Austrian Development Agency
The Operational Unit of the Austrian Development Cooperation

Towards resilient and profitable family farming systems in Central Mozambique

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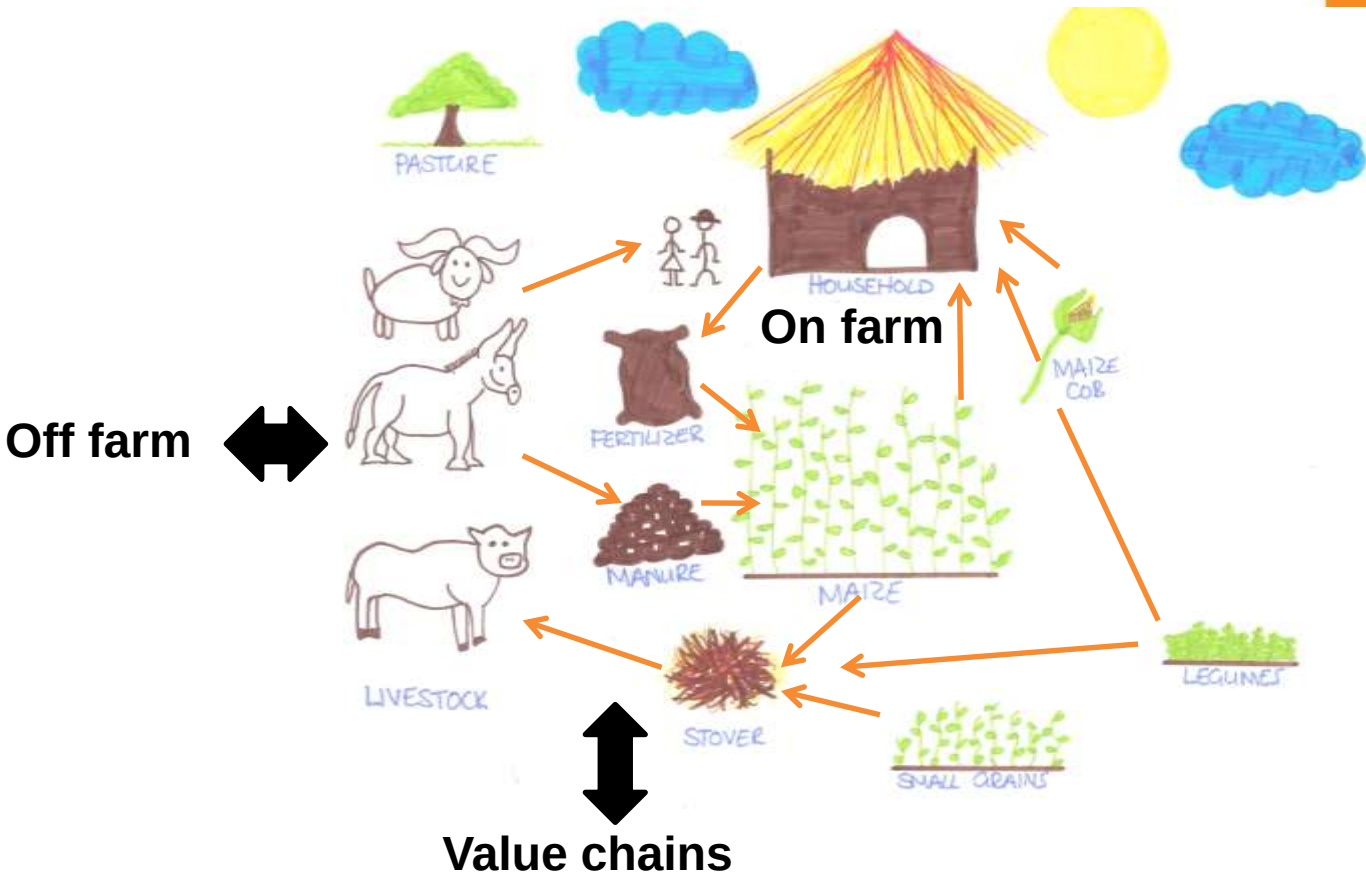
IIAM Instituto de Investigação Agrária de Moçambique
BOKU
University of Zimbabwe
The University Of Queensland AUSTRALIA

Importance of family farms

- Predominant form of agriculture
- Produce most food
- Control most agricultural land
- Vital but often poor and vulnerable
- Opportunity to lift people out of poverty



