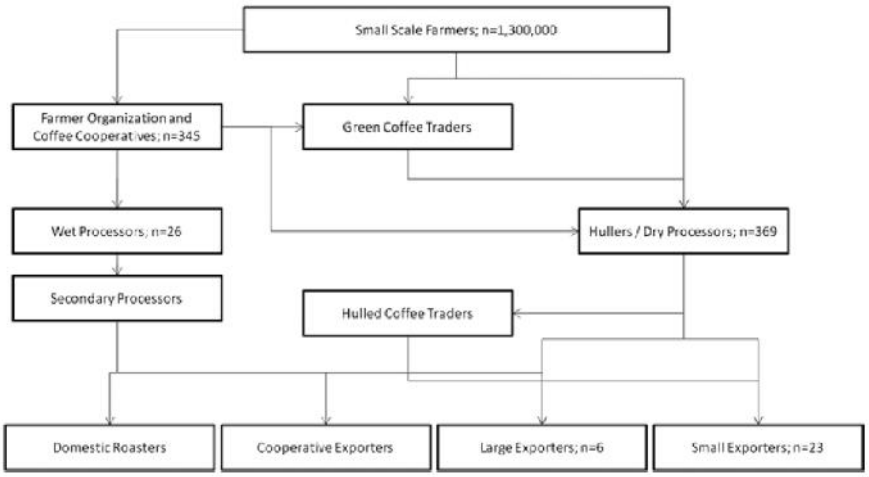
INSTITUTIONS AND **ACTORS**



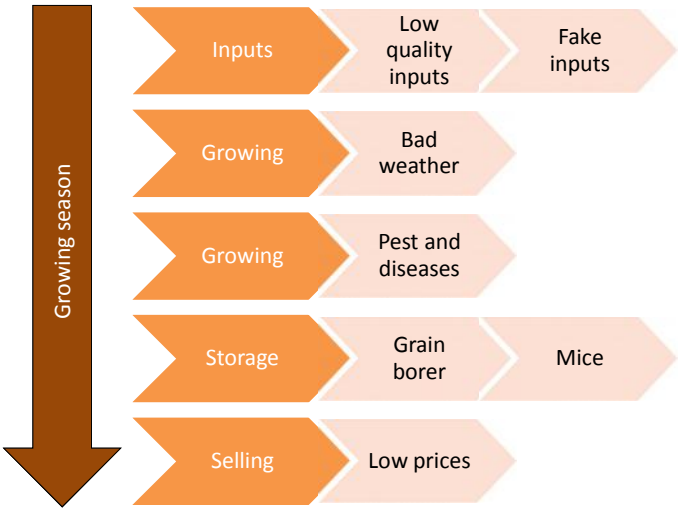
VALUE CHAIN EXAMPLE: **MAIZE & BEANS**



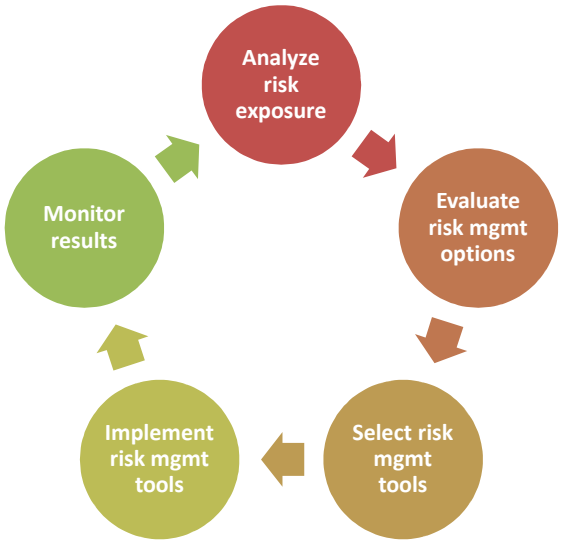
VALUE CHAIN EXAMPLE: **COFFEE**



RISKS AT **DIFFERENT STAGES**



RISK **MANAGEMENT CYCLE**



RISK MANAGEMENT **ELEMENTS**

- **(Risk avoidance)**
- **Risk reduction**
  - irrigation;
  - integrated pest management systems;
  - improved seed varieties;
  - diversification
- **Risk transfer**
  - insurance
- **Risk coping**
  - savings

RISK **REDUCTION**

1. **Farmer Awareness**: understanding and analzying risk is a complex task. Farmers are surely aware that they are threatened by risk but do not have the means and tools to actively protect themselves. Integrating risk management into extension messages and farmer trainings is required.

2. **On-farm risk management**: through improved farm management practices a portion of the risk can be avoided at household level, for example through risk diversification, etc.

3. **Technology adoption**: adoption of low-cost technology for risk management has huge potential in Uganda. For example, trials on low-cost storage improvement have shown high returns on investment for farmers in terms of risk reduction.

RISK **REDUCTION** cont'd

4. **Information systems**: understanding and analyzing risk is also required at the government level. Data collection on risk related issues is still weak and requires improved information system at various levels (i.e. local, regional, and national). Provision of timely information (e.g. on prices) to farmers is important to contain e.g. price risk.

5. **Early warning**: some risks, e.g. droughts or other climatic events, can be predicted with a fair degree of certainty. Translating these informations into policy actions and providing farmers with timely information to allow them to take necessary precautions is one important risk management element.

RISK **REDUCTION** cont'd

6. **Improved input markets**: the widespread use of counterfeit inputs can only be addressed by joint public-private efforts. Establishing user hotlines, enforcing quality standards in the value chain, and educating farmers are important elements of an improved input sector. Working with the input suppy chain and increasing quality assurance is equally important.

7. **Improved pest & disease management**: early detection of disease outbreaks is the starting point for improved pest management; improved input markets also contribute to lower risk exposure. Swifter action by the respective government entities, commodity associations is essential to combat diseases at early stages.

RISK **REDUCTION** cont'd

8. **Improved infrastructure**: besides low-cost solutions for storage at farm-gate level, the infrastructure of value chains has to be upgraded to allow for increased commercialization of sectors. Finding sustainable mechanisms for storage, quality assurance, and price stabilization at aggregate level through warehouse systems can help to overcome some of the price and storage risks farmers are facing.

9. **Price stabilization**: the reasons for price volatility fluctuate between commodities (e.g. tea and coffee vs. maize). Designing price stabilization mechanisms through e.g. the commodity exchange, vertical integration, etc. are potential answers to this issue.

RISK **TRANSFER**

1. **Agricultural insurance**: completely eliminating risk from agriculture is not feasible. For those elements of risk that can not be managed on the individual's level (e.g. through risk reduction & diversification), tailor made insurance is required. Current efforts by the insurance industry require support to further increase outreach. Increasing farmer awareness, providing sufficient data to develop new products, and financial support to the insurance sector are potential actions for the future.

   In addition, developing insurance system on aggregate levels, e.g. regional or national might be beneficial for the government to lessen the financial burden of emergencies to the budget.

RISK **COPING**

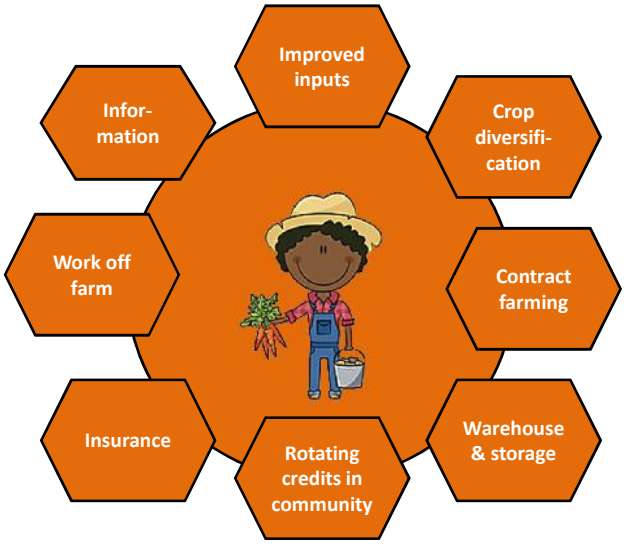
1. **Savings Mobilization:** despite risk reduction and transfer, farmers will still be negatively affected by risks. Therefore, farmers have to build up a buffer through savings to prepare for harsh times.

2. **Transfer systems**: In order to avoid that farmers have to reduce food intake, etc. the government is needed to lessen some of the negative impact to its citizens. The design of transparent security mechanisms (e.g. through voucher systems, cash/food for work programs, etc.) is needed to avoid inefficiencies in the system and to ensure that markets are not disrupted.

