

PICSA



Participatory Integrated Climate Services for Agriculture

THE CHALLENGE

- Smallholder farmers are key to food security in sub Saharan Africa and in other parts of the developing world
 - Two thirds of the population depend on small scale, rain-fed farming as their main source of food and income



- Critical farming decisions depend upon the weather
 - How much rain falls
 - The length and start date of the season
 - These aspects vary considerably from year-to-year



Honduras

Nicaragua

Colombia

Guyana

Senegal

Mali

Niger

Ghana

Rwanda

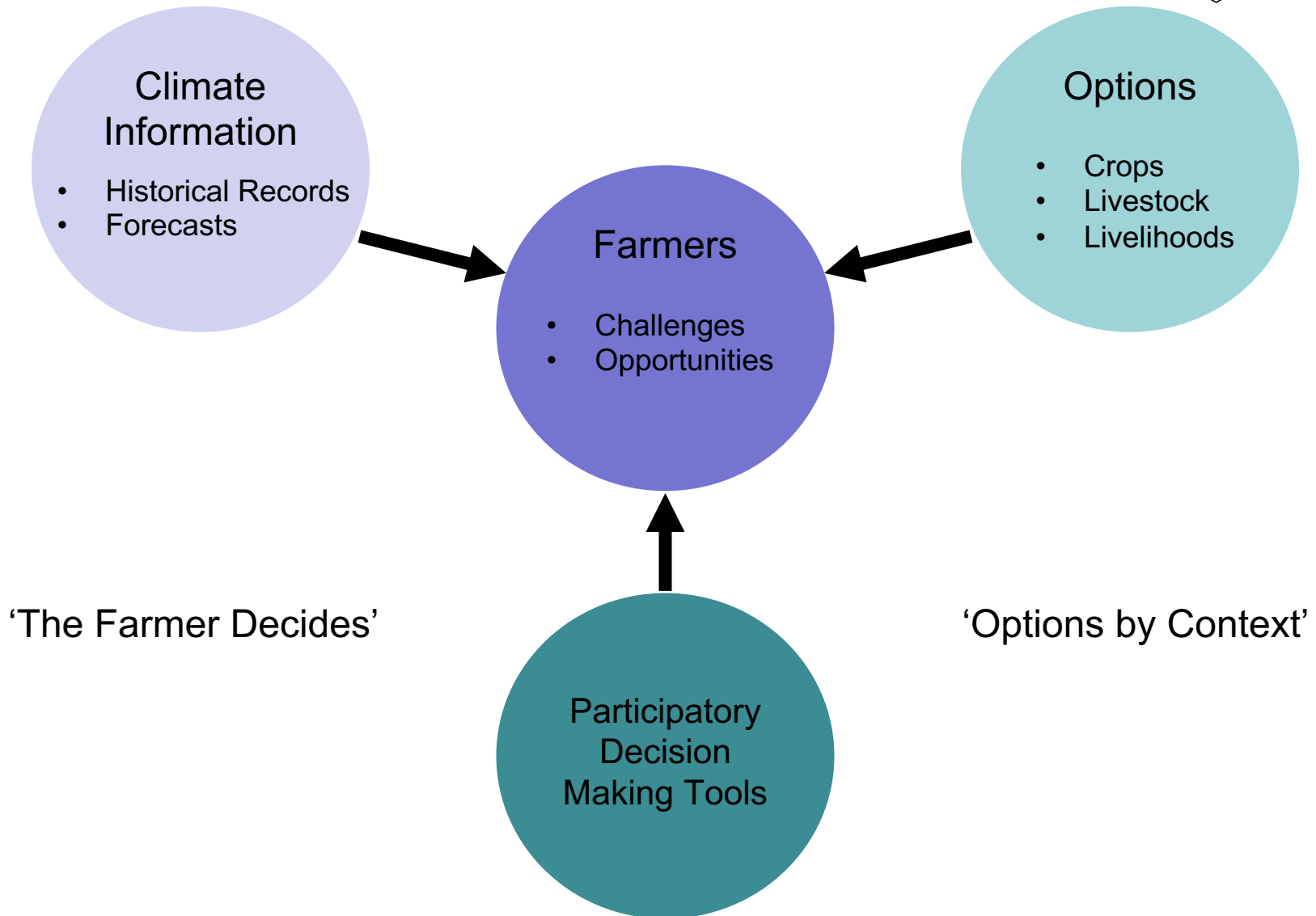
Kenya

Tanzania

Malawi

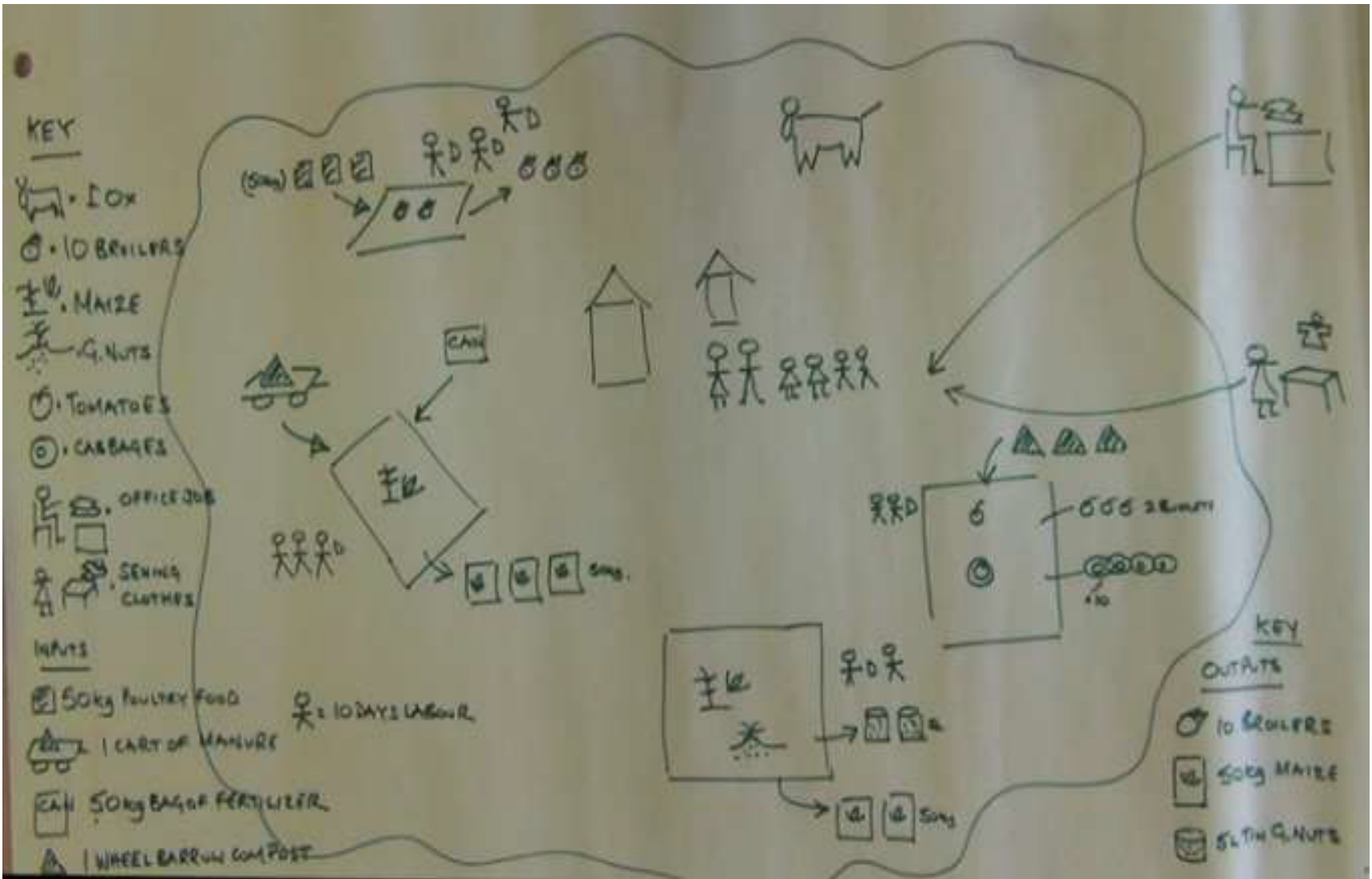
Zimbabwe

Lesotho



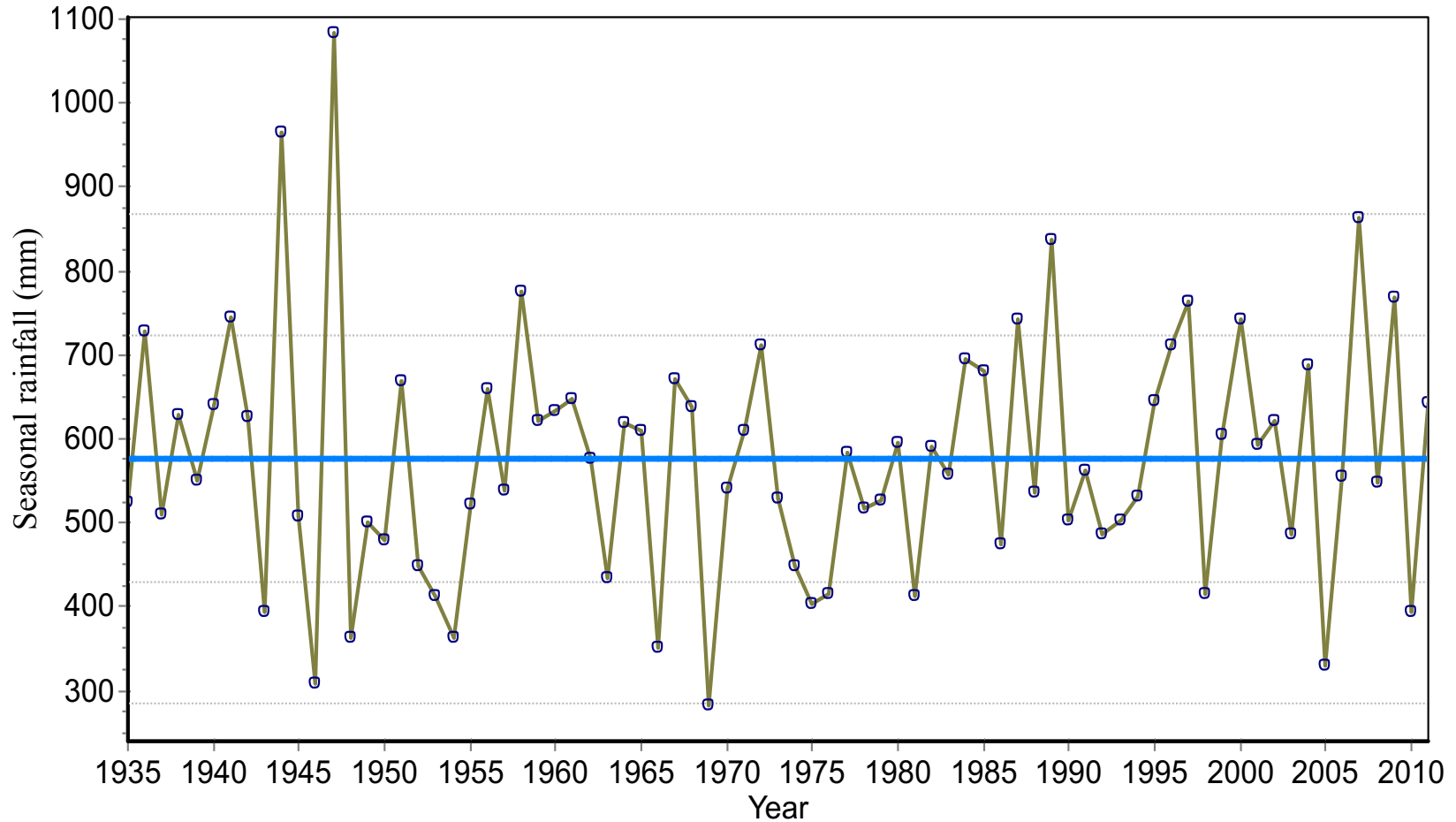


UNDERSTANDING THE FARMERS CONTEXT



HISTORICAL CLIMATE INFORMATION

Dodoma: seasonal rainfall



CALCULATING RISKS OF GROWING DIFFERENT CROPS




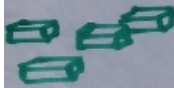
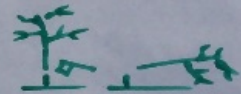
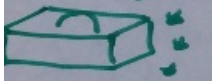




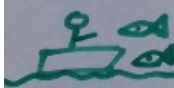

EXAMPLE OF A CROP INFORMATION SHEET



(NOT REAL VALUES)

