Agricultural Mindsets Across Social Networks:

Kenya, Uganda, Lesotho and Mali

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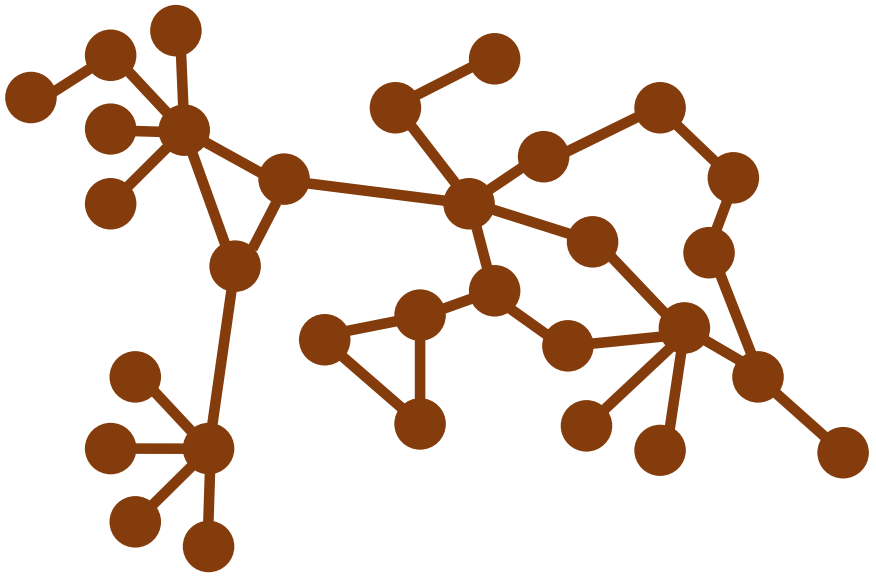


A talk prepared for the:
VT African Studies Brownbag
27 March 2014

USAID
FROM THE AMERICAN PEOPLE

Building Communicative Competence

- Universities in the global North and South need to be thinking about:
  - New ways of relating to their multiple clienteles.
  - Innovation systems for research and development.
  - Value chains on which resources can be built.
  - Who and how to train new facilitators of innovation.
- Social network analysis provides two new ways to view these relationships.
  - Conventional research to understand production networks and their stakeholders.
  - As a participatory research tool building innovation networks.

Principles for enhancing innovative performance

- Assess sense-making knowledge in social networks
- Evaluate knowledge flows between nodes
- Identify bottlenecks and opportunities for interactive learning
- Assess institutional policy and practices
- Suggest appropriate remedial action

Knowledge Networks/Systems

- People and technologies are interconnected in ways that reproduce some types of knowledge and behavioral practices and not others
- Knowledge networks rationalize socio-material relationships in the agro-ecology
- There is often competition between knowledge network segments

"Transforming conventional agriculture is not just a question of training farmers, but of social learning in complex interwoven networks of interdependent actors. In most instances, we are not dealing with 'virgin country' but with situations in which highly interwoven actor networks have already evolved around the needs of conventional farming."

Röling and Jiggins, 1998

Three Agricultural Production Mindsets

- Conventional Agriculture
- Risk-Averse Agriculture
- Conservation Agriculture

Network Components

Nodes – individuals, organizations, other meaningful entities, and things

these are seen as **actors**, having independent agency

Ties – the relationships between nodes

bound together in some **meaningful** fashion

- these may be strong or weak

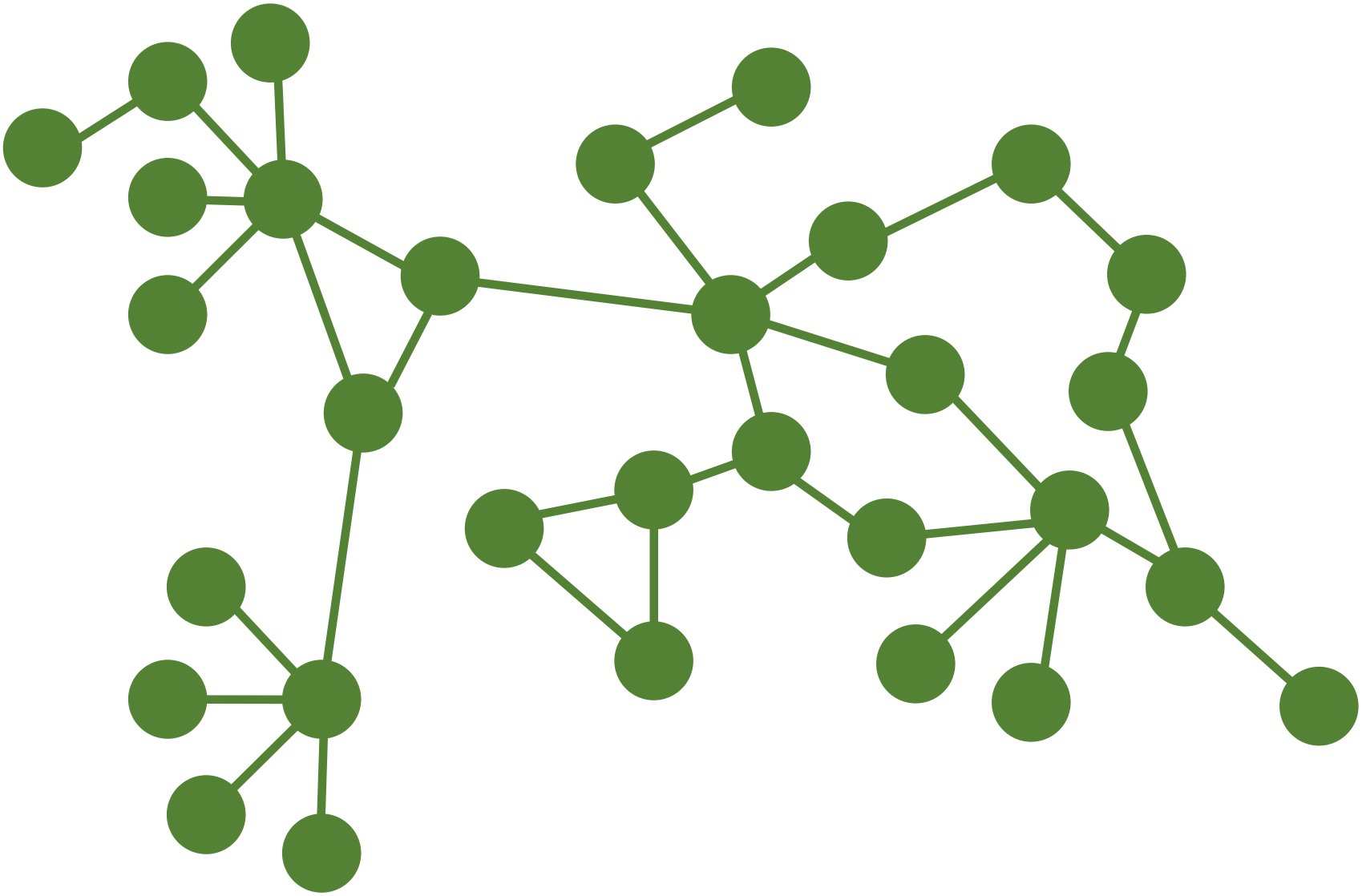
What is a node ?