RISK MANAGEMENT **AT FARM LEVEL**

- Behavior of a smallholder farmer depends on household characteristics, farm size/assets, production system and the context
- Wide range of methods for managing risks at farm level:
  - Before shock happens: crop diversification, share-cropping
  - After shock happens: credit, temporary employment, savings
- Risk management at community level: risk pooling by sharing food stocks, relying on kin support networks
- Traditional method are least effective at handling low frequency, highly correlated risks (e.g. drought) that affect many people simultaneously …

RISK MANAGEMENT **TOOLS & STRATEGIES**



CORRELATION OF RISKS

- Managing risks in agriculture is particularly challenging, as many risks are highly correlated, resulting in whole communities being affected at the same time
- Covariance: the degree to which they are correlated across households within a community or region ranging from independent (affecting one person) to highly covariate (affecting everyone at the same time)

RISK **LOSSES**

Type of risk	Farm level	Community level	Countrywide
Market/prices		Changes in price of land	Changes in input/output prices due to shocks, trade policy etc.
Production	Hail, frost, personal hazard	Rainfall, landslides, pollution	Floods, droughts, pests, contagious diseases
Financial	Changes in income from other sources (non-farm)		Changes in interest rates/value of financial assets/access to credit

RISK **TYPES**

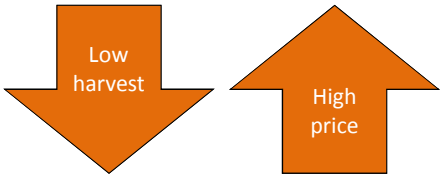
Type of risk	Severity	Frequency	Type of loss		
			Life	Assets	Production/ Income
Catastrophes	HIGH	LOW	WIDE	WIDE	SEVERE
Smaller drought, new pest outbreaks	MEDIUM	MEDIUM	SOME Loss of life Widespread health problems	WIDE	Loss of income from low market prices (Income impacts)
Local weather and pest problems	LOW	HIGH TO MEDIUM	Accidents, illness predictable	Loss, damage or disease predictable	Low yield for some farmers

RISK MANAGEMENT **LEVELS**

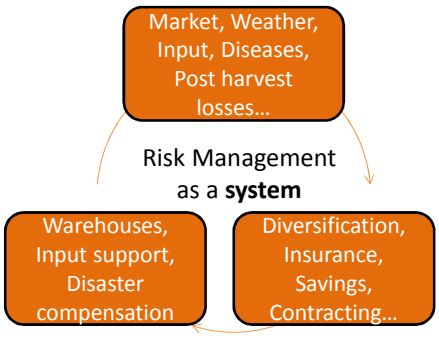
Risk Characteristics	Layer of Risk	Level of Management
High frequency & low severity	Retention	Farm / household / community
Medium frequency and severity	Transferable	Markets
Low frequency and high severity	Disaster and market failure	Governments (and Donors)

RELATION BETWEEN RISKS

- **Some risks can be a consequence or side effect of another risk or constraint**
  - Example: pests as a result of dry spell
- **Sometimes the effects of risk cancel each other out**
  - Example: yields and prices



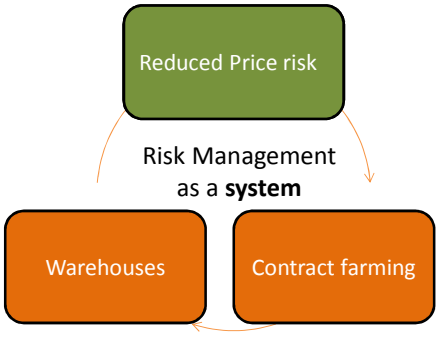
RISK MANAGEMENT **SYSTEM**



A Holistic approach:

- involves farmers, government, and others
- requires cooperation
- requires investment

RISK MANAGEMENT SYSTEM – **EXAMPLE**



A Holistic approach:

- involves farmers, government, and others
- requires cooperation
- requires investment

SESSION **WRAP UP**

- **The risk management system of smallholders is complex: many elements all interrelated**
  - Need of Information and Risk Assessment capacities
- **Risk characteristics determine different types of risk and different options to manage**
  - Frequency, severity and correlation
- **A risk management system for Uganda requires different layers of responsibility**

GROUP WORK

Key questions:

1. What are the main knowledge and skills needs to better manage the risks affecting farmers?

2. Please define your role and responsibilities in improving risk management for farmers (from farmers perspective and from extension officer/government perspective)

PARM

PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

THANK YOU

SESSION 3 : METHODS AND TOOLS FOR RISK ASSESSMENT

Session 3.1. Tools for risk assessment

8 December, 2015 | Mbale, Uganda

OBJECTIVES OF SESSION

By the end of this session, participants should be able to:

- Understand how risk can be measured
- Learn a step-by-step methodology to assess their risk exposure
- Understand how risks can be prioritized

FREQUENCY VS. **SEVERITY**

Risks are assessed based on two questions:

SEVERITY. How big is the loss from a shock?

FREQUENCY. How often does a shock occur?

FREQUENCY VS. SEVERITY – **FARMER BEN**

GROUP DISCUSSION. Look at the following farm. Which of the two risks poses are more severe threat to the livelihood of the farmer? Why?

Farmer Ben in Mbale grows maize on ½ hectare of land.

In a good year he can harvest 1,000 kg maize ½ hectare. But because of low quality pesticides he gets attacked by minor pests every year. In the last 5 years (2010-2014) he lost 10% of harvest (100 kg) on a yearly basis.

Then, in 2015 the long rains did not bring enough rains and the whole area suffered a severe drought. Ben lost 40% of his maize (400 kg) due to insufficient rain.

FREQUENCY VS. SEVERITY – **FARMER BEN**

2010 2011 2012 2013 2014

Total = 500 kg loss from pests

2015

Total = 400 kg loss from drought

FREQUENCY VS. SEVERITY – **FARMER BEN**

Pest risk: low severity, high frequency – Ben loses 100 kg every year for 5 years, in sum he lost 500 kg

Drought risk: high severity, low frequency – Ben loses 400 kg in 2015

Mathematically, pest risk is more severe BUT we do not know yet long term cost of drought, for example, maybe Ben had to sell land to cover cost of food in 2015. Then he has less land in the future to plant and generate income.

ASSESSING **SEVERITY**

It is not easy to quantify severity of a shock:

1. Not always easy to identify root cause of problem (e.g. bad input)
2. Long term costs are not always known
3. "Normal" yields are not always known

For the assessment we always need to consider two questions:

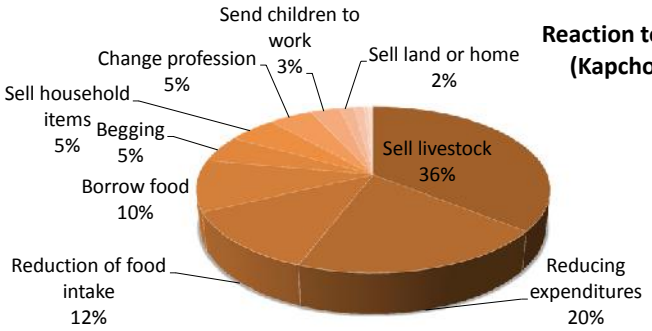
1. How much does the risk cost us every year?
2. What is the worst that can happen (worst-case scenario)?

IMPACT OF RISK

IMPACT ON FARMERS. (Smallholder) farmers face severe consequences from risks. Farmers are, for example, forced to reduce food consumption

The impact of shocks often permanently damages the farmers' capacity to generate income: for example, the sale of livestock and land means reduced income sources for the future..

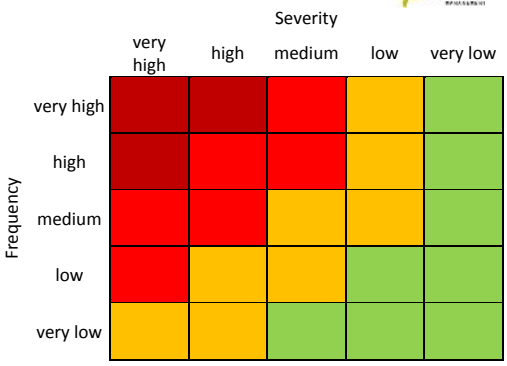
Reaction to crisis by farmers (Kapchorwa and Oyam)



RISK **MATRIX**

Uncertainty is one of the main characteristics of risk: uncertainty on when something will happen (frequency) and how severe the impact will be (severity).

A risk matrix can help to prioritize different risks faced by farmers in Uganda.



RISKS ASSESSMENT **UGANDA**

OVERVIEW. Uganda's agriculture is affected by a multitude of risks. Often, risks are inter-related and the impact is increased by the constraints that farmers face, in particular smallholders.

Input risk	Seeds do not germinate or pesticides/ herbicides do not kill pests/diseases
Weather risk	Yields are low because of droughts, heatwaves, etc.; fields are flooded/washed away
Biological risk	Pest & diseases kill crops and lower yield; kill animals or reduce production (e.g. milk)
Infrastructure risk	Produce is rotting away in storage, gets attacked by mice/insects/etc.
Price risk	Lower income due to low prices on markets

In some part of the country, also security issues can lead to losses, e.g. cattle raiding in the North East.
Farmers are also affected by personal risks, such as health.

RISK **SEVERITY**

Overview on risk severity for Uganda in UGX

Risk	Average loss per year	Worst case scenario
Price risk food & cash crops	865,346,274,719	4,275,978,025,931
Crop pest & diseases	678,150,000,000	983,400,000,000
Post harvest revenue loss	352,847,686,256	464,321,205,832
Livestock pest & diseases	252,530,792,628	252,530,792,628
Droughts	146,528,517,300	1,265,399,487,000
Counterfeit inputs	54,615,000,000	73,920,000,000
Karamoja cattle raids	8,389,247,081	10,486,685,913
Floods	548,694,300	4,314,926,943
Hailstorms	225,644,100	1,641,163,656
Thunderstorms	69,214,200	940,487,262

RISK MATRIX **UGANDA**

Risk assessment on the national level

Risk	Severity	Frequency
Crop pest & diseases	very high	very high
Post harvest loss	very high	very high
Price risk food & cash crops	very high	high
Livestock pest & diseases	high	very high
Droughts	medium	medium
Counterfeit inputs	medium	very high
Karamoja cattle raids	low	high
Floods	very low	high
Hailstorms	very low	high
Thunderstorms	very low	high

GEOGRAPHICAL & VALUE CHAIN DIMENSION

Risks do not affect all regions and all farmers in the same way.

