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# ICRISAT-ESA

## Tenacity of Gender Yield Gaps in Agricultural Development ; The Case of Smallholder Groundnut Productivity in Malawi

Presented by

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# Importance of Investigating the Gender Yield Gap

1. To highlight context-specific gender relations and roles that are shaping agricultural productivity.
2. Facilitates probing of specific factors/predictors causing productivity differentials between men and women.
3. Enables future agricultural interventions to strategize and prioritize areas of intervention.



# Research Questions

Is there a yield gap in agricultural productivity of groundnuts between men and women?

- I. What is the magnitude and how can it be characterized?
- II. What are the major factors/predictors responsible for the gap?
- III. What are the implications for development of interventions?



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# Conceptual framework

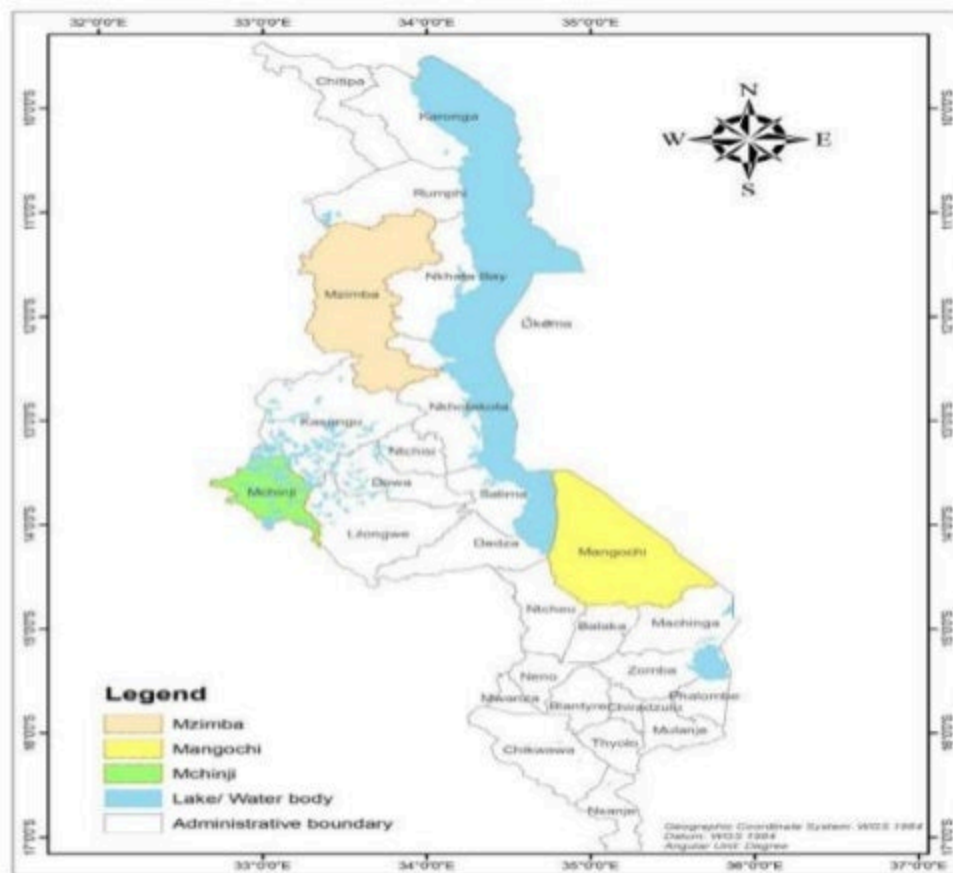


# Methodology

1. A multi-stage sampling method was used. First, the three districts were purposively sampled based groundnut producers in Malawi and kinship structures (one of the districts patrilineal while two of them matrilineal kinship structure).
2. A list of groundnut producing matrilineal and patrilineal households was prepared and a random sample of 181 (124 matrilineal and 57 patrilineal) was selected from the sample frame. (A total of 285 respondents were involved in the survey)
3. Sex-disaggregated data were analysed using STATA, MS Excel, and Statistical Package for Social Scientists (SPSS) softwares to acquire descriptive and inferential statistics.