Crop	Variety	Days to maturity	Crop water requirement	Chance of sufficient rainfall if season starts on x (Early)	Chance of sufficient rainfall if season starts on x (Middle)	Chance of sufficient rainfall if season starts on x (Late)
Maize	Local	120	480	5/10	4/10	2/10
Maize	Pioneer xxx	100	350	7/10	5/10	4/10
Sorghum	Seed Co xxx	110	300	5/10	7/10	6/10

ANALYSING LOCAL OPTIONS

PRACTICE	WHO DOES IT? ♀/♂	BENEFITS AND WHO BENEFITS ♀/♂	PERFORMANCE ✓/OK/X			INVESTMENT H/M/L	TIME TO START OF BENEFITS (MONTHS)	RISKS/ DISADVANTAGES
			LOW RF	MED RF	HIGH RF			
	♂♀	♂♀	OK	OK	OK	⊙ M ⊗ L	0	.
	♂	♂	OK	OK	OK	⊙ H ⊗ H	1	
	♂	♂♀	OK	OK	OK	⊙ H ⊗ M	3	
	♀♂	♀♂	X	OK	OK	⊙ H ⊗ H	1	
	♂	♂♀	✓	OK	✓	⊙ H ⊗ L	0	.
	♂	♂	✓	✓	✓	⊙ H ⊗ M	0	

FARMERS COMPARE AND DECIDE WHICH OPTIONS TO TRY ON THEIR FARM



	Time					
	I	II	III	IV	V	VI
Activities						
Inputs	£ 000 \$ 00	(i) \$ (ii) \$	£ 00 \$ 0		£ 00 \$ 0	£ 0000 \$
Family labour		(i) £ 000 (ii) £ 000	£ 00		£ 00	£ 00000
Outputs					 \$	x 5 \$
Produce consumed						x 1
Cash balance / profit	-VE \$ 00	-VE \$	-VE \$ 0		+VE \$	+VE \$
						+VE \$

Long Before the Season

Historical Climate Data
 Crop, Livestock + Livelihood Options
 Participatory Planning