Risk Category	Risk	Food crops	Cash crops	Livestock	Fish-eries
Input risk	Quality inputs				
Weather risk	Droughts				
	Floods				
	Hailstorms				
	Thunderstorms				
	All other natural risks				
Biological risk	Crop pest & diseases				
	Livestock pest & diseases				
Infrastructure risk	Post harvest revenue loss				
Price risk	Price risk food & cash crops				
Security risk	Northern Uganda insurgency				
	Karamoja cattle raids				

SEVERITY & FREQUENCY – **EXAMPLE COFFEE**

		Potential Severity of Impact				
		Negligible	Moderate	Considerable	Critical	Catastrophic
Probability of Event	Highly probable				Pest & Disease Outbreaks	
	Probable			Climate/Weather	Foreign Exchange Risk	
	Occasional		Theft, Fraud and Adulteration		Price Loss of Global Market Share	
	Remote		Transport Related Risks			
	Improbable					

SEVERITY & FREQUENCY – **EXAMPLE DAIRY**

		Potential Severity of Impact				
		Negligible	Moderate	Considerable	Critical	Catastrophic
Probability of Event	Highly probable	Erratic power supply	Human diseases Milk spoilage	Non-notifiable cattle diseases		
	Probable			Drought		
	Occasional		Flood Cattle rustling Armed conflict	Abrupt regulation Failure of key organizations	Notifiable cattle diseases	
	Remote					
	Improbable					

HOW TO **DEVELOP RISK ASSESSMENT**?

Starting point:

1. Draw a map/structure of your agricultural segment, value chain, etc. (it sometimes help to draw it in chronological order, e.g. “farmer first buys seeds”, “farmer grows crop”, etc.).
2. Assign risks for each of the stages (e.g. quality of inputs for the first phase where farmer buys seeds) or as a constant risk (e.g. security issues during each phase).
3. Assess the frequency and the severity of the risk (exact quantification is not always possible, sometimes enough to distinguish between high, medium, and low impact).
4. Prioritize risks based on the assessment (if possible, just 2-3 major or high priority risks; there is always an element of subjective assessment).
5. Identify the root causes for the priority risks identified.

After these five steps strategies and tools can be developed.

HOW TO **DEVELOP RISK ASSESSMENT**? cont'd

Example: Maize

		Impact	Frequency
Buying inputs	• Buying low quality inputs • Buying fake inputs	Medium	Low
Growing	• Bad weather (not enough rain, ...)	High	Low
Growing	• Pest and diseases (MLND,...)	Medium	Medium
Storage	• Grain borer • Mice,...	Medium	High
Selling	• Low prices compared to production cost	High	Medium

HOW TO **QUANTIFY**?

It is not always possible to exactly determine the cost of each risk due to:

1. Lack of data/information
2. Interlinked risks (herbicides and pest)
3. Effect of other constraints (e.g. lack of roads)

We have to be creative!

How to determine effect on whole district/value chain from information from a few farmers only? –> we need to get to a minimum of observations to draw conclusions, e.g. visit at least 5-10% of locations for a district, interview at least 50-60 farmers (for example through focus group discussions).

QUANTIFYING RISK

INPUT RISK

- Difficult to assess: did seed not germinate because of low quality, fake, weather factors, wrong management, etc.?
- Sometimes only possible to assess frequency through e.g. newspaper reports, personal experience, etc.?
- New hotline available at Transparency International Uganda that may provide regional information (0800 280 280 - https://www.facebook.com/pages/TIU-Agro-Input-Counterfeit-Hotline/855603557786268).

WEATHER RISK

- Difficult to know what is "normal" yield; but farmers mostly know what they harvest in average years.
- Direct effect of reduced yields can often be calculated for some years (5) based on memories of farmers.
- Important to look both at average losses and worst cases

QUANTIFYING RISK cont'd

PEST & DISEASE RISK

- Not easy sometimes to separate weather from pest risks (often attack together)
- Still, often people know how much they lost due to specific pests/diseases in most recent years (or a worst case year)
- Direct and indirect cost, e.g. livestock cost for disease control, treatment, and vaccination. Direct losses are associated with animal mortality, reduced milk production, and use of animal for traction.

POST HARVEST RISK

- Difficult to assess due to two opposing effects (weight loss and price).
- Regional data is available from APHLIS (http://www.erails.net/UG/aphlis/aphlis-uganda/Home/) for major crops.

QUANTIFYING RISK cont'd

PRICE RISK

- Important to assess whether price drop is not simply due to very high prices in recent years.
- Price data is available at Farmgain (http://farmgainafrica.org/) and Infotrade (http://www.infotradeuganda.com/)
- We need to look at how profit margins have developed (e.g. how much did production cost 5 years ago and how much was revenue; compared to production cost of today and revenue of today).

RISK ASSESSMENT EXERCISE

GROUP WORK.

1. Split up according to common interest/knowledge (e.g. commodity/area/etc.)
2. Develop an overview/map of your commodity/area/etc. based on value chain, timeline, or similar
3. Assign risks for each step
4. Assess frequency and severity of each risk (quantification might no be possible; simple ranking into high, medium, low severity and frequency might be enough).
5. Prioritize risks based on your assessment; identify two top priority risks
6. (Identify root causes of two top priority risks)

PARM

PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

THANK YOU

3.3. GROUP WORK

1. Split up according to common interest/knowledge (e.g. commodity/area/etc.)
2. Develop an overview/map of your commodity/area/etc. based on value chain, timeline, or similar
3. Assign risks for each step
4. Assess frequency and severity of each risk (quantification might no be possible; simple ranking into high, medium, low severity and frequency might be enough).
5. Prioritize risks based on your assessment; identify two top priority risks
6. (Identify root causes of two top priority risks)

THE REPUBLIC OF UGANDA

Risk Assessment Study (RAS) - Uganda

8 December, 2015 | Mbale, Uganda

CONTEXT OF RAS

- When talking about food and nutrition security a lot of emphasis is on increasing productivity (or improving distribution)
- But investing in reducing losses can be an equally beneficial approach -> ARM
- Government of Uganda has taken the concious decision to integrate ARM into 5 year investment plan (in a holistic manner)
- The Risk Assessment Study contributes to this process by putting facts and figures on the table that help to prioritize activities connected to ARM

RISK **OVERVIEW**

OVERVIEW. Uganda's agriculture is affected by a multitude of risks. Often, risks are inter-related and the impact is increased by the constraints that farmers face, in particular smallholders.

Input risk	Counterfeit inputs
Weather risk	Drought, flood, hail, thunderstorms, landslides, etc.
Biological risk	Pest & diseases for crop & livestock
Infrastructure risk	Post harvest loss
Price risk	Price risk for food & cash crops
Security risk	Karamoja cattle raids

INPUT RISK

- Low yields due to low adoption of improved inputs
- 90% of crops use home-saved seed and planting material
- High reported incidence of counterfeit inputs, mainly maize seeds and herb-/pesticides
- Estimated losses between USD 10.7 and USD 22.4 million annually due to counterfeit maize, herbicide and inorganic fertilizer sales

WEATHER RISK

Uganda is affected by a range of weather events. The most common events are floods, droughts, hailstorms, and landslides.

Droughts: highest single-event losses (app. USD 683 m in 2010/11)
Frequency of catastrophic events is low (1 in 25 years)
Rainfall deficit (small scale drought) is frequent
Average losses in past 10 years: USD 44 m

Floods: most frequent event (771 PMO records)
Regional concentration in Eastern
Average losses USD 166,270

Hailstorms: high frequency (similar to floods)
Low impacts, on average USD 68,377 p.a.

Mud-/landslides: concentrated in Eastern
High number of events in recent years
Low impact on national level

PEST & DISEASE RISK: CROPS

- Outbreaks of pests and diseases are part of agriculture.
- Problems both with endemic problems (e.g. coffee, cassava, banana) and threat of new disease (e.g. MLND, FMD, swine fever).
- Existing climatic conditions already favour certain diseases and climate change threatens to increase problems.
- Economic impact of pest and diseases includes yield loss plus opportunity cost and expenditure incurred to control the pests and diseases.

Crop	Estimated Annual Loss
Bananas	USD 35 - 200 million
Cassava	USD60 - 80 million
Cotton	USD 10 million
Coffee	USD 8 million
Total	**USD 113-298 million**

PEST & DISEASE RISK: LIVESTOCK

- Recurring threat to livestock
- Often connected to other risks (e.g. weather); pronounced together with drought risk in the North
- Cost per animal varies per agro-climatic zone: USD 14.27 in semi-humid agro-pastoral system, USD 5.31 humid mixed crop-livestock system and USD 7.62 semi-arid pastoral system.
- Economic cost for diseases in estimated at USD 68.3 m per year for Eastern, Central, and Western Regions. By including livestock from the Northern Region loss is estimated as high as USD 91.6 m p.a.