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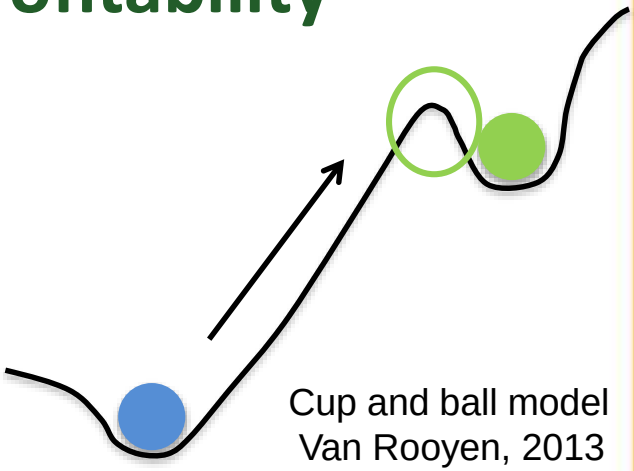
Win - win: resilience and profitability



Cup and ball model
Van Rooyen, 2013

Family farms as complex systems (Ostrom, 2009)

- Dynamic, adaptive, non-linear
- Social, economic, technical, ecological… dimensions
- External factors can cause change, and change can happen from within

Resilience as ability of a 'socio-ecological systems' to adapt (Folke et al 2004)

- Reduce vulnerability to shocks and recover from shocks
- React to change and make use of opportunities
- Proactively create options and opportunities

Profitability for immediate livelihood benefits (Orr and Mausch, 2014)

- = surplus over costs
- Cash income, with markets as drivers for economic and social change