Just Before the Season

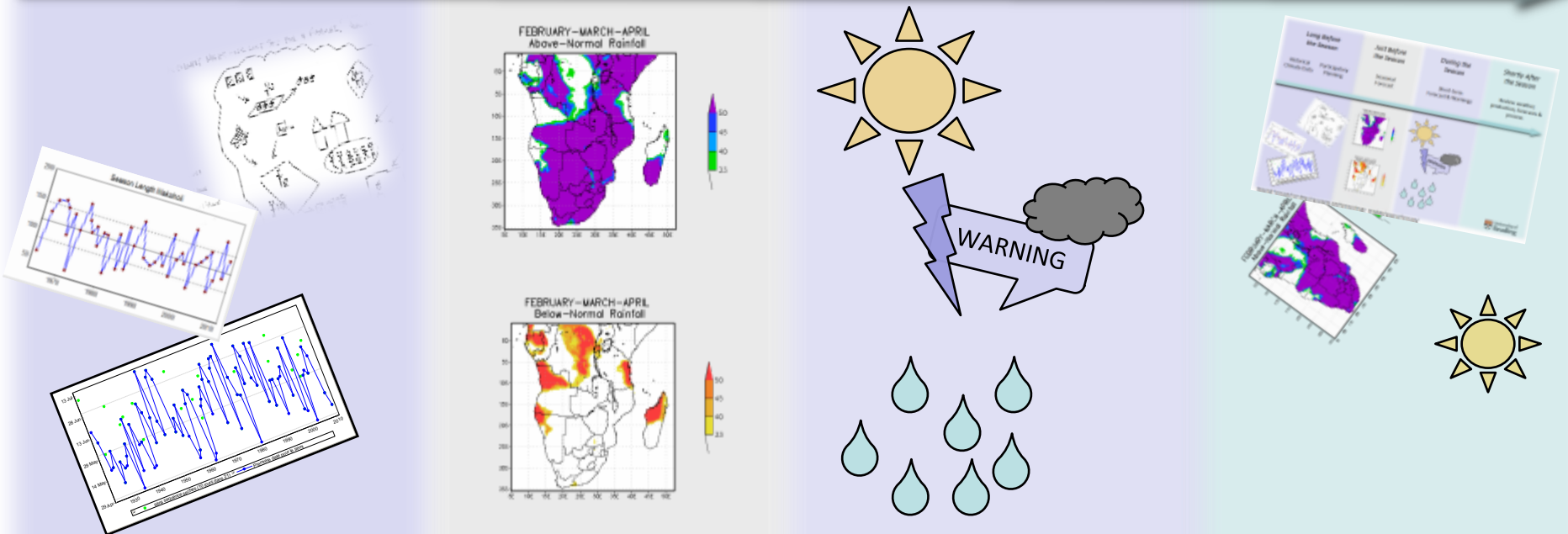
Seasonal Forecast & Revise Plans

During the Season

Short-term Forecasts & Warnings

Shortly After the Season

Review weather, production, forecasts & process



10 Districts In
Northern Ghana

140 Communities

6,000 Farmers

60 % (3,600)
Male Farmers

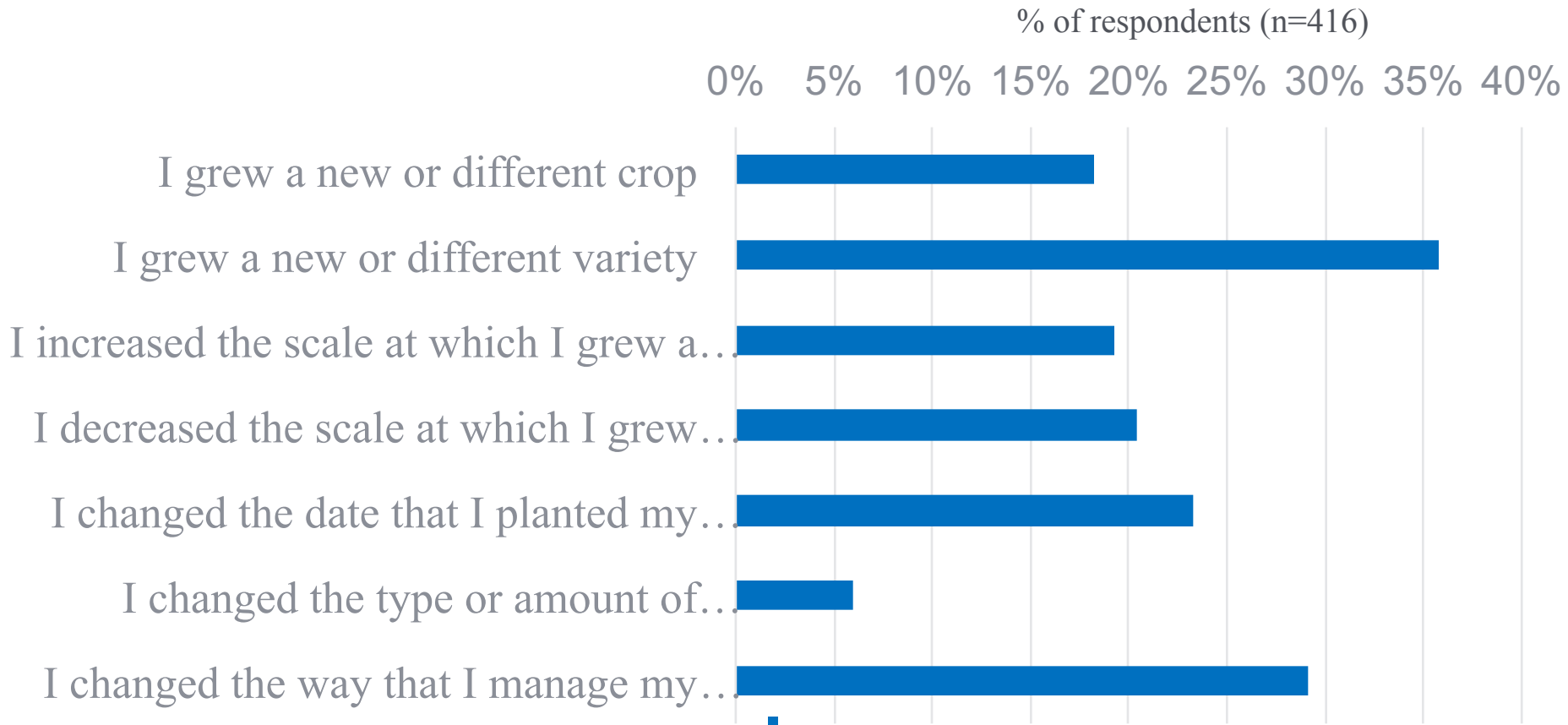
40% (2,400)
Female Farmers

RESULTS FROM EVALUATION



	Ghana (n=416)	Malawi (n=193)	Tanzania (n=611)	Rwanda (n=214)
% making changes in crops, livestock or livelihood enterprises as a result of PICSA training	97%	82%	52%	93%
% using participatory budgets in their planning and decision making	93%	80%	83%	97%
% of farmers using historical climate information in their planning and decision making	93%	86%	85%	98%
% of farmers 'better able to cope with bad seasons caused by the weather' following the training	88%	80%	88%	92%
% of PICSA trained farmers who had shared the information / tools with peers	84%	85%	88%	91%

CHANGES TO CROP ENTERPRISES IN GHANA



EXAMPLES OF CHANGES MADE



Farmer starting a small business selling soya beans



Farmer engaging in a new livelihood, making and selling shoes



Farmer engaging in a short-term (54 day) variety of cowpea