POST HARVEST RISK

- Lack of storage is a constraint that leads to price risk and pest and disease risk
- Country-wide problem: in 2012, 0.62 million tonnes (18.3% of a total cereal production) was lost. Average weight losses of wheat and barley 12-13%, maize 17-25%, millet, rice, and sorghum 12-24%.
- Recurrend issues with higher losses in wet years
- Concentrated losses, e.g. only 21.5% of maize growers are affected. Risk is higher for smallholder farmers.
- Farmer are stuck between price and weight loss.
- The average annual revenue loss is USD 97,179,571.
- The vast majority of losses derives from maize (72.34% on average).

MARKET RISK

- Volatility of agricultural prices higher than core inflation.
- Farmers are affected by price volatility both as producers and consumers.
- Agricultural production is very price-sensitive
- Common across most value chains but due to differing reasons, e.g. maize, coffee, tea, …
- Significant price drops (above 15%) for beans, maize, millet, rice, and sorghum have occurred frequently in recent years.
- Losses for major food crops can be as high as USD 165 m in a single year; and average in recent years was over USD 100 m.

REGIONAL RISKS

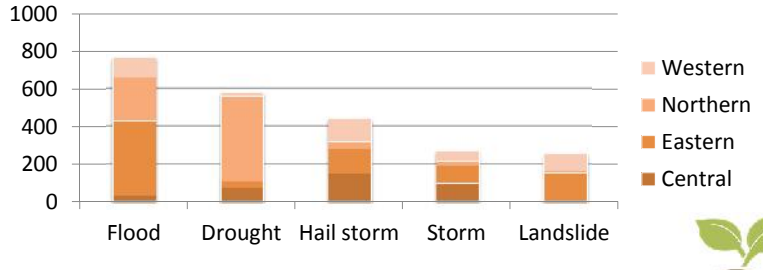
SECURITY RISK. Cattle raiding still exists in Karamoja

Losses to pastoralist range from USD 1.9 million to 3.1 million p.a.

RISK ZONES. Some risks are prevalent in all parts in the country, e.g. market price risk or input risk.

Pest & diseases are also prevalent everywhere but depend on main crops/livestock of the districts.

Concentration of risk varies for some risks, for example natural hazards.



RISK **ASSESSMENT**

- Looked at agriculture and risk context
- Described the risks, root causes, and impacts
- Mapped existing ARM initiatives and analyzed "missing pieces"
- Develop risk scoring based on severity, frequency, and worst case scenario

Risk	Average Severity	Average Frequency	Worst Case Scenario	Score
Crop pest & diseases	very high	very high	very high	5.00
Post harvest loss	very high	very high	high	4.75
Price risk food & cash crops	very high	high	high	4.35
Livestock pest & diseases	high	very high	medium	4.10
Droughts	medium	medium	very high	3.50
Counterfeit inputs	medium	very high	low	3.40
Karamoja cattle raids	low	high	very low	2.37
Floods	very low	high	very low	1.75
Hailstorms	very low	high	very low	1.75
Thunderstorms	very low	high	very low	1.75
All other natural risks	very low	high	very low	1.75

SCALE OF RISKS

- The overall economic impact of agricultural risk is estimated to amount to USD 606 million to USD 804 million.
- Losses amount to between 10.61% and 14.08% of total annual production (agricultural GDP of USD 5.71 billion)
- Losses amount to between to between 2.3% and 3.1% of the GDP of Uganda.

IMPACT OF RISK

IMPACT ON FARMERS.

- Case studies Kapchorwa and Oyam show that (Smallholder) farmers face severe consequences from risks; the loss of revenue leads to other risks (e.g. health).
- Farmers are, for example, forced to reduce expenditures and food (32%).
- Other reactions are: sale of livestock, land, productive assets (leads to lower income generating capacity)

RANKING OF RISKS

The top six risks make up more than 99% of average annual losses in Uganda. These major risks in terms of severity are:

•***Price fluctuations***: Inter-annual price variability for all major food crops and cash crops (mainly coffee and banana/matooke, also cassava, maize, and potatoes (USD 262.22 million p.a.)

•***Crop pests and diseases***: The annual losses for major crops are in the range of USD 113 million to USD 298 million (mainly banana, cassava, coffee, and cotton).

•***Post harvest losses***: mostly for maize, but also barley, millet, rice, sorghum, and wheat cause losses of USD 97.17 million p.a.

•***Livestock pests and diseases***: The total economic cost for diseases in cattle alone are estimated at USD 76.5 million p.a.

•***Droughts***: The average annualized losses amount to USD 44.4 million. But drought of 2010/11 damage of USD is 383.45 million in 2011 alone.

•***Low quality inputs***: Yields for maize, millet, rice, and sorghum are only 20% to 33% of the potential yield. Counterfeit inputs lead to losses to farmers of USD 10.7 to 22.4 million p.a.

WAY **FORWARD**

- **Improved insitutional framework**: ARM housed in MAAIF with dedicated people
- **Increased capacity**: provide skills at regional level to analyze and manage risks (farmer organizations, extension messages, ...)
- **Improved data collection and analysis/information systems**
- **Workshop on Thursday:** focus on prices, pests & diseases
- etc.

PARM
PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

THANK YOU

SESSION 4 : ACCESS TO FINANCE

Session 4.1. Access to finance in risky environments

8 December, 2015 | Mbale, Uganda

OBJECTIVES OF SESSION

By the end of this session, participants should be able to:

- Understand how financial institutions handle agricultural credit
- Understand how banks analyze farm businesses
- Understand what role risks play for agricultural credit

AGRICULTURAL **CREDIT**

- **Investment is required to**
  - improve profitability, or
  - increase business
- **Credit has to be productive**
- **Credit from financial institutions requires farmers to**
  - think about their business
  - think about their risks

CLASSIFICATION OF AGRICULTURAL CREDIT

- **Short Term Credit:**
  - Provided for one year, purpose is for purchasing of fertilizers, pesticides etc.
- **Medium Term Credit:**
  - Provided for one to five years, Purpose is purchasing of spry machines or drainage improvements etc.
- **Long Term Credit**
  - Provided for a period exceeding five years, purpose for purchasing tractors, harvesting machines & install of tube wells/ agriculture land etc.

CHALLENGES OF AGRICULTURAL FINANCE

Main reasons why banks/MFIs avoid agriculture financing:

- High delivery costs, poor access to rural farmers
  - Analyzing farming household is complex (mixed activities, unknown costs)
  - Lack of financial instruments tailored to agriculture specificities
- Unprofitable farming practices
  - Low-tech farming, fragmented plots, inadequate irrigation facilities, monopolized inputs pricing, state-controlled harvest markets, poor road infrastructure, inadequate storage and transport services, no testing services
- Lack of (banking) infrastructure
  - Poor personal identification system
  - No loan registration office

CHALLENGES OF AGRICULTURAL FINANCE

Main reasons why banks/MFIs avoid agriculture financing:

- Collateral
  - Collateral is not acceptable, not liquid, expensive to register or has a complicated procedure of recovery ? uncollateralized lending ? difficult/impossible recovery
- Government intervention or production and price risk are some unpredictable factors that can have a drastic impact on profitability
- Weak collaboration among farmers
- <u>Risk factors influence income of farmers</u>

THE **LOAN CYCLE**

LOAN **APPRAISAL**

- **During the loan appraisal the financial institutions analyses farmers cash flow (income and expenditures, assets, and risks)**
- **Farmer has to provide truthfully all information related to his/her business and life situation**
- **Loans are assessed based on 5 C:**
  - Character,
  - Capacity,
  - Collateral,
  - Capital &
  - Condition

GOOD AGRICULTURAL PRACTICES (GAP)

What are good practices in agriculture?

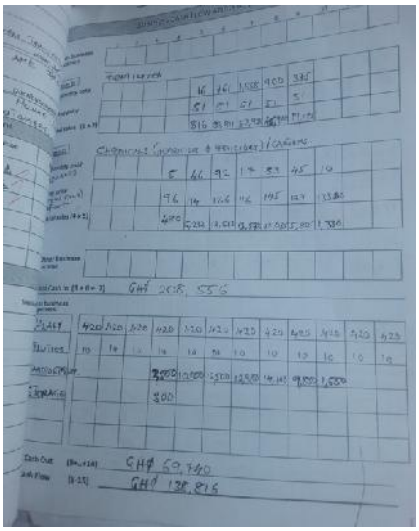
- Ways of farming that conserve, improve and ensure efficient use of natural resources
- They aim to help farmers achieve profits with sustained production levels while protecting the environment

Why good practices in agriculture?