The identity of a node is

Structural, identified by a relatively stable bundle of socially-constructed positions

Meaningful, a function of stories, idiom and discourse rationalizing certain behaviors and structures expected of that position

A Network Structure



Three surveys in four countries

Three collaborative research projects conducted baseline surveys of **small holder farmers** in Kenya, Uganda, Lesotho, and Mali.

A secondary sample to identify members of farmer agricultural production networks was based on a snowball sampling procedure:

- farmers identified who they contacted for agricultural inputs, technologies, and information

- These (largely) **non-farm agents** were also surveyed and their agricultural production network connections identified

Mali – Seno Plain

Farmers = 238

NonFarm Agents = 36

Kenya/Uganda-Mt Elgon

Farmers = 161 (Kenya)

191 (Uganda)

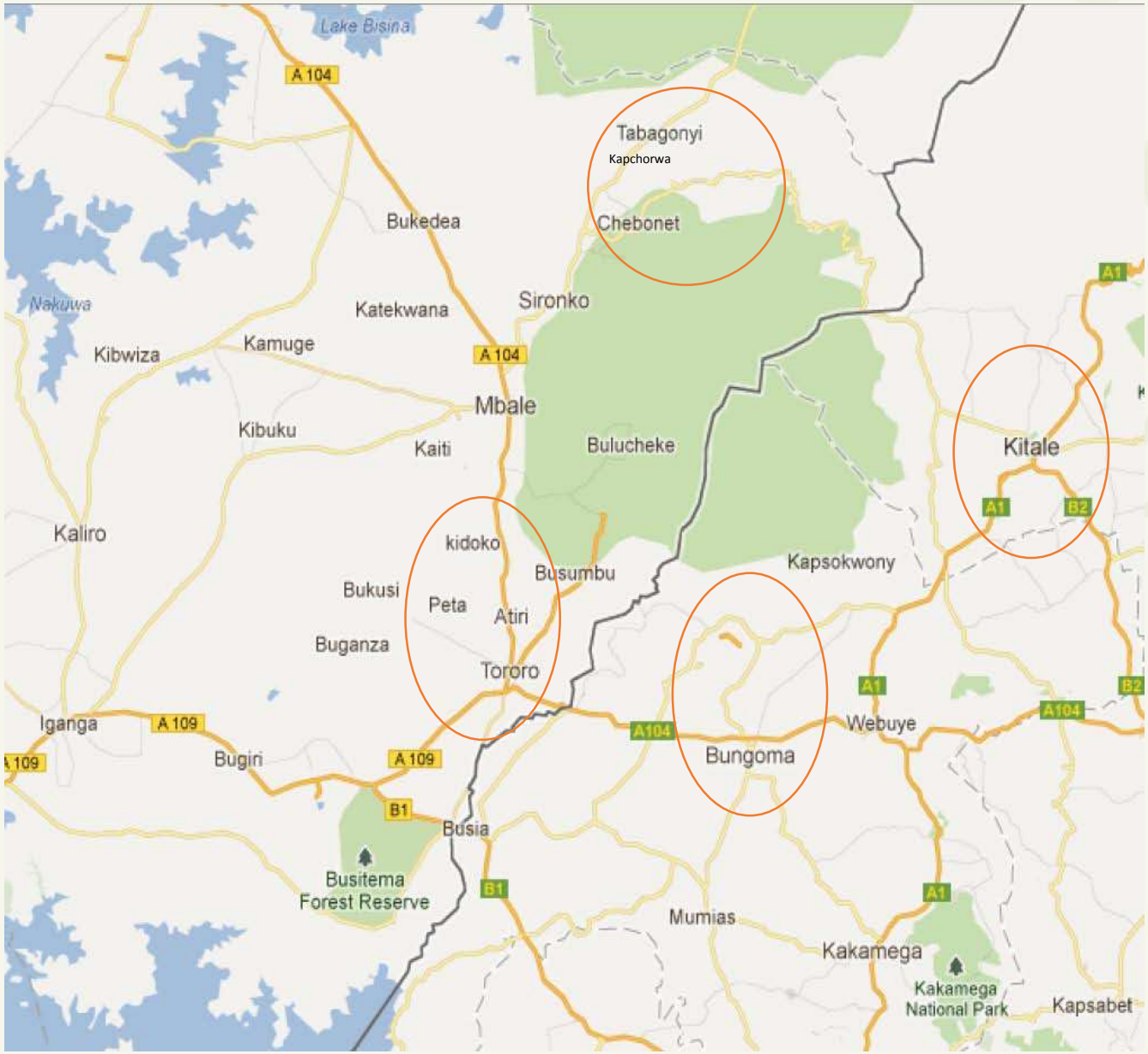
NonFarm Agents = 40/34

Lesotho – Botha Bothe

Farmers = 415

NonFarm Agents = 38

THE COMMUNITIES in Kenya and Uganda

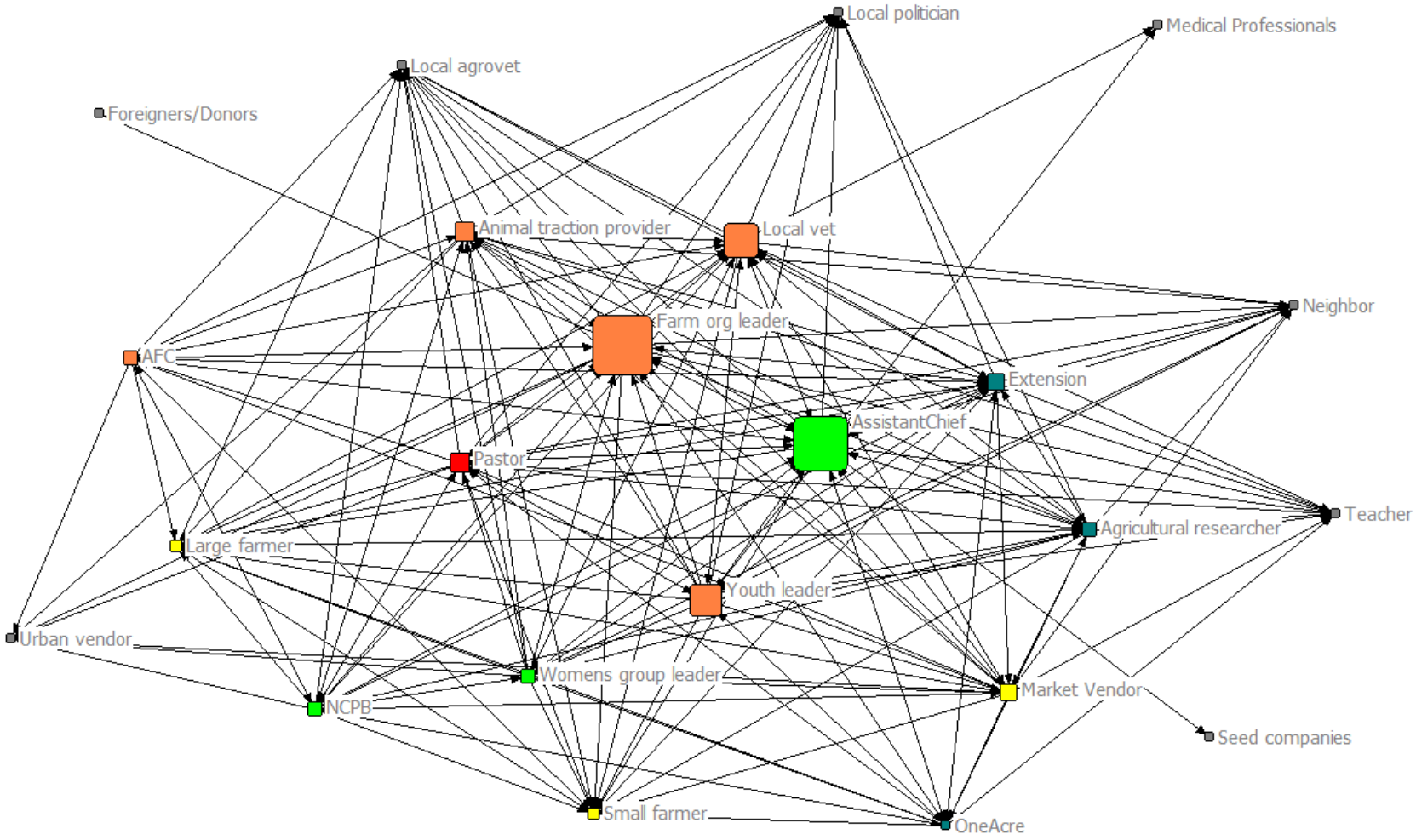


KAPCHORWA |

TORORO |

BUNGOMA |

