Livestock Farming, Maize Production and Maternal Anemia in Malaria Endemic Rural Low-income Setting

Taddese A Zerfu, MPH, PhD

Post Doctoral Research Scientist
Maternal and Child WellBeing (MCW) Unit
African Population and Health Research Center

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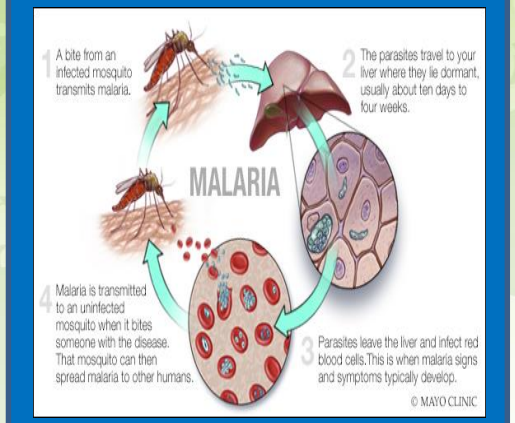


Introduction
Objectives

Methods

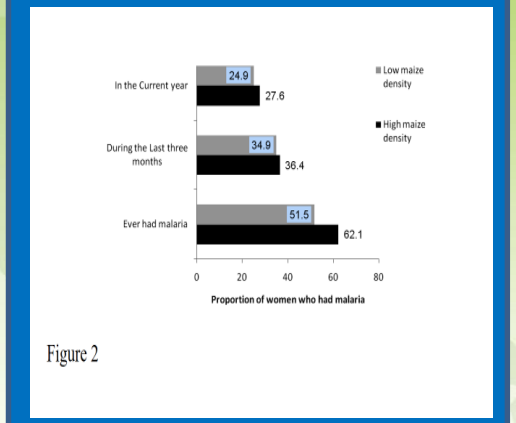


Figure 2

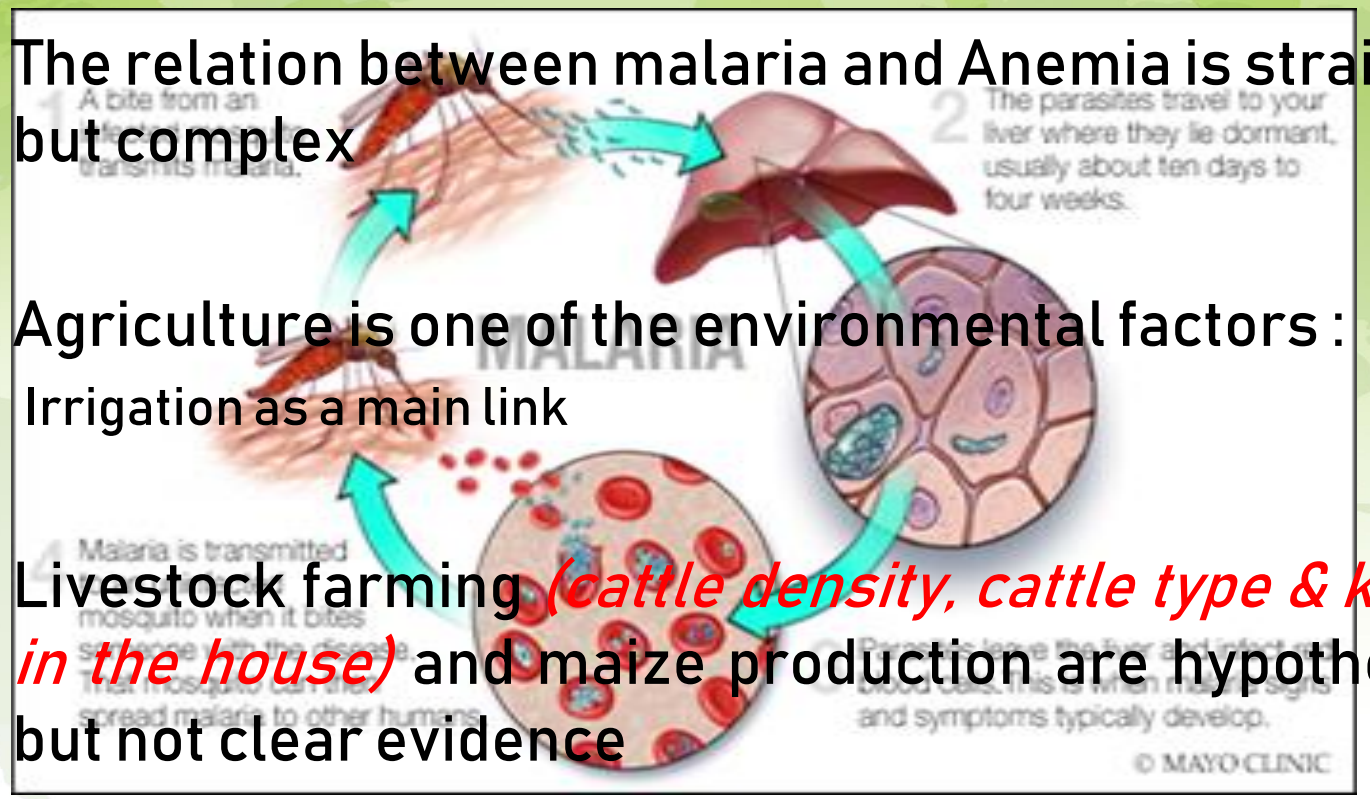
Findings

219 Million cases of Malaria

200 million (92%)