- Because traditional methods of farming cannot cope with the increasing needs of the ever-expanding human and livestock populations
- Conservation stops and reverses land degradation
- Agricultural conservation boosts productivity and contributes to reducing land degradation and increases food security

CASH FLOW ANALYSIS

- **Cash flow analysis is crucial to understand repayment capacity of farmer**
- **Cash flow looks at all farming related expenses and revenue as well as all non-farming related expenses and revenue (e.g. food, school fees)**
- **Analysis is based on the <u>household</u>**



RISK SENSITIVITY OF CASH FLOW

Loan officer has to assess the risk sensitivity on the cash flow of farmer

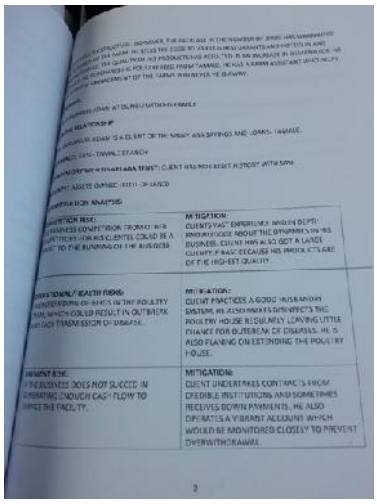
- How big is the loss of revenue if risk affects farmer? -> severity
- How likely is it that the farmer gets affected by the risk? -> frequency

Example: price drop

	Normal cash flow	10% price drop	20% price drop
Price of maize	2,000 UGX	1,800 UGX	1,600 UGX
Harvest	100kg	100kg	100kg
Revenue	200,000	180,000	160,000
Production cost	170,000	170,000	170,000
Profit	30,000	10,000	-10,000

RISK ANALYSIS IN LOAN APPRAISAL

- **During the loan appraisal the financial institutions analyses farmers risk exposure and how farmers mitigate risks**
- **Only farmers that are able to manage the most important risks can access credit**



RISK ANALYSIS - EXAMPLE

Risk	Mitigation
Competition The business competition from other competitors for his clientel could be a threat to the running of the business	Clients vast experience and in depth knwoldege about the dynamics in his business. Client has also got a large clientele base because his products are of the highest quality
Operational/health risk Overcrowding of birds in the poultry farm, which could result in outbreak and easy transmission of disease	Client practices a good husbandry system, he also makes disinfects the poultry house regularly leaving little chance for outbreak of diseases. He is also planning on extending the poultry house.
Payment risk If the business does not succeed in generating enough cash flow to service the faculty	Client undertakes contracts from credible institutions and sometimes receives down payments. He also operates a vibrant accout which would be monitored closely to prevent overwithdrawals

GROUP WORK – **MBALE HAPPY FARMERS BANK**

1. **Split up into small groups based on commodity/value chain**
2. **Develop a cash flow analysis for 1 farmer**
   - Use simple numbers
   - Use few (2-3) expense and revenue items
3. **Discuss risk sensitivity of farmer**
4. **Develop risk analysis for farmer**
5. **Present results to plenary**

The plenary is credit committee of Mbale Happy Farmers Bank and decides if farmer can receive a loan

PARM

PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

THANK YOU

SESSION 5 : INFORMATION SYSTEMS FOR ARM

THE REPUBLIC OF UGANDA

Session 5.1
Information system for risk management

9 December, 2015 | Mbale Resort Hotel

OBJECTIVES

By the end of this session, participants should be able to:

- Know the importance of reliable information for their risk management
- Know reliable sources of information

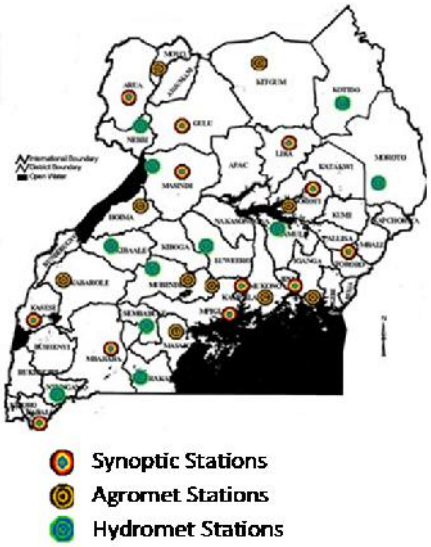
IMPORTANCE OF INFORMATION SYSTEMS

- Information systems are knowledge infrastructures which facilitate the dissemination of information for risk awareness and mitigation, market decisions, and policy decision-making.

WEATHER AND **CLIMATE**

- Meteorological and climate information
  - Agriculture production in Uganda is rain-fed i.e. dependent on weather and climate
  - Weather influences farmers' decisions e.g. choice of agric. enterprise to engage in, crops to grow, when to plant, etc.
  - Main source of information is UNMA. Others FEWS NET and web-based totoagriculture.org

DATA **COLLECTION**



- Sparse distribution of weather stations
- spatial variability of the different meteorological zones not covered
- Operation affected by vandalism and insufficient maintenance of equipment
- Data is from weather stations, satellite, Regional & Global Met. Centres.

STATUS **OF MET STATIONS**

Station type	Existing (No.)	Fully operational (No.)
Synoptic	12	0
Agro-meteorological	17	7
Hydro-meteorological	15	5
Rainfall stations	150-300	60
Automatic Weather Stations	33	1
Radar	1	0
Upper Air	0	0
Pilot Sounding	0	0
Satellite receiving stations	1	1

RELIABILITY OF MET INFORMATION

Quality

Moderate; limited by poor infrastructure (spatial coverage, status) and technology

Availability

- Time series data available at a fee (cost recovery)
- Some stations since 1800s
- Gaps in data depending on status of stations.

Timeliness

- Daily, 3-day forecasts
- Monthly reviews and updates
- Seasonal forecasts at start of season (MAM, JJA, SOND)
- Usually provided in timely manner

Information Access

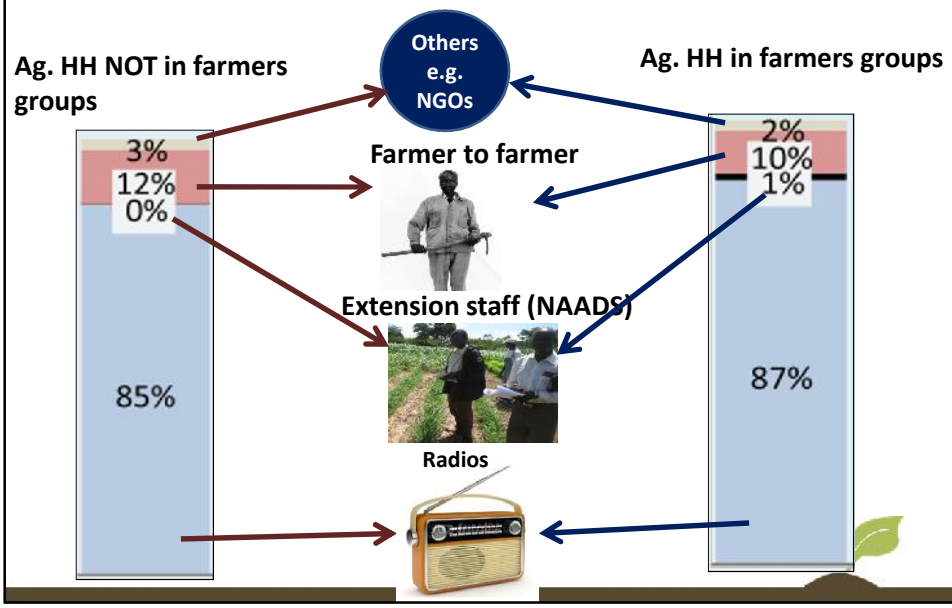
Radios

Internet

Mailing list

Bulletins & press releases

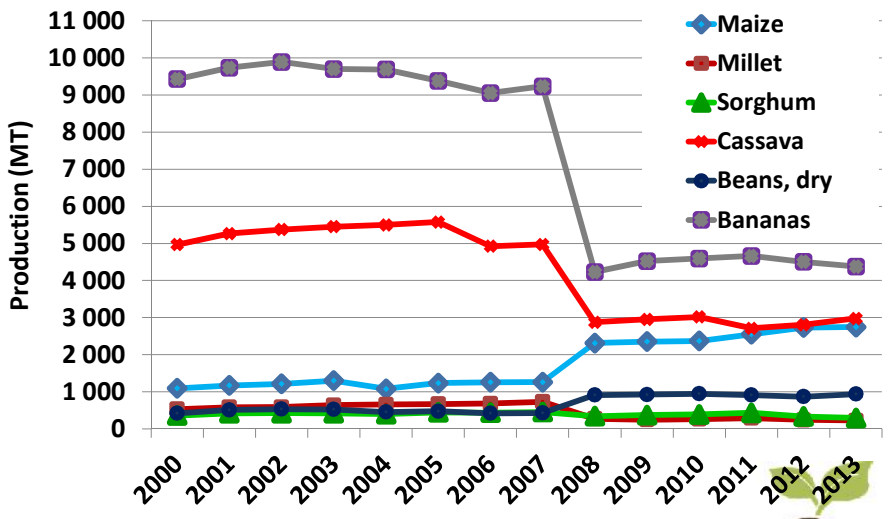
FARMER ACCESS TO WEATHER INFORMATION



PRODUCTION AND YIELD

- Collaborative effort of UBoS & MAAIF
- Few annual stats collected to low capacity to collect and process data; information published annually is generated by imputation.
- Production data available for 15 selected crops aggregated at national level, for the period since 1980 to 2014
- Downloadable from http://countrystat.org/

QUESTIONABLE **NATIONAL STATISTICS**



ASPECTS OF **PRODUCTION DATA**

Quality

Moderate;
- **Limited by capacity to collect & analyse at MAAIF**

Availability

- **Production at national level**
- **15 primary crops covered**
- **Since 1980 to current (2014)**
- **Disaggregated data not available**
- **Yields not available**