# Research Sites

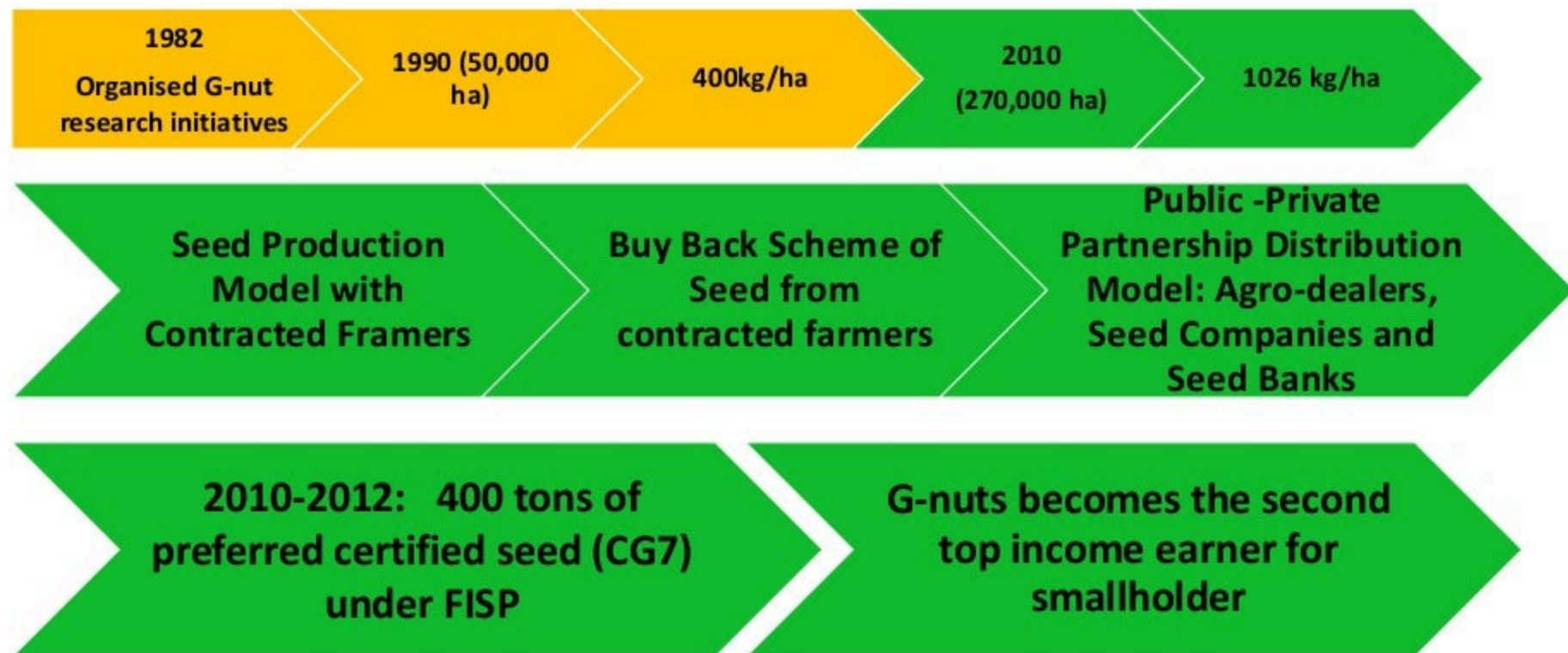


# Respondents Profile

	Districts	Mangochi (FMH)	Mchinji (FHH)	Mzimba (MHH)
<b>Respondents Biodata</b>	No. of villages	25	31	40
	No. of respondents	72	100	113
	Lineage system	Matrilineal	Matrilineal	Patrilineal
	Gender	Male: 0% Female: 100%	Male: 51% Female: 49%	Male: 52% Female: 48%
	Average age	37.1 years	45.5 years	47.2 years
	Ethnic tribes	Yao	Chewa	Tumbuka
<b>Education</b>	Average No of Years Schooling	5.97	13.31	9.52
<b>Land Sizes</b>	Average land sizes (ha)	0.342	0.404	0.270



# Synopsis of G-nut R&D in Malawi





# Selected Descriptives Based on Kinship Structure

Dependent Variable	Matrilineal (N= 168)	Patrilineal (113)	
	Mean	Mean	Mean Difference
Yields (kg/ha)	778.779	572.479	206.3***
High soil fertility (1=Yes; 0=No)	0.250	0.336	-0.086
Medium soil fertility (1=Yes; 0=No)	0.696	0.646	0.050
Low soil fertility (1=Yes; 0=No)	0.054	0.018	0.036
Plot size (ha)	0.349	0.278	0.070***
Male labour rate (hrs/ha)	414.477	603.008	-188.531***
Female labour rate (hrs/ha)	724.539	579.981	144.557**



