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Gender perspectives in estimation of rates and determinants of adoption of the Infection and Treatment Method of vaccination against East Coast fever among smallholder cattle keepers in Uasin-Gishu County, Kenya

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Outline

- **Introduction**
 - Background of the study
 - The research questions
- **Materials and methods**
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- **Conclusions and recommendations**

Background of the study

- Importance of dairy sector among smallholder cattle keepers- especially women-main source of income and milk
- Tick-borne disease poses a major threat to dairying systems in east

Africa region- Kenya , East Coast fever being of great significance

- Cattle mortality and morbidity (40 -80%)
 - Cost of vector control
 - forgone income from milk production
- } \$95 million annually in Kenya

- ITM introduced as the best-considered to be of multiple benefits:
 - reduce mortality rate due to ECF –less than 2%
 - Reduce cost of vector control- acaricide; among other benefits



Cont.....

- Gender blind approach was used in diffusion and dissemination of ITM after its commercialization in Kenya (year 2012)
- Exposure to ITM was not random –most of the targeted farmers got exposed because of prejudice by extension workers or researchers –due to their high probability of adoption ; this approach mainly targeted men
- The main interest is to get the potential demand of this vaccine ones it is fully disseminated in the population of interest –without any biases
- This study therefore aims at: estimating actual and potential uptake rates of ITM ; determine factors influencing ITM uptake among MHH and FHH



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Material and Methods

Why Uasin-gishu county?

- High prevalence of ECF-exotic dairy cattle breeds with weak immune systems to fight ECF
- ITM project target area in Kenya

Multistage sampling technique

- ITM exposed and non-exposed villages
- MHH selected based on proportional to size
- All FHH were considered for the study-they were fewer in number
- Total sample successfully surveyed MHH-298 while FHH-150
- Trained enumerators were used to collect primary data on household socio-economics, institutional and farm related characteristics

Data analysis: STATA program and Average Treatment Effect (ATE) framework



Key findings and discussion

Estimates of ITM adoption rates and adoption gaps among MHH and FHH in the year 2016-
ATE framework

Adoption estimator	MHH		FHH	
	Par.	Robust Std. Err.	Par.	Robust Std. Err.
Potential adoption rate (ATE) :	0.616***	0.032	0.314**	0.044
Adoption rate among exposed population (ATE1):	0.720***	0.026	0.422***	0.031
Adoption rates among non-exposed population (ATE0):	0.478***	0.042	0.223***	0.064
Joint exposure and adoption rates (JEA):	0.411***	0.015	0.194***	0.014
Adoption gap: GAP=ATE-JEA	-0.205***	0.018	-0.120***	0.034
Population Selection Bias (PSB):	0.103***	0.010	0.107***	0.029
Total Sample size	298		150	
Number of household heads aware of ITM	170		69	
Number of household heads adopting ITM	123		29	



Determinant of ITM adoption among MHH and FHH-ATE probit

Variables	MHH		FHH	
Dependent variable: Dummy for ITM adoption (1=treated)				
Independent Variables	Coef.	Rob Std. Err.	Coef.	Rob Std. Err.
Household characteristics				
Age of the HH (years)	-0.006*	0.012	0.003**	0.061
Education level of the HH (years of schooling)	0.031***	0.037	0.022***	0.010
Household size (numbers)	0.011	0.069	0.007*	0.028
Main occupation of the HH (1=farming)	0.054**	0.189	0.044*	0.146
Household wealth and farm characteristics				
Land-size (acres)	0.004	0.049	0.012**	0.093
Cattle herd size (numbers)	0.026**	0.058	0.023**	0.038
Breed- type (1=exotic)	0.010	0.341	0.055	0.097
Feeding- systems (1=zero grazing)	-0.075	0.182	-0.064	0.013
Main method of vector control (1=spraying)	0.070	0.049	0.086	0.143
Institutional and access related characteristics				
Group membership	0.097**	0.036	0.196***	0.075
Credit access	0.115**	0.029	0.136**	0.080
Number of contact with extension agents	0.177***	0.011	0.154**	0.087
Distance to the nearest water source (walking time in minutes)	0.005	0.082	0.015	0.234
Pseudo R ²	0.393		0.430	
LR Chi ²	78.840***		97.960***	



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Conclusions and recommendations

Conclusion

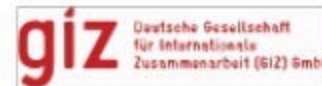
- **The actual and potential adoption of ITM is not gender neutral - mainly dominated by men**
- **Lack of ITM awareness and differences in socio-economic, institutional, and farm related characteristics between MHH and FHH are the main course of differences in ITM adoptions.**

Recommendations

- **There is need to introduce a well-structured gender inclusive awareness programmes in ITM dissemination.**

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