Timeliness

- **Annual, by mid year**

Information Access

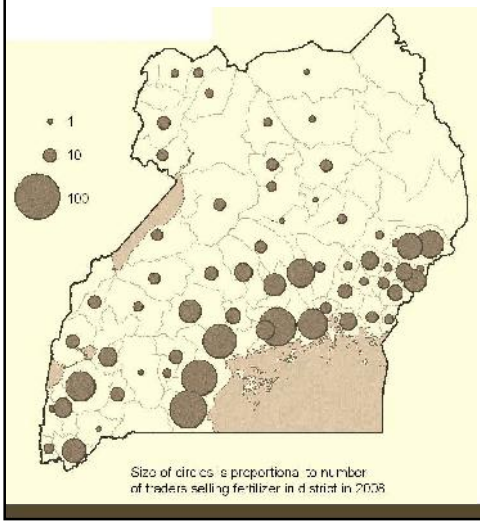
- **Web based http://countrystat.org/home.aspx?c=UGA.**
- **UBOS Annual Statistical Abstracts**
- **Access by policy makers only.**

INPUTS

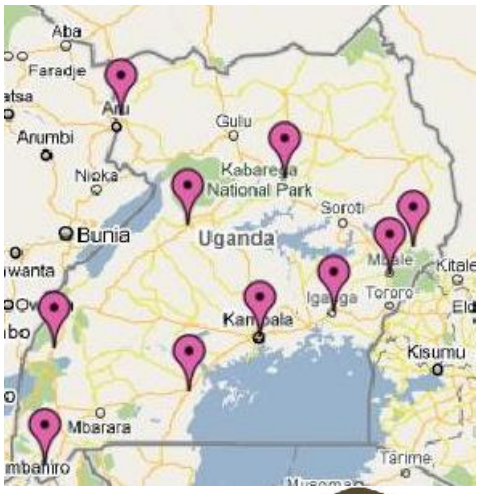
- Provided by Agricultural Input Market Information and Transparency System (AMITSA) – aims to improve access to market and technical information on agric. inputs within COMESA and EAC Region.
- Monthly prices of fertilizers, seeds (maize and bean), pesticides and herbicides in 11 markets collected from members
- Prices available from 2010, albeit with some gaps for specific commodities
- http://www.amitsa.org/

INPUT DEALERS

Fertilizer dealers



AMITSA members



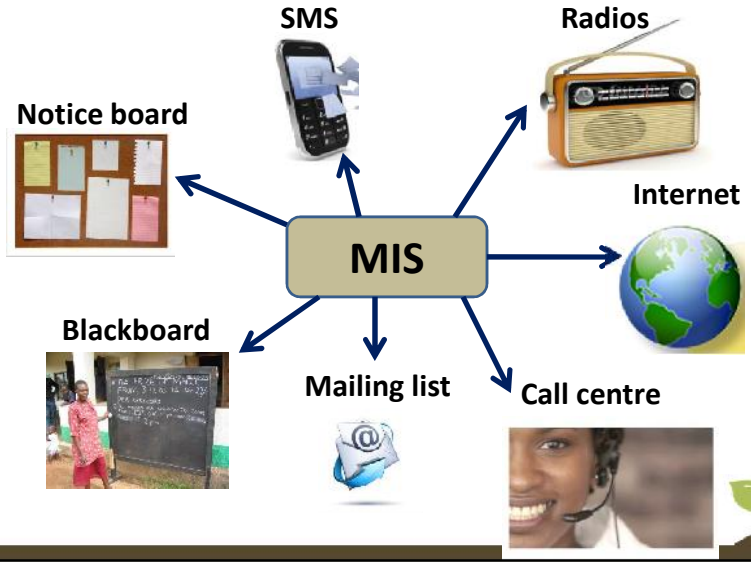
Accessibility by **smallholders**

- AMITSA provides contact of dealers in genuine inputs (members)
- Price of fertilizers from AMITSA available monthly to Infotrade subscribers and online
- Dealers offer advice to farmers on the use of fertilizer and other inputs
- Information on availability of genuine inputs or prices **not** accessible to majority of smallholders.

MARKET/PRICE INFORMATION

- Primary providers are Infotrade and Farmgain, redistributed by Grameen
  - Infotrade - 35 markets, 47 commodities
  - Farmgain - 18 markets, 37 commodities
  - Wholesale and retail prices
- Available thrice a week/weekly from main district markets
- Bulk data (historical) available for trend analysis at a fee, up to 20 years

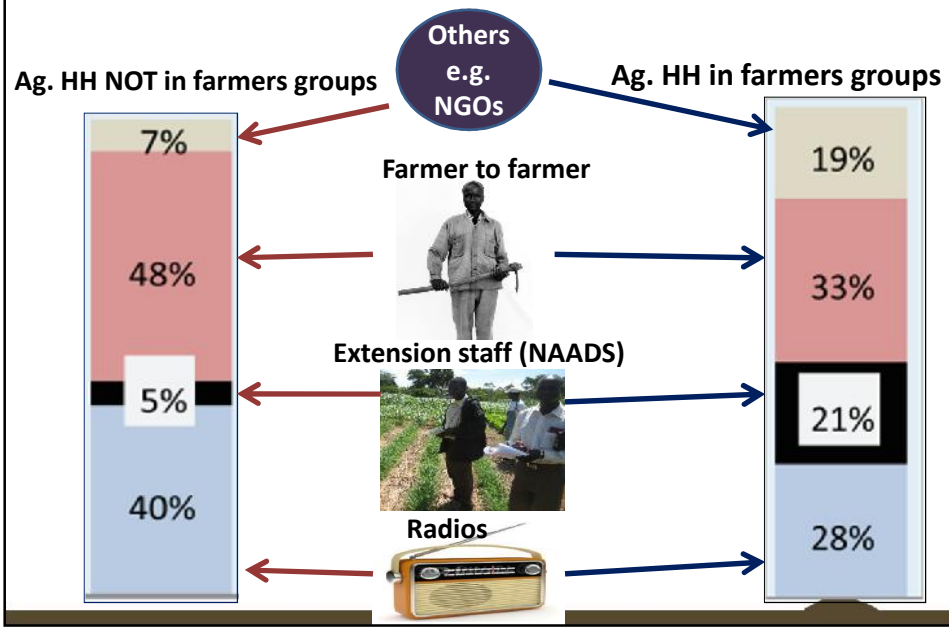
ACCESS TO MARKET INFORMATION



PESTS AND DISEASES

- Information needed on:
  - location of outbreaks to avoid getting infected materials, spreading
  - Appropriate control methods
- Farmers report outbreaks to extension staff, who relay to MAAIF as appropriate.
- Information on control is provided during extension visits, radio and farmer-to-farmer sharing

SMALLHOLDER ACCESS



Summary of IS

IS	Availability	Timeliness	Quality	Accessibility
Weather	Time series available Daily, 3-day, seasonal forecasts Regional, district	Start of season	Moderate	Radio, farmer to farmer, extension agents
Production/ yield	Time series since 1980 (selected) Annual production at National level	Mid year	Moderate	Annual statistics abstracts, countrystat.org/
Inputs	Time series (2010) Weekly/Monthly	On demand	Good	Limited SMS (Infotrade), web Majority no access
Market prices	Time series limited (a few since 2000) District level Weekly	On demand (current)	Good	SMS, radio, blackboard, notice board, mail, web
Pests and diseases	No systematic collection, outbreaks reported	Varied	Moderate	Radio, farmer to farmer, extension agents

What differentiates IS for ARM

- Presents specific indicators on the variability of agricultural related variable such as rainfall, market prices, production, the frequency and severity of shocks
- Includes historical data with time series that allow to calculate indicators of variability or frequency or severity of shocks

Weakness of the Ugandan IS

- Information is not presented in the form of indicators of variability or frequency / severity of events
- Time series not easily available
- Household level (micro) data not available (national)
- No integration between the different systems

Conclusion

- Most information systems don't reach the majority of smallholder farmers in Uganda.
  - Awareness
  - ICT (phone)
  - Costs (SMS, subscription, etc)
  - Coverage/level-perception of relevance

PARM

PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

THANK YOU

SESSION 6: RISK MANAGEMENT INSTRUMENTS

THE REPUBLIC OF UGANDA

Session 6.1
Overview of risk management tools

9 December, 2015 | Mbale Resort Hotel

OBJECTIVES

By the end of this session, participants should be able to:

- Understand the know about the major risk management tools at disposal to reduce risk
- Identify risk management tools suitable to their own context

CONSERVATION AGRICULTURE

Why Conservation Agriculture?

- Sustainable intensification
- Profitability
- Land degradation (physical, biological and chemical)
- Water and Nutrient Use Efficiency and Risk Management
- Energy and Labor Use Efficiencies
- Mitigation and adaptation to CC and climate variability

POST HARVEST LOSSES

- Major Season - April to August/September.
- Minor Season – September to December.

Activity	Major season Losses (%)	Major season Losses (%)
Field (Over-Maturity, Harvesting, Heaping)	5.0	6.0
Shelling or Threshing	1.5	1.0
Drying	0.5	0.2
Storage (Mold)	15.0	2.0
Storage (Insect Pests)	8.0	10.0
Total	**30.0**	**19.2**

WHERE DO MAJOR LOSSES OCCUR?

- Field (over-maturity, harvesting, and heaping).
- Storage (mold).
- Storage (insect pests).

Tactics or tools to significantly mitigate PHL of maize in Uganda are known hence focus needs to be on targeted research and scaling up of these tactics or tools!