TRANS NZOIA |



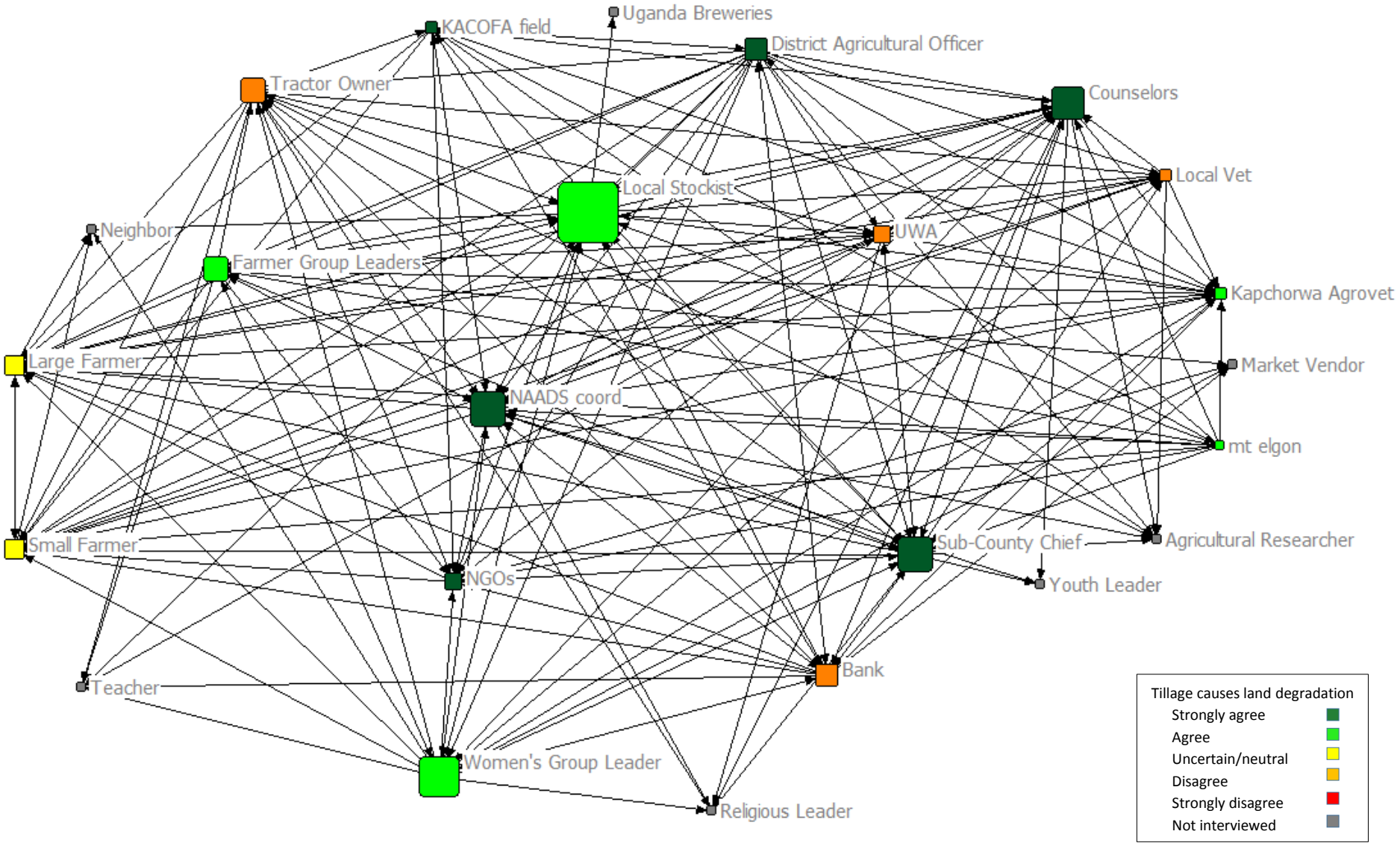
Bungoma

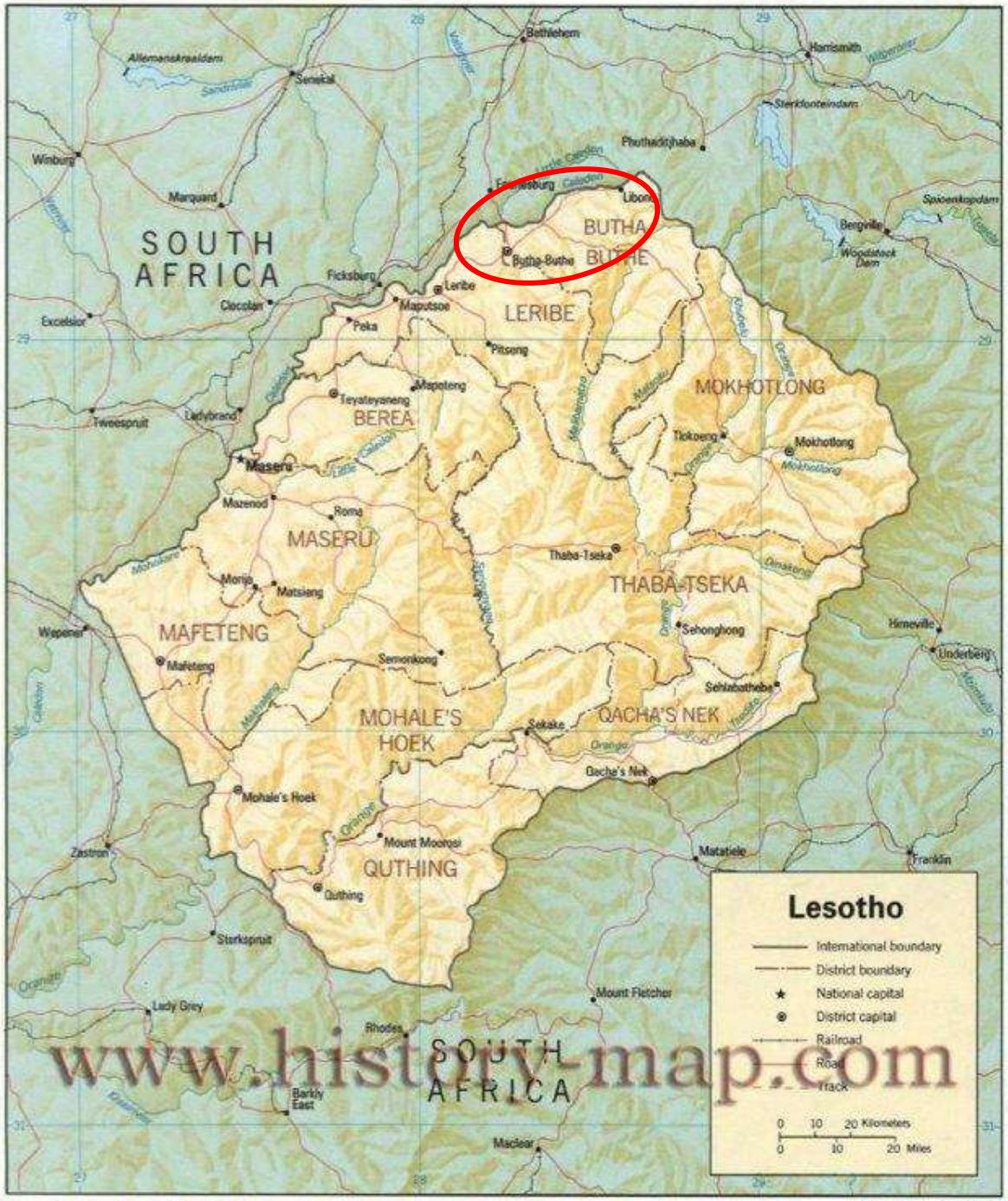
"Tillage causes land degradation"

Mapped Network of Agricultural Information flows and actor mindsets

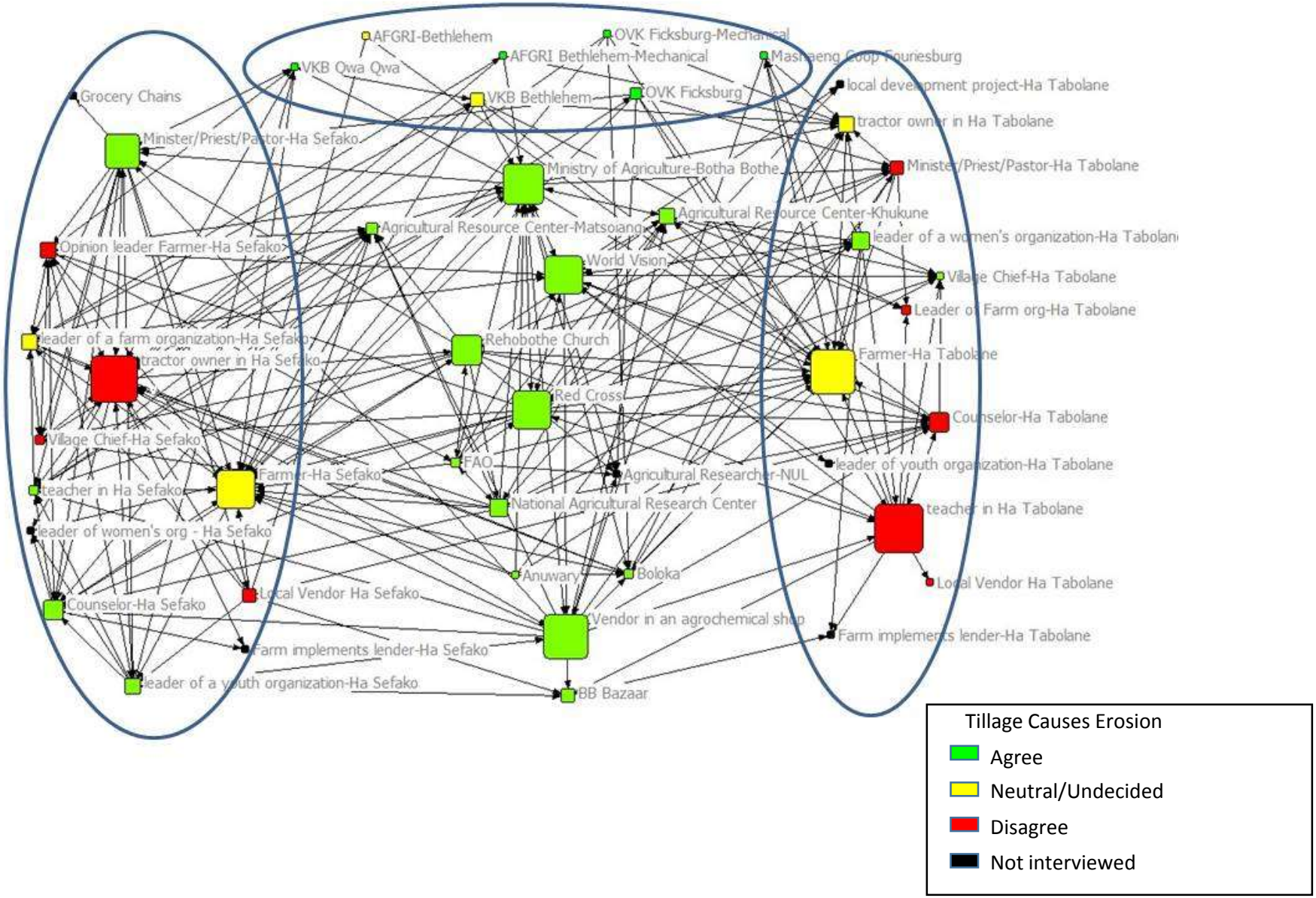
Tillage causes land degradation
- Strongly agree
- Agree
- Uncertain/neutral
- Disagree
- Strongly disagree
- Not interviewed