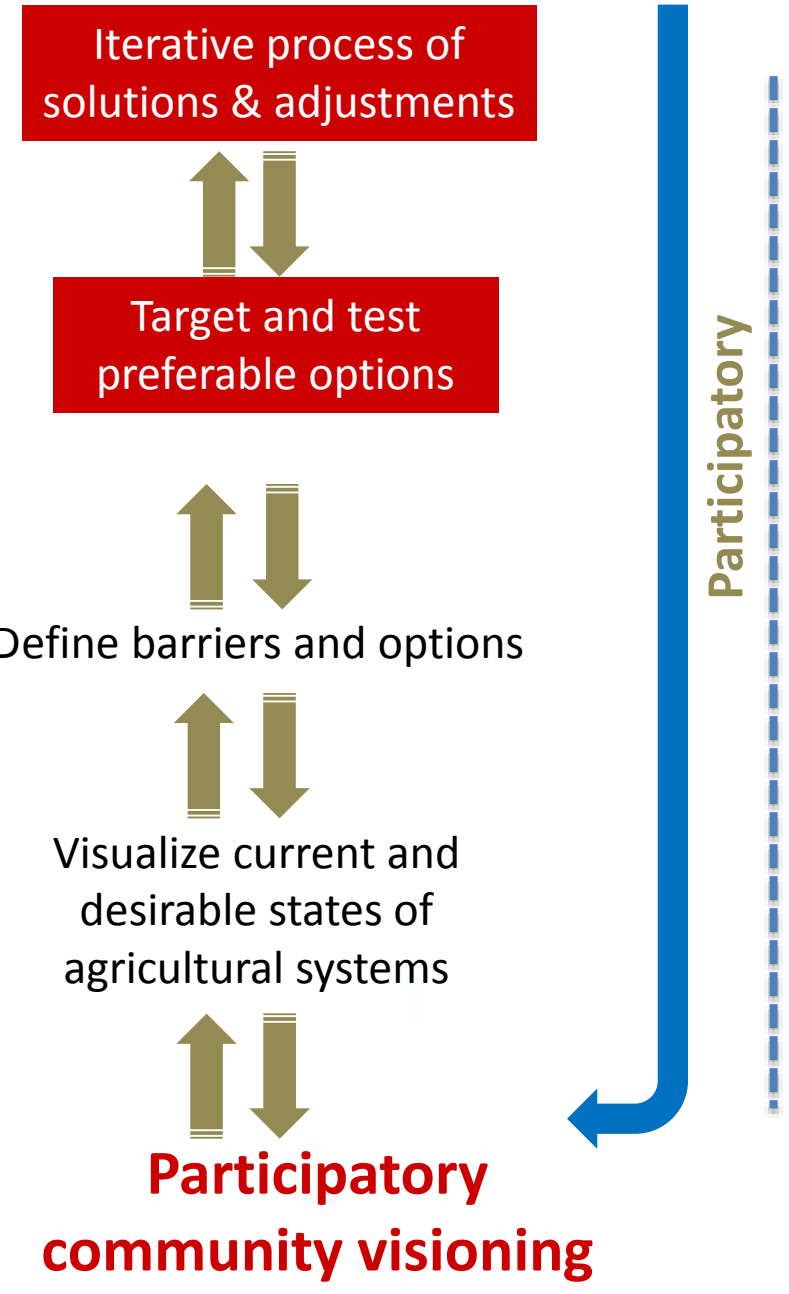
Basic hypotheses

Research and development programs will be more effective in supporting transformative change through the use of approaches that

(i) promote resilience and profitability within a particular farming context, and

(ii) better understand the types of family farms, their aspirations and resource limitations.

Research methods



Research methods

Iterative process of solutions & adjustments

Targeting and testing preferable options

Defining barriers and options

Visualizing current and desirable states of agricultural systems

Participatory community visioning

Household survey

Participatory

Desktop

Expert knowledge

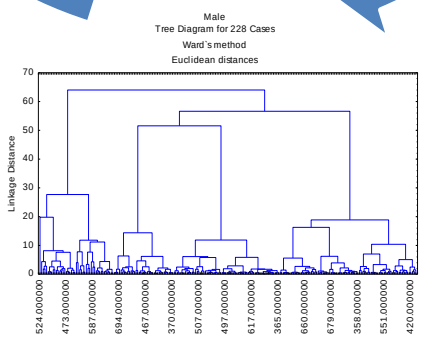
Data clean up and selection of variables