KEY **POST HARVEST PESTS**

Angoumois grain moth
(*Sitotroga cerealella*)

Rice Weevil
(*Sitophilus oryzae)*

Maize Weevil
(*Sitophilus zemais*)

Red Flour Beetle
(*Tribolium castaneum*)

Larger grain borer
(*Prostephanus truncatus*)

Lesser grain borer
(*Rhyzopertha dominica*)

Termites
(*Microtermes* spp)

SOLAR DRYERS

Can cost approx UgShs 6 million to construct

Estimated cost UgShs 12 million to construct

Any can cost about UgShs2000 to dry per 100-kg bag of maize

Can dry 1.2 MT from 25% MC to 16% MC in 2 days

ARTIFICIAL DRYERS

- Costs about UGX 10,000 to dry 100kg of maize
- Costs about $20,000 to buy

MOISTURE METERS

Affordable Moisture Meters $50-$70

Comparisons

- Dickey John meter - $1,600.
- John Deere SW08120 model - $250.
- USDA-ARS CGAHR (Paul Armstrong) meter - $50 - $70.

STORAGE BAGS

Zerofly® Storage Bag is a deltamethrin (DM)-incorporated bag used to prevent damaging pest infestations

ZeroFly®
Storage Bag | by VESTERGAARD

SMALL (<100kg) **Option 2: Zero Fly Bags.**
Insecticide infused polypropylene bags provided a powerful killing action against insects, limiting infestation of the grain within the bag. Not hermetic. Short period where insects were able to survive before contact with inner lining of bag.
Life: 2-3 harvests

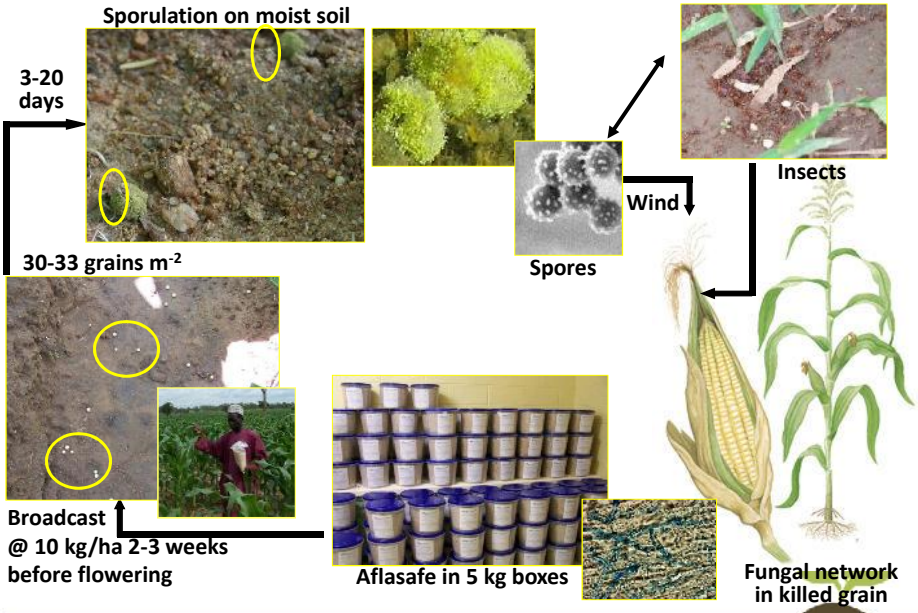
Price: $1.20 per unit

STORAGE BAGS

Purdue Improved Cowpea Storage bags

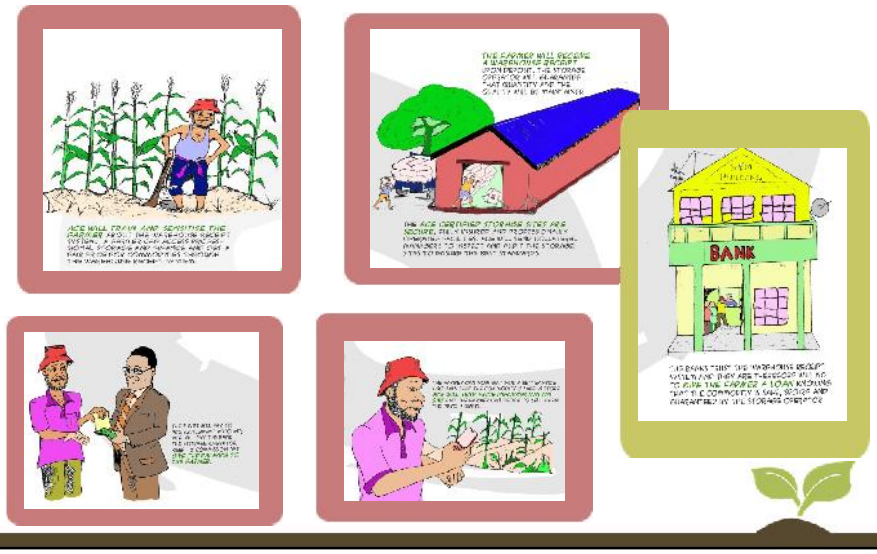
Price: $1.20 per unit

AFLATOXIN CONTROL



WAREHOUSING

- Shift the responsibility of post-harvest handling away from the small and medium scale famer



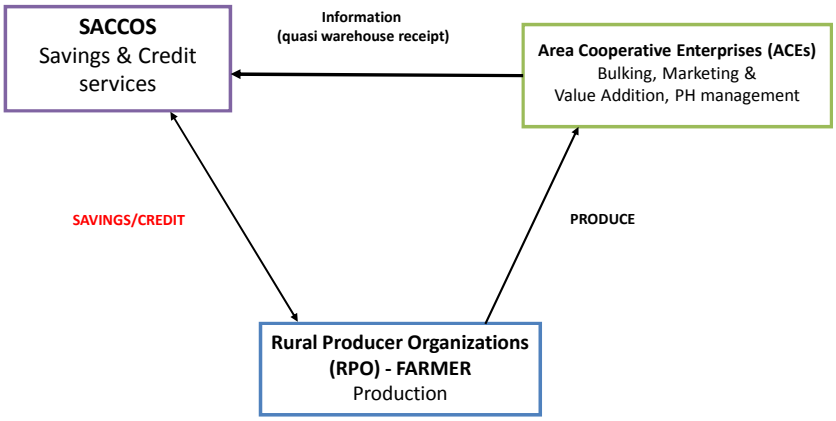
RISK MANAGEMENT BY **FARMER GROUPS**

Form farmer associations/community based organizations for

- Easy access to affordable credit in a form of high quality inputs (repaid after harvest).
- Provision of post-harvesting machinery and equipment at farm gate level.
- Community storage facilities (elimination of the hassles involved in storing large quantities of maize).
- Guaranteed markets to members.
- Group marketing to obtain better prices.
- Technical advisory and training services to farmers (Agronomist/Extension Agents/Technical).

FARMER GROUP **MODELS**

- The Area Cooperative Enterprise Model



CONTRACT FARMING

Benefits

- Farmers keep their land rights
- Access to markets and value chains
- Support with finance, training, seeds, fertilizers etc.

Pitfalls

- Lack negotiating power
- No choice: only access to markets is via a single dominant buyer
- The buyer can dictate the terms of that contract - farmers end up as disempowered laborers on their own land

CONTRACT FARMING

Practical challenges:

- Quality and quantity produced did not meet the expectations of either company or farmers
- Supervision and follow-up of farmers
- Farmers sold the best quality produce to other traders
- Provisions came too late, forcing them to improvise and causing crop failure
- Overcharging for inputs – who determines the purchasing price (lack of competition)

CONTRACT FARMING

Important aspects for farmers:

- ensure minimum price guarantees
- request visual demonstration of quality standards
- request provision of inputs at or below commercial rates
- agree on tailored dispute settlement mechanisms
- set aside a portion of land for food crops to meet the needs of the family and the community
- (organize into producer organizations and cooperatives to increase negotiating power with buyers)

CONTRACT FARMING – CASE STUDY

Devine Chocolates, London
and
Kuapa Kokoo ("good cocoa growers")

- Fairtrade chocolate company which is 44% owned by cocoa farmers (over 80,000 from 1250 village societies)
- Produces up to 5% of Ghana's cocoa
- Benefits:
  - fixed prices
  - fair-trade premium
  - ownership dividends
  - inputs, training, and extension services to farmers

CONTRACT FARMING – CASE STUDY

Masara N'Arziki Farmers Association ("Maize for Prosperity")

Key Benefits to Farmer:

- availability of quality inputs and timely delivery to the farmer and farm gate.
- solution of farmer constraints.
- technical support and business management training for the farmers.
- community storage facilities.
- assured market for all the grain produced.