Kapchorwa Agricultural Support Network





Botha Bothe Agricultural Production Networks and Beliefs about “Tillage Causes Erosion”




Mali
12° W
6° W
0°
6° E
24° N
18° N
12° N
Erg Chech
Tropic of Cancer
Tanezrouft
Western Sahara (MOROCCO)
ALGERIA
0 200 Miles
0 200 Kilometers
Taoudenni
S a h a r a
El Djouf
Tessalit
Adrar des Iforhas
ATLANTIC OCEAN
MAURITANIA
Araouane
Azaouâd
Kidal
Tombouctou (Timbuktu)
Bourem
Goundam
Gourma-Rharous
Gao
Ansongo
Ménaka
Sénégal
Nioro du Sahel
Nara
Douentza
Hombori Tondo 3,789 ft. (1,155 m)
SENEGAL
Kayes
Niono
Mopti
NIGER
Niger
GAMBIA
Bafoulabé
Dienné
S a h e l
Kita
Ségou
Kéniéba
Koulikoro
BURKINA FASO
Bamako
Koutiala
GUINEA-BISSAU
Black Volta
GUINEA
Bougouni
Sikasso
BENIN
GHANA
TOGO
NIGERIA
CÔTE D'IVOIRE
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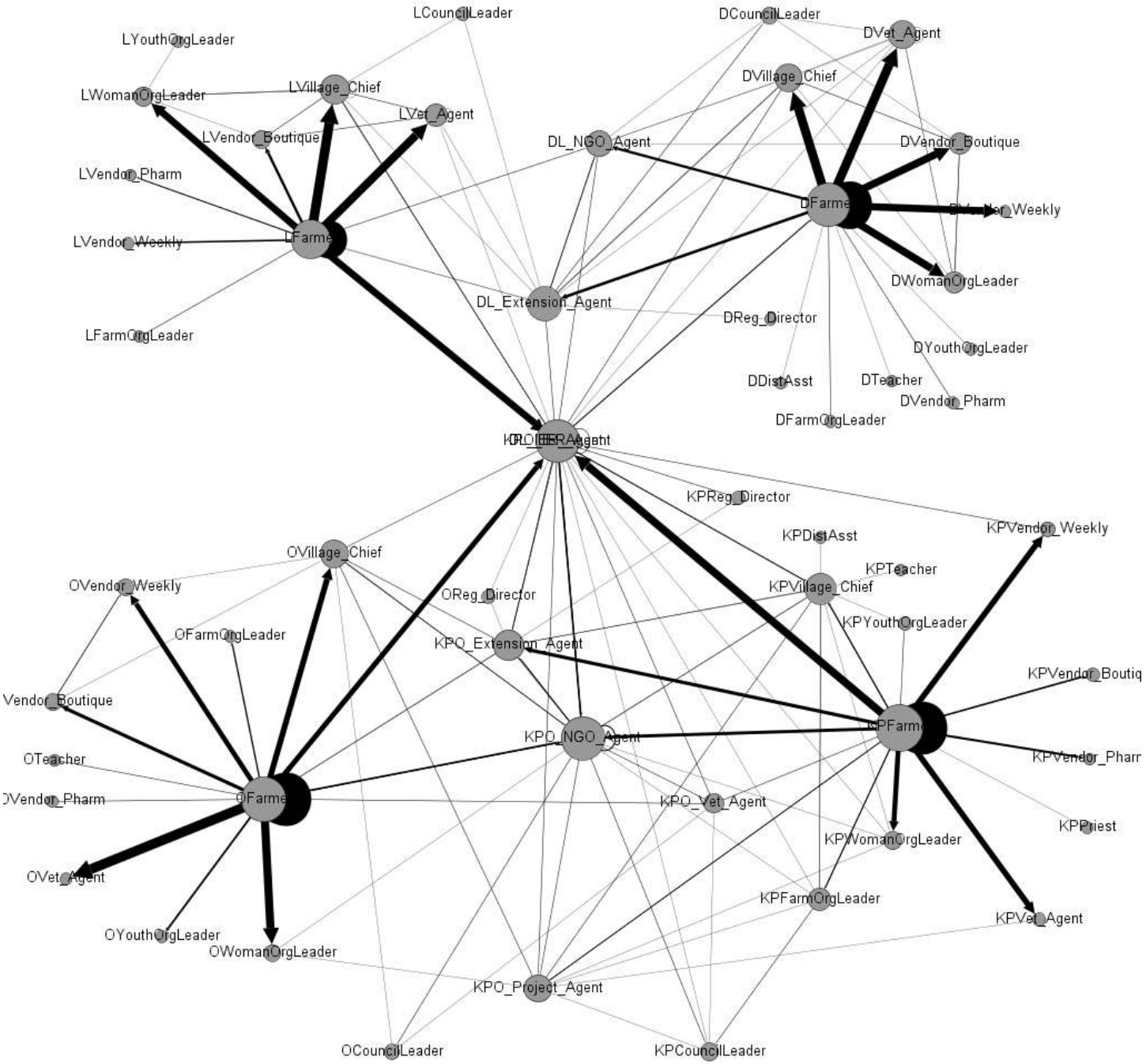