# Selected Descriptives Based on Gender of Plot Manager

Dependent Variable	Male Managers (N=74)	Female Managers (N=152)	Jointly Managed (N=55)	
	Mean	Mean	Mean	F-Statistic
Yields (kg/ha)	623.334	682.786	829.360	1.653
Plot ownership (1= Yes ; 0=No)	0.486	0.737	0.509	9.145***
Male labour rate (hrs/ha)	520.982	382.361	747.280	12.833***
Female labour rate (hrs/ha)	464.798	793.829	585.514	10.629***



# Decomposition Results – Kinship Yield Gap

Yield differential (kg/ha)	Results		
Matrilineal households	449.054*** (46.760)		
Patrilineal households	308.130*** (53.264)		
Difference (kg/ha)	140.923* (0.294)		
<b>Difference (%)</b>	<b>36.661* (20.180)</b>	<b>36.6%</b>	
Decomposition share (%)			
Endowments	39.042 (0.455)		
Coefficients	165.414** (0.455)		
Interaction	-104.455 (0.286)		
Decomposition details:			
Predictors/Drivers	<b>Endowments</b>	<b>Coefficients</b>	<b>Interaction</b>
Soil fertility	-0.003 (0.030)	0.283** (0.140)	-0.072 (0.058)
Plot size	0.077 (0.081)	1.281** (0.549)	-0.208* (0.107)
Female labour	0.193 (0.147)	-8.861*** (1.695)	-0.212 (0.161)



# Drivers of the Kinship Yield Gap

- The analysis show that **soil fertility**, **plot size** and **female labour** are the significant factors determining the returns to resources (coefficients).
- Soil fertility and plot size are positively related with differences in the coefficients, female labour is negatively related to coefficients
- This implies that:
  1. Patrilineal households need to improve fertility on plots allocated for groundnuts
  2. Increase plots and plot-size allocated for groundnuts
- An interplay of how kinship structures govern rights of access to and control of resources and culturally engender crop enterprises.
  1. patrilineal households cultivate groundnut on poorly fertile and small plots compared to their matrilineal households
  2. Groundnuts is not a key cash crop in patrilineal households thus, female labour is less efficient is mainly allocated to groundnut plots.

# Decomposition of the Gender Yield Gap

Yield differential (kg/ha)	Matrilineal Kinship		
Female managed plots	348.266*** (52.033)		
Male managed plots	570.546*** (85.431)		
Difference (kg/ha)	-222.280** (0.129)		
<b>Difference/gap (%)</b>	<b>49.362** (0.212)</b>	<b>49%</b>	
<b>Decomposition</b>			
<b>Variable</b>	<b>Endowments</b>	<b>Coefficients</b>	<b>Interaction</b>
<b>Total</b>	-4.743*** (1.493)	0.871 (0.956)	3.378* (1.765)
<b>Share in total gap (%)</b>	960.907	-176.540	-684.367
<b>Decomposition details:</b>			
<b>Plot ownership</b>	-0.768** (0.335)	0.260* (0.151)	1.145** (0.517)
<b>Male labour</b>	-3.060** (1.335)	-7.106** (2.827)	3.280** (1.350)