Key Components (Smallholder Farmer Development):

- 1. To ensure easy access to affordable credit in the form of high quality inputs.
- 2. Appropriate training of maize farmers for higher productivity.
- 3. Ensure higher yields thereby increasing incomes of farmers and the nation as a whole
- 4. Group marketing to obtain better prices
- 5. Guaranteed markets for members
- 6. Improve the standard of living of the member farmers
- 7. Provide a model for sustainable farmer credit schemes

PARM

PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

THANK YOU

THE REPUBLIC OF UGANDA

Agricultural Insurance

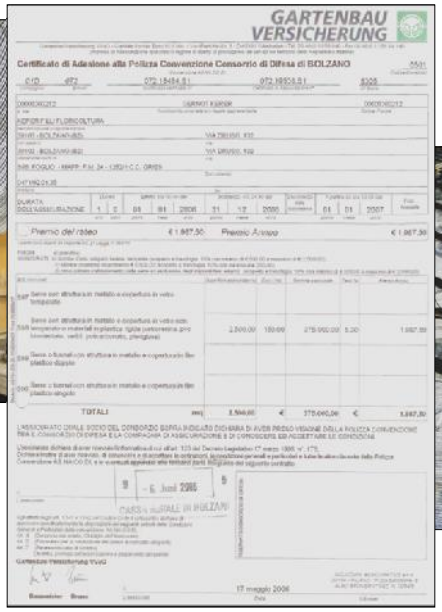
9 December, 2015 | Mbale, Uganda

OBJECTIVES OF SESSION

By the end of this session, participants should be able to:

- Understand what role insurance plays in risk management strategy
- Understand insurance terms
- Understand how insurance works
- Understand the different types of insurance

WHY AGRICULTURAL INSURANCE?


GARTENBAU VERSICHERUNG

Certificato di Adesione alla Polizza Convenzione Consorzio di Difesa di BOLZANO

KEY TERMS OF INSURANCE

Insured risk – the identified event that a person transfers to an insurance company by payment of a fee. Only loss from the occurrence of this event will lead to the insurance company paying the insured.

Insurable risk - a risk, for which the insurer can estimate its likelihood to occur through historical statistics and therefore will be willing to offer protection at certain cost.

Coverage - The time period over which the insured is protected by the insurer from the identified event

Insurance - a promise between two parties to protect against losses. It allows a person to pay a small amount of money in advance in exchange for a promise that when a bigger loss occurs, the insurance company will return the insured person to his initial financial position.

KEY TERMS OF INSURANCE

Insurer - a company selling insurance. These are companies specialize in pooling risks from individuals.

Agent – a person selling insurance in the name of the insurer.

Insured - the person buying the insurance protection from the insurer.

Sum Insured - the total value of the property to be insured. The maximum amount agreed upon that can be compensated from insurer in the event of the identified risk.

Compensation – the amount paid out to the farmer after an insured event.

Contract - a legally binding agreement made between two or more persons or companies.

Exclusion – all risks or circumstances that are explicitly mentioned in the insurance contract that are not insured

KEY TERMS OF INSURANCE

Premium - a calculated fee that acts as a small contribution that each client of the insurance company contributes to the pool. The accumulated money from the pool is used to compensate the few who actually suffer losses.

Risk pooling – An insurance company gathers together people who want insurance protection and sets itself up to operate a pool. It takes contributions in the form of premiums from many people exposed to similar risks and pays the few who incur losses. In this way the financial burden is spread among all those who contribute to the pool. Risk pooling is based on the assumption that the losses of the unfortunate few will be compensated by the fortunate many. The total premium contributions are used to compensate the losses.

INSURANCE **CONTRACT**

A farmer is insured only if he/she has a valid legal arrangement with an insurance company through an **insurance contract**.

For an insurance contract to be legal the following must be true:

1. The insured (Farmer) must have **insurable interest**- the farmer must be in a position where he or she would incur a financial loss if damage occurred to assets or property. For example, a farmer cannot insure a neighbor's cow.
2. The fee (**premiums**) have been paid
3. To have the capacity to sign a contract, farmer must be an **adult** of above 18 years and of sound mind

INSURANCE **COMPENSATION**

What happens when there is a loss?

1. **Determination of the cause** - when there is a loss, the real cause, of the damage without interference of other events must be identified. An insurer can only compensate if the loss is directly caused by an insured risk and not any other risk.

2. **Compensation without profit** - the insurer returns the insured to the exact or a lower financial position immediately before the loss. This means that the insured should not get any extra benefit or profit from the compensation.

GROUP DISCUSSION: COMPENSATION

1. **John has a Nissan Pickup that is insured against theft that he uses to transport his harvest from his farm and his neighbors' Tom's harvest to the market. If the Nissan Pickup is stolen, what will John ask from the insurance company? Compensation for a Nissan Pickup or a Pajero?**

2. **If the Nissan Pickup caught fire, what will John ask from the insurance company?**

3. **Can Tom insure John's car from theft?**

4. **What can Tom insure?**

TRADITIONAL INSURANCE PRODUCTS

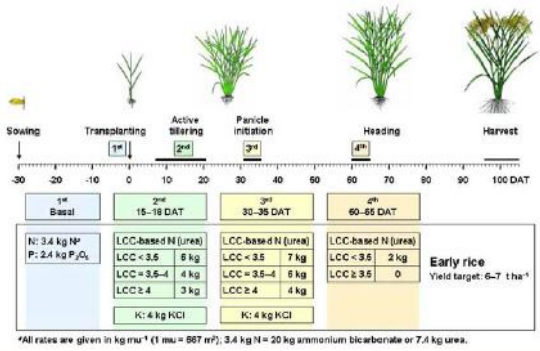
1. **Single peril crop insurance (example: hail)**
   - covers only 1 risk
   - payout is based on individual risk assessment by insurance company
2. **Multi peril crop insurance (MPCI)**
   - covers all risks defined in the insurance contract
   - payout is based on individual risk assessment by insurance company
3. **Livestock insurance**

Traditional crop insurance is difficult to deliver in smallholder farmers due to:

- high cost of individual loss assessments
- difficulty to obtain individual loss data from the past
- moral hazard and adverse selection

INDEX INSURANCE

- **New way of insurance:** looking at the water and nutrition requirements of plants
- Insurance is **based on plant science**
- Payout is based on **estimated loss due to unfavourable weather**
- Insurance is **limited to weather parameters only**



INDEX INSURANCE PRODUCTS

Index	Risks covered	Data used
Rainfall	Drought, excess rain	Daily rainfall
Temperature	Frost, diseases	Daily temperature
Area yield	All losses that can result in a drop in yield at district level	District yield data
Satellite	Drought, flood, excess rain, animal mortality	Satellite data from various satellites

All types of index insurance require reliable sources of verification for insured event (for example, weather stations, production statistics, etc.) that are trusted by both the farmers and the insurers.

HOW DOES **INDEX INSURANCE WORK?**

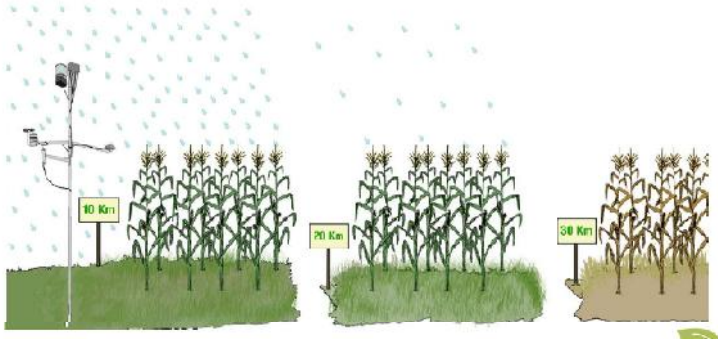
1. **The product is designed to cover specific risks.**
2. **To be insured a farmer must pay a set amount ("premium") to the insurance company.**
3. **Weather events are measured throughout the season at the nearest weather station.**
4. **The insurance payout is calculated using the information collected by the weather station.**
5. **The same percentage payout is made to all the farmers registered at that weather station, there is NO field visits or assessment.**
6. **The worse the weather, the bigger the payout.**
7. **The payout is made automatically**

BENEFITS OF INDEX INSURANCE

1. **Peace of mind**
2. **Risk transfer**
3. **Risk pooling**
4. **Objective measure of loss**
5. **Fast claims process**
6. **Preservation of source of income**
7. **Boost access to credit**

CHALLENGES OF INDEX INSURANCE

1. **Difficult to develop products suited for all crops and locations.**
2. **Availability of weather stations, etc. is limited.**
3. **Weather measured at weather station and weather observed at farms can be different.**



GAME: **MBALE GOOD HARVEST INSURANCE**

1. **Each farmer group has a total land of two hectares. The farm grows maize only. No irrigation is available.**
2. **The game runs for 3 years (rounds). In each year, the score is calculated and total scores after three years decide the winners.**
3. **The farm can take loan or can self finance. They can till one hectare without assistance of loan. But they can not till the other hectare without loan. The cost of loan is 25%**
4. **Standard yield is 2 ton/hectare. But for each farmer group, group yield varies (by drawing cards):**
   - **Excess yield than the predicted yield – (25% more)**
   - **Yield equaling to the predicted yield**
   - **Less yield than the predicted yield – (25% less)**

GAME: **MBALE GOOD HARVEST INSURANCE**

5. **The farm can decide to buy weather index insurance. Weather insurance protects them from bad weather but not from pests. For pests they can buy traditional insurance if they wish so. For weather insurance, they need to pay 5% of the investment cost and for pest insurance too they need to pay 5% of the investment cost.**
6. **In each year there are various possible weather events (by drawing cards):**
   - **Delayed rains - 50% loss**
   - **Severe drought - 100% loss**
   - **Normal weather - 0% loss**
7. **Cost of investment per hectare is UGX 100,000. Price for maize is UGX 100,000 per ton.**

PARM

PLATFORM FOR AGRICULTURAL RISK MANAGEMENT

Thank you for your attention

Contacts

PARM Secretariat

International Fund
for Agricultural Development (IFAD)

Via Paolo di Dono 44 - 00142 Rome (Italy)

parm@ifad.org
www.p4arm.org
@parminfo