LCouncilLeader
LYouthOrgLeader
LWomanOrgLeader
LVillage_Chief
LVet_Agent
LVendor_Boutique
LVendor_Pharm
LVendor_Weekly
LFarmOrgLeader
DCouncilLeader
DVet_Agent
DVillage_Chief
DL_NGO_Agent
DVendor_Boutique
DWomanOrgLeader
DL_Extension_Agent
DReg_Director
DYouthOrgLeader
DDistAsst
DTeacher
DVendor_Pharm
DFarmOrgLeader
KPReg_Director
KPVendor_Weekly
KPDistAsst
KPTeacher
KPVillage_Chief
KPYouthOrgLeader
KPVendor_Boutiq
KPO_NGO_Agent
KPVendor_Pharr
KPO_Vet_Agent
KPPriest
KPWomanOrgLeader
KPFarmOrgLeader
KPVet_Agent
KPO_Project_Agent
KPCouncilLeader
OVillage_Chief
OVendor_Weekly
OReg_Director
OFarmOrgLeader
KPO_Extension_Agent
Vendor_Boutique
OTeacher
Vendor_Pharm
OVet_Agent
OYouthOrgLeader
OWomanOrgLeader
OCouncilLeader

Mindset Indicators Examined

Land is one‘s heritage to be preserved for future generations
Farm labor should be replaced by more efficient herbicides and machines
Engaging in multiple productive activities is always better than doing just one
Farm income should always be reinvested to grow the business
One should maintain a permanent crop cover
It is better to grow staples within the household than purchase them.
Applying chemical pesticides is always necessary
Farm production is necessary to feed the family
Inorganic fertilizer is best to improve soil quality
Spreading crops and inputs across multiple plots is always necessary
Planting decisions are always based off of current market prices
Timely weeding (before setting of seed) is important to a successful harvest
Crops should only be grown for sale
Crop residues should only be fed to livestock and poultry
Tillage causes land degradation
One should always strive to grow the most on one‘s land
The staple crop should be planted on the majority of the land every growing season
Rotating crops is always best practice
Land preparation for crop production begins with plowing
Earning off-farm income is more important than a large harvest

The Agrarian Orientation

Land is one‘s heritage to be preserved for future generations
One should maintain a permanent crop cover
Farm production is necessary to feed the family
Spreading crops and inputs across multiple plots is always necessary
The staple crop should be planted on the majority of the land every growing season

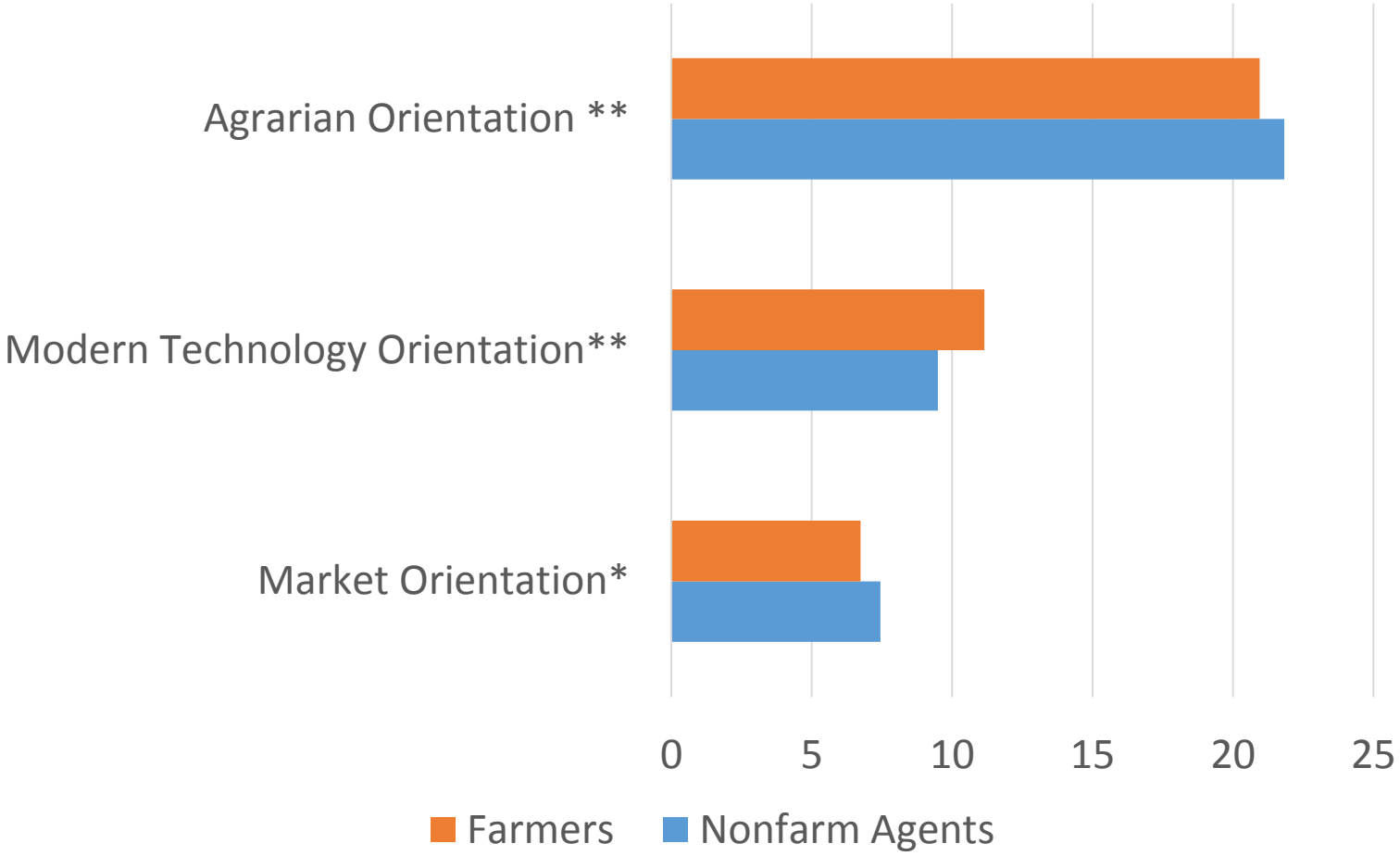
Mindset Indicators contributing to Factor Analysis Scores