Multivariate statistics

PCA to identify redundant variables

Clustering of households

Age
Distance to the market
Land
Maize production
#Shoats



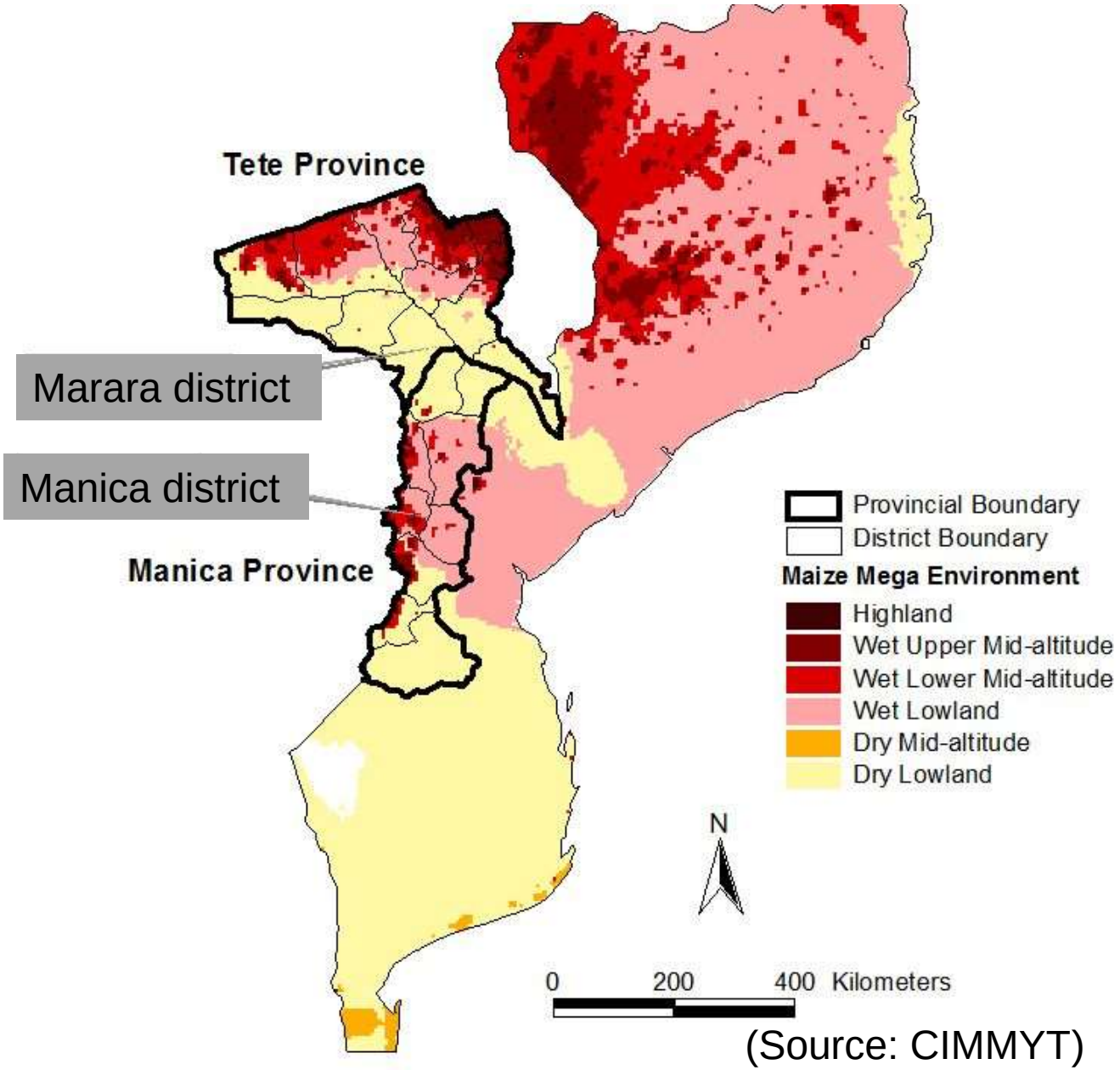
Expert knowledge

Description of functional typologies

Farming systems in Central Mozambique

Marara district
High potential for market oriented livestock production

Manica district
High potential for crop livestock integration and intensification



(Source: CIMMYT)

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Site 1. High risk environment in Marara, Tete

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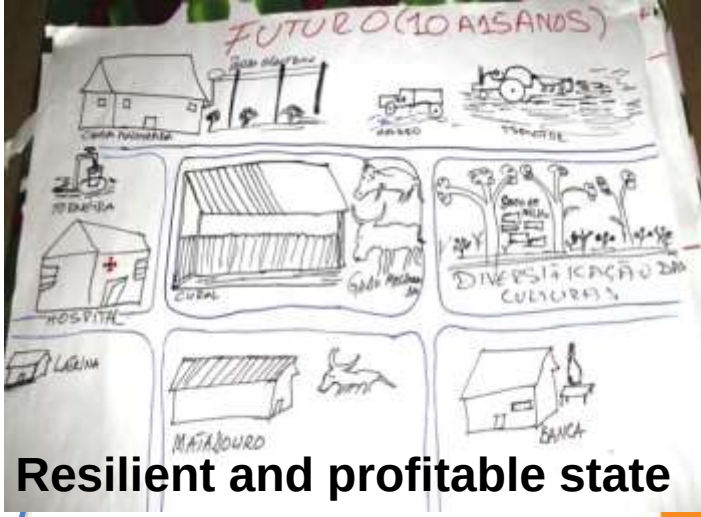
Community visions and market opportunities



Resilient and profitable state

Market oriented livestock production

Barriers + solutions

IP

→ Lack of land ownership

→ Weak social capital (internal/external)

→ Lack of knowledge on crop livestock technologies

Vulnerable state

How feasible is it for farmers in Marara to step up?

Household types (n=189)	Resource poor
	
Share of population (%)	12
Female HHH (%)	**88**
Age of HHH (yrs)	54
Education (yrs)	**0.5**
Information index	**10**
Off-farm income (%)	35
Herd size (TLU)	**1.9**
Cultivated land(ha)	1.4
Herd offtake (ct, go,%)	1
CL integration	+
Diversified production	+
Cash income (U$S/yr)	**94**

How feasible is it for farmers in Marara to step up?

Household types (n=189)	Resource poor 	Stepping up 
Share of population (%)	12	41
Female HHH (%)	**88**	8
Age of HHH (yrs)	54	**35**
Education (yrs)	**0.5**	5.4
Information index	**10**	14
Off-farm income (%)	35	**66**
Herd size (TLU)	1.9	1.2
Cultivated land(ha)	1.4	2.3
Herd offtake (ct, go,%)	1	**10 /12**
CL integration	+	+
Diversified production	+	+
Cash income (U$S/yr)	**94**	**338**

How feasible is it for farmers in Marara to step up?