CASE STUDY HOUSEHOLDS

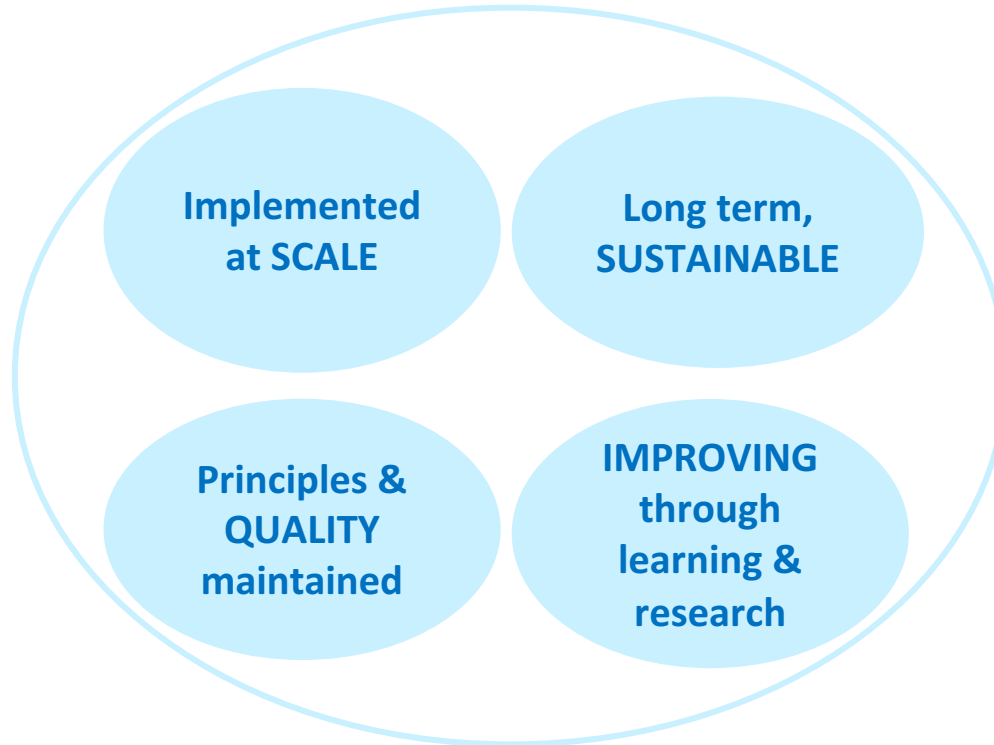
Farmer	Changes	Impact
Male farmer, northern region, Ghana	Reduced the scale of maize farm and used early maturing variety	Increased maize yield by 3 bags and reduced cash losses. Extra bags helped feed his family for 4 months and money saved helped pay school fees and purchase a goat
Female farmer, northern region, Ghana	Started regularly feeding and vaccinating her livestock	Increased profit from selling her sheep which was used to pay her son's school fees; some was used to purchase food and some to purchase two sheep
Female farmer, Balaka, Malawi	Early maturing maize and conservation farming techniques	After a difficult season, she was able to harvest while others weren't. Paid daughter's school fees, fed extended family and bought seeds for the coming season (incl. trying new crops)
Male farmer, Longido, Tanzania	Introduced new cattle breed (more suited to dry environments), reduced the size of his herd and vaccinated	Some of the remaining money from sales of local breed were invested in building a house. He has also started to engage in agriculture, planting maize, some trees and vegetables which helps feed his family