# Drivers of the Gender Yield Gap in Matrilineal Contexts

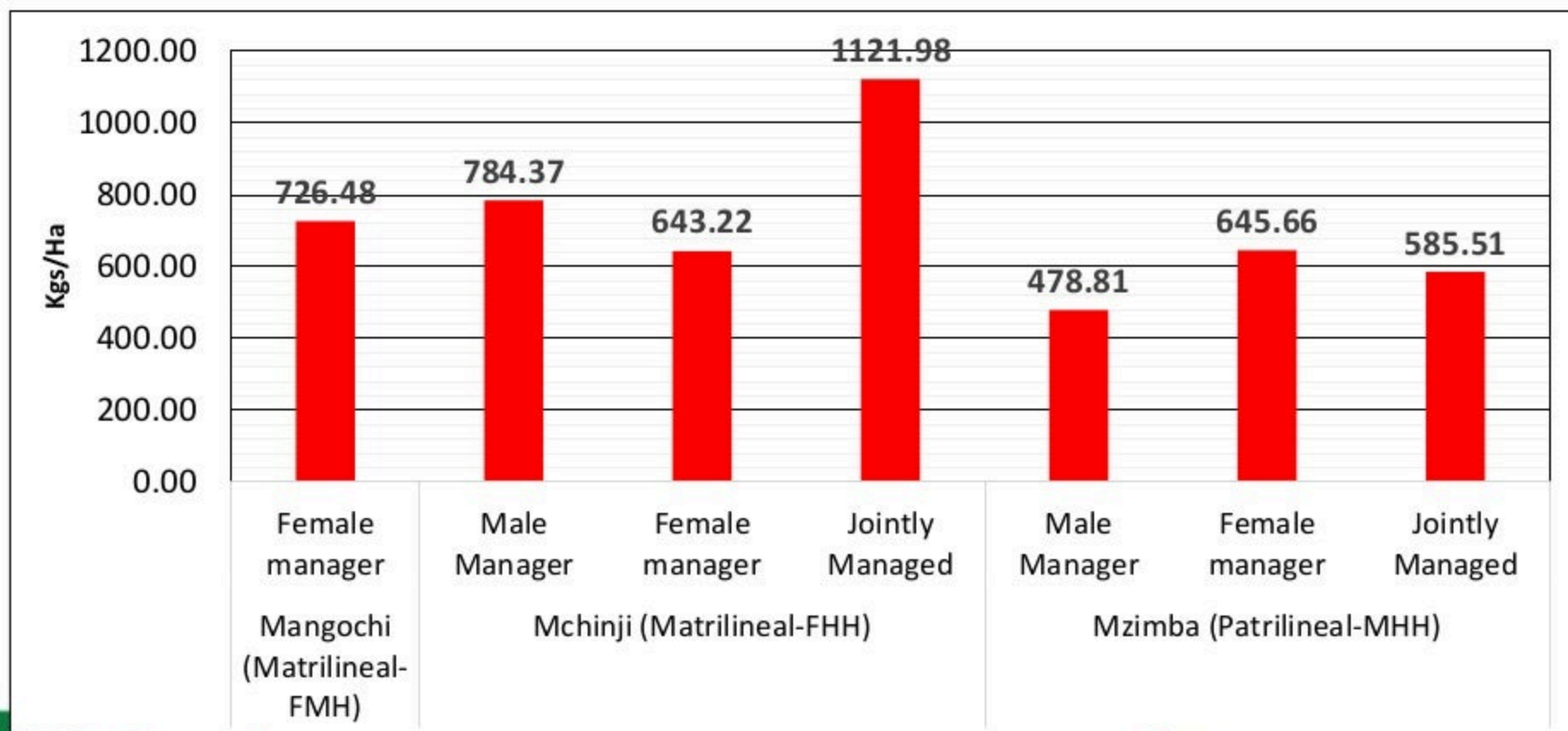
1. The factors that significantly affect the endowment source of the gender yield gap in matrilineal households are the plot ownership and male labour force used in the plot.
2. These two factors are negatively related to the endowment source i.e. they are likely to reduce the endowment contribution to widening gender yield gap.
3. Therefore, closing the gender yield gap in these matrilineal households requires increasing the productivity of female managed plots through strategies to increase female labour efficiency and equity in security of land tenure.

# Drivers of the Gender Yield Gap in Patrilineal Contexts

Yield differential (kg/ha)	Patrilineal Kinship		
Female managed plots	345.737***(105.924)		
Male managed plots	198.542***(75.343)		
Difference (kg/ha)	147.195(0.849)		
<b>Difference/gap (%)</b>	<b>55.468 (48.771)</b>	<b>55%</b>	
Decomposition			
Variable	<b>Endowments</b>	<b>Coefficients</b>	<b>Interaction</b>
Total	-1.569 (1.092)	0.866 (1.578)	1.258 (1.866)
Share in total gap (%)	-282.901	156.043	226.858
Decomposition details:			
Plot ownership	-0.481 (0.459)	-0.984 (0.849)	0.635 (0.559)
Male labour	0.038 (0.130)	1.107 (5.257)	-0.018 (0.099)



# Gendered Productivity by Kinship, Plot Manager and Districts





## Conclusions

1. The findings indicate that there are two types of yield gaps that exist a kinship yield gap of 36% and a gender yield gap of 49%.
2. The results also show that significant drivers of the kinship yield gap are (soil fertility, plot size and female labour efficiency), and the gender gap (land ownership and male labour efficiency).
3. kinship structures shape household headship which in turn uniquely shapes access to and control of resources, and thus, women's and men's agency, which further influences yield differentials.
4. Feminisation of agriculture in the southern region is on the rise with the high out-migration of men to South Africa for wage-work as they escape from their roles and status ascribed by matrilineal customs.
5. An untapped youth dividend exists in all study areas.



# Implications for Development Interventions

## ➤ *Rationalising of development interventions based on local realities*

1. Understanding of local realities, structures, opportunities and constraints that rural contexts offer is a prerequisite for rationalising agricultural development interventions.
2. The gender system both contexts uncovers the gender-specific and gender-intensified constraints (Kabeer 2010) that the study posits are systemic components that are more resistant to change.
3. There is an urgent need for policies, strategies and investments into partnerships that can harness the untapped youth dividend across the agricultural value chains.