Household types (n=189)	Resource poor	Stepping up	Intensifying CL
			
Share of population (%)	12	41	47
Female HHH (%)	**88**	8	12
Age of HHH (yrs)	54	**35**	56
Education (yrs)	**0.5**	5.4	3.1
Information index	**10**	14	17
Off-farm income (%)	35	**66**	44
Herd size (TLU)	1.9	1.2	**8.2**
Cultivated land(ha)	1.4	2.3	**3.3**
Herd offtake (ct, go,%)	1	**10 /12**	**9 /16**
CL integration	+	+	**++**
Diversified production	+	+	**++**
Cash income (U$S/yr)	**94**	**338**	**475**

How feasible is it for farmers in Marara to step up?

Household types (n=189)	Resource poor	Stepping up	Intensifying CL
			
Share of population (%)	12	41	47
Female HHH (%)	**88**	8	12
Age of HHH (yrs)	54	**35**	56
Education (yrs)	**0.5**	5.4	3.1
Information index			
Off-farm income (%)			
Herd size (TLU)			
Cultivated land(ha)			
Herd offtake (ct, go,%)			
CL integration			
Diversified production			
Cash income (U$S/yr)	**94**	**338**	

Safety nets

Food crops management

Goat flock building

Livestock as a business

Alternative land use options

Livestock market arrangements

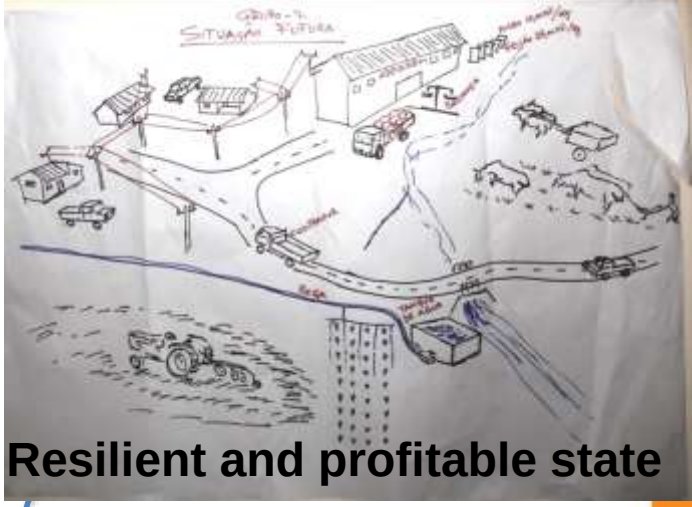
Test and promote technologies

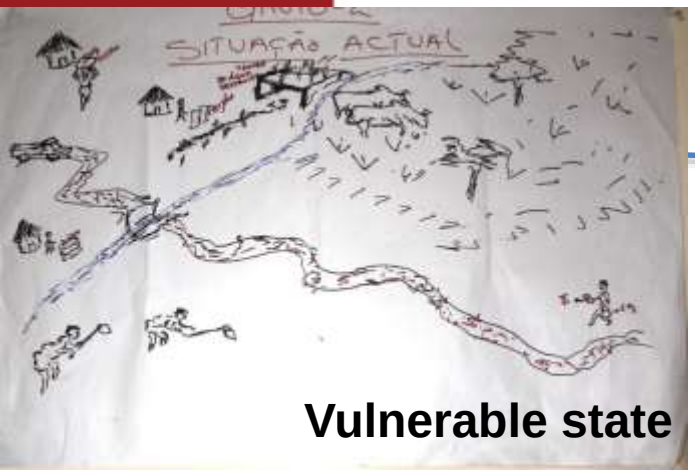
Represent farmers interests

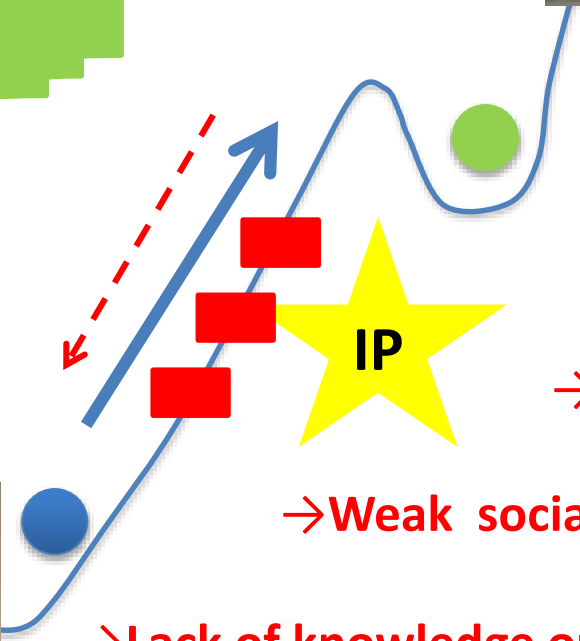
Site 2. High agricultural potential in Manica, Manica

Community visions and market opportunities

Collective marketing of common beans







Barriers + solutions

→Lack of road infrastructure

→Weak social capital (internal/external)

→Lack of knowledge on crop livestock technologies

How feasible is it for farmers in Manica to step up?