KEY FACTORS FOR SUCCESS

There are a number of different reasons why PICSA appears to be making an impact with smallholder farmers

- The emphasis on **supporting farmers to make their own choices and decisions** and providing them with the **tools and information** to do this.
- **Contextualisation** – incl. locally specific information and locally specific options
- PICSA is not just about information delivery but it is **an integrated approach**, bringing together Met Services, Extension, farmers alongside other actors in the innovation system (seed suppliers etc...)
- Information and tools are easily understood and **easily shared** by extension and farmers
- Is **helping extension staff to meet farmers needs / demands** and to do their extension jobs better
- Historical climate information **provides locally specific evidence** for farmers to help in their decision making
- **Learning and adapting** the approach as the roll out continues and we move to scale

NEXT STEPS FOR PICSA



THANK YOU

Graham Clarkson, Peter Dorward and Roger Stern



R-INSTAT

Instat+

R



Easy to use:

Even by people with low computer literacy



1/2

Encourage Good Statistical Practices

1/2



Free:

And therefore practical at scale



Open Source:

Making it adaptable and sustainable

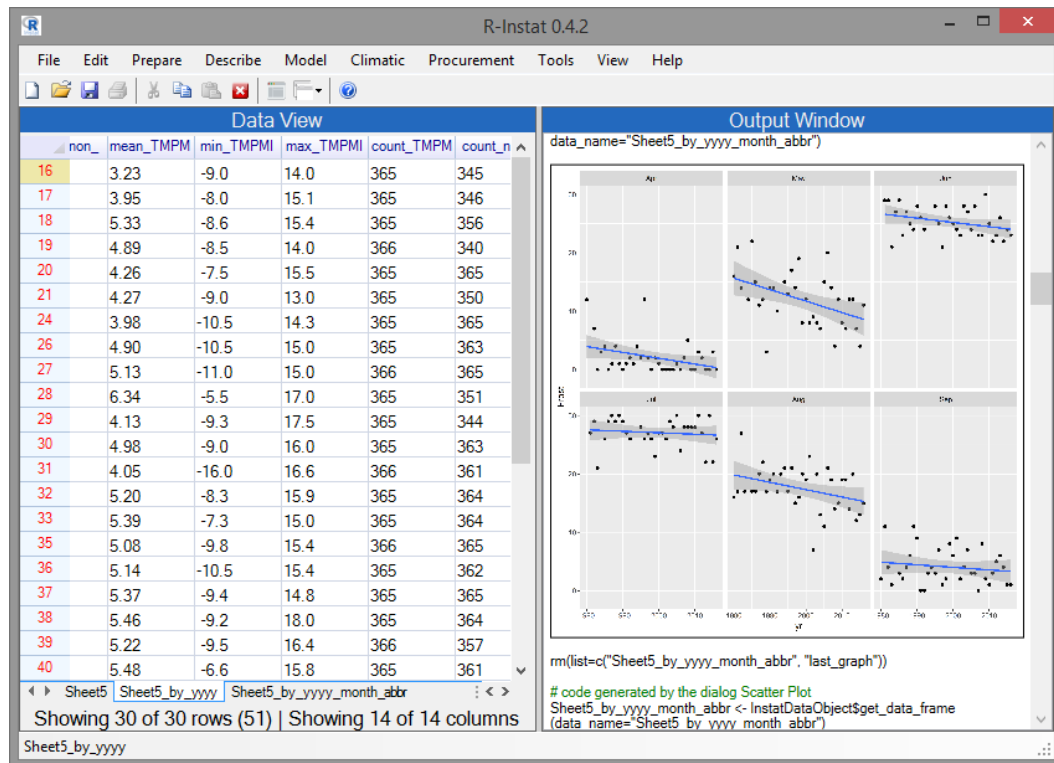


The missing tool



- Crowd Sourcing campaign 2015
- Identified a gap in statistical software
- Work in Africa and UK
- The R-Instat software will be offered for the first time
- R-Instat
 - Based on the R statistical system
 - With the same ideas as the original Instat

R-INSTAT



- Menu-driven front end to R
- Designed to make R really easy to use
- Particularly for those who already use a spreadsheet.
- Like Instat it is a general statistics package
- With a special climatic menu.
- Free to download
- <http://r-instat.org/>