Indicator	Kenya and Uganda	Lesotho	Mali	All
Farm labor should be replaced by more efficient herbicides and machines	1	2	1	1
Applying chemical pesticides is always necessary	1	2	1	1
Inorganic fertilizer is best to improve soil quality	1	2		1
Planting decisions are always based off of current market prices		1	2	2
Crops should only be grown for sale	2	1	2	2
Crop residues should only be fed to livestock and poultry	2		1	
One should always strive to grow the most on one's land		1	1	
Earning off-farm income is more important than a large harvest		1	2	2

Modern technology orientation

Market orientation

Agricultural Production Mindset Factors



N = 1157

** Difference in score significant at the .001 level.

* Difference in score significant at the .01 level.

Country	Nonfarm Agents/ Farmers	Agrarian Orientation Score	
		Within country	Between countries
Uganda**	Nonfarm Agent	20.88	19.16[a]
	Farmer	18.88	
Kenya**	Nonfarm Agent	21.60	19.32[a]
	Farmer	18.95	
Mali**	Nonfarm Agent	21.29	22.70[b]
	Farmer	22.91	
Lesotho+	Nonfarm Agent	23.54	22.84[b]
	Farmer	22.73	

Country	Nonfarm Agents/ Farmers	Market Orientation Score	
		Within country	Between countries
Uganda*	Nonfarm Agent	8.56	7.74[b]
	Farmer	7.62	
Kenya	Nonfarm Agent	7.48	7.55[b]
	Farmer	7.56	
Mali**	Nonfarm Agent	5.47	4.55[a]
	Farmer	4.41	
Lesotho	Nonfarm Agent	8.37	7.54[b]
	Farmer	7.42	

Agro-Eco Productivity Zones	Nonfarm Agents/ Farmers	Agrarian Orientation Score	
		Within Zones	Between Zones
Low Kenya/Uganda**	Nonfarm Agent	21.52	18.76[a]
	Farmer	18.23	
High Kenya/Uganda*	Nonfarm Agent	21.01	19.68[b]
	Farmer	19.45	
Mali**	Nonfarm Agent	21.29	22.70[c]
	Farmer	22.91	
Lesotho+	Nonfarm Agent	23.54	22.84[c]
	Farmer	22.73	

** differences significant at .001 level; * differences significant at .01 level; + differences significant at .10 level.

Agro-Eco Productivity Zones	Nonfarm Agents/ Farmers	Modern Technology Orientation Score	
		Within Zones	Between Zones
Low Kenya/Uganda**	Nonfarm Agent	11.97	10.45[b]
	Farmer	10.22	
High Kenya/Uganda	Nonfarm Agent	9.65	9.41[a]
	Farmer	9.37	
Mali**	Nonfarm Agent	7.39	10.89[c]
	Farmer	11.41	
Lesotho**	Nonfarm Agent	9.16	12.90[d]
	Farmer	13.44	

** differences at .01; different letters for differences between zones at a minimum of .05.

Agro-Eco Productivity Zones	Nonfarm Agents/ Farmers	Market Orientation Score	
		Within Zones	Between Zones
Low Kenya/Uganda	Nonfarm Agent	7.11	6.97[b]
	Farmer	6.94	
High Kenya/Uganda	Nonfarm Agent	8.75	8.26[d]
	Farmer	8.19	
Mali**	Nonfarm Agent	5.47	4.55[a]
	Farmer	4.41	
Lesotho	Nonfarm Agent	8.37	7.54[c]
	Farmer	7.42	

Thank you! Questions?