Household types (n=193)	Resource poor
	
Share population (%)	35
Age of HHH (yrs)	**38**
Education (yrs)	5
Information index	**9**
Off-farm income (%)	**37**
Herd size (TLU)	**0.3**
Cultivated land (ha)	**2.2**
Herd offtake (ct, go, %)	**0, 13**
Sales of beans (%)	17
Diversified production	+
CL integration	+
Cash income (U$S/yr)	288

How feasible is it for farmers in Manica to step up?

Household types (n=193)	Resource poor 	Stepping up I 
Share population (%)	35	30
Age of HHH (yrs)	**38**	44
Education (yrs)	5	4
Information index	**9**	13
Off-farm income (%)	**37**	17
Herd size (TLU)	**0.3**	1.7
Cultivated land (ha)	**2.2**	4.0
Herd offtake (ct, go, %)	**0, 13**	2, 4
Sales of beans (%)	17	**80**
Diversified production	+	**++**
CL integration	+	**++**
Cash income (U$S/yr)	288	**487**

How feasible is it for farmers in Manica to step up?

Household types (n=193)	Resource poor	Stepping up I	Stepping up II
			
Share population (%)	35	30	25
Age of HHH (yrs)	**38**	44	**54**
Education (yrs)	5	4	4
Information index	**9**	13	27
Off-farm income (%)	**37**	17	22
Herd size (TLU)	**0.3**	1.7	**3.3**
Cultivated land (ha)	**2.2**	4.0	4.0
Herd offtake (ct, go, %)	**0, 13**	2, 4	2, 7
Sales of beans (%)	17	**80**	31
Diversified production	+	**++**	**++**
CL integration	+	**++**	**++**
Cash income (U$S/yr)	288	**487**	**477**

How feasible is it for farmers in Manica to step up?

Household types (n=193)	Resource poor	Stepping up I	Stepping up II	Intensif. CL
				
Share population (%)	35	30	25	10
Age of HHH (yrs)	**38**	44	**54**	51
Education (yrs)	5	4	4	6
Information index	**9**	13	27	**39**
Off-farm income (%)	**37**	17	22	8
Herd size (TLU)	**0.3**	1.7	**3.3**	7.0
Cultivated land (ha)	**2.2**	4.0	4.0	**6.4**
Herd offtake (ct, go, %)	**0, 13**	2, 4	2, 7	**17, 1**
Sales of beans (%)	17	**80**	31	**73**
Diversified production	+	++	++	**+++**
CL integration	+	++	++	**+++**
Cash income (U$S/yr)	288	487	477	**1279**

How feasible is it for farmers in Manica to step up?

Household types (n=193)	Resource poor	Stepping up I	Stepping up II	Intensif. CL
				
Share population (%)	35	30	25	10
Age of HHH (yrs)	**38**	44	**54**	51
Education (yrs)	5	4	4	6
Information index	**9**	13	27	**39**
Off-farm income (%)	**37**	17	22	8
Herd size (TLU)				
Cultivated land (ha)				
Herd offtake (ct, go, %)				
Sales of beans (%)				
Diversified production				
CL integration				
Cash income (U$S/yr)	288	487	477	**279**

Production + marketing support for common beans

Common beans as a business

Cattle herd building

CL integration

Learn about common beans

Partnerships with private sector

Cattle as a business

Stepping back

• Use **practical experience and better understanding** on supporting complex systems to inform conceptual thinking.

• Combining resilience and profitability forces us to think about long term and short term solutions - **harness local opportunities**.

• Working at on- and off-farm scales, e.g. through an IP, helps us to create **conditions under which on-farm solutions can work** – incl. infrastructure, (re-) organization, behavior change.

• Engaging in the process we must **(re-) define interventions, tailored to farmers** particular circumstances and capacities.

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Thank you for your attention!