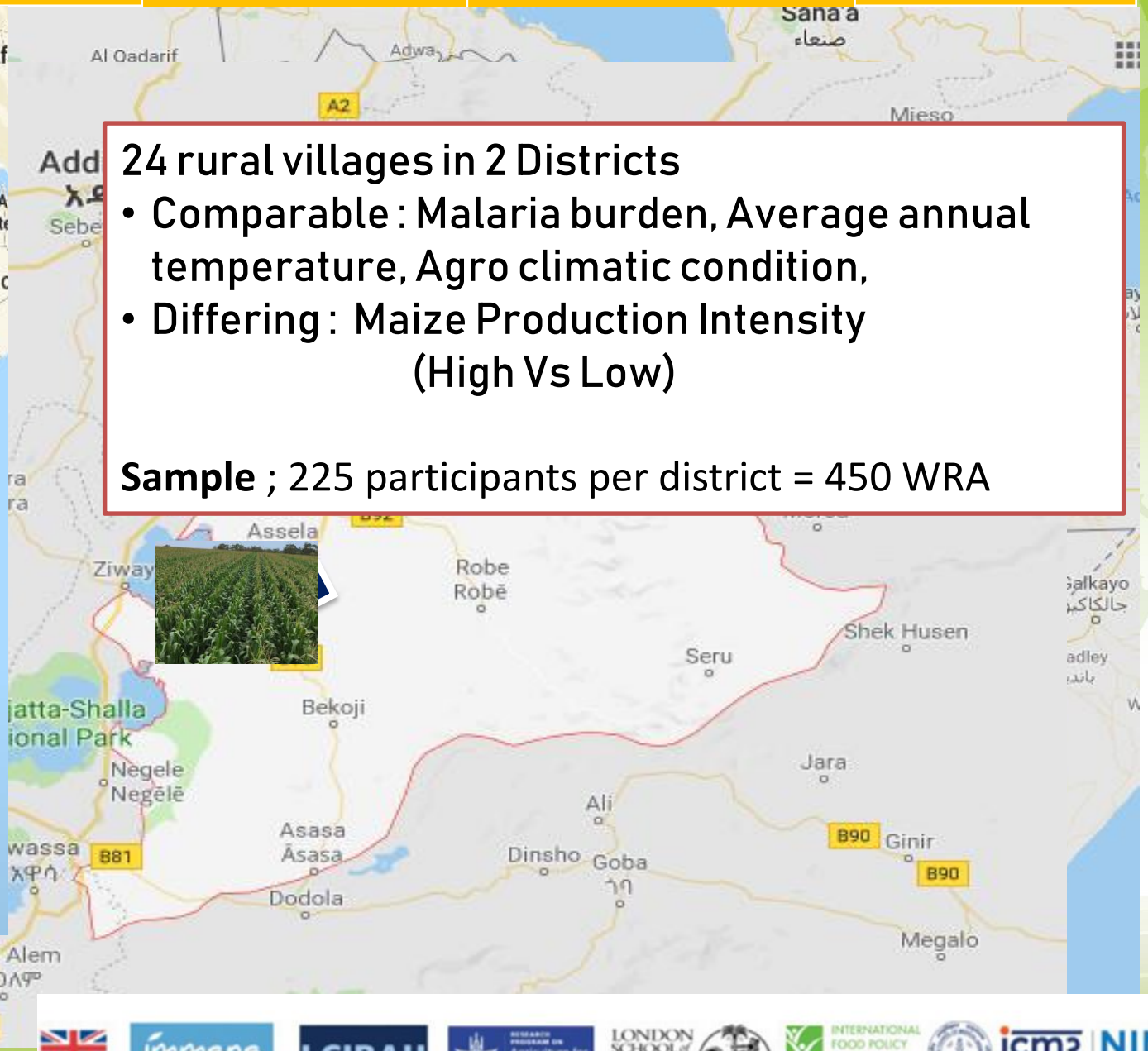
Moderate
Low
Very Low
No data
None

- The relation between malaria and Anemia is straight, but complex



- Agriculture is one of the environmental factors :
  Irrigation as a main link
- Livestock farming *(cattle density, cattle type & keeping in the house)* and maize production are hypothesized, but not clear evidence

Investigate the relationship between **agricultural practices**, [maize production & livestock farming], with risk of **malaria mediated anemia** among women of reproductive age in rural Ethiopia.



24 rural villages in 2 Districts

- Comparable : Malaria burden, Average annual temperature, Agro climatic condition,
- Differing : Maize Production Intensity (High Vs Low)

Sample ; 225 participants per district = 450 WRA

APHRC

A glob

and action

Design : Cross-sectional Comparative

Data Collection & Handling

- Trained nurses and health officers
  - Anthropometric measurements
  - Questionnaire
  - HemoCue photometer

- **Data Analysis**
  - STATA 14 statistical software

Table 1: Selected socio-demographic and anthropometric characteristics.

Maternal characteristic	High maize intensity, n (%)	Low maize intensity, n (%)	Total n (%)
Total households, n (%)	214 (48.3)	229 (51.7)	443 (100)
Age (years)			
15 -29	166 (72.5)	151 (70.9)	318 (71.7)
30 -44	58 (25.3)	52 (24.4)	110 (24.9)
45-49	5 (2.2)	10 (4.7)	15 (3.4)
Educational Status			
Unable to read & write	90 (42.1)	82 (35.8)	172 (38.8)
Primary education	94 (43.9)	119 (52)	213 (49.1)
Secondary education	28 (13.1)	26 (11.4)	54 (12.2)
Tertiary education	2 (0.9)	2 (0.9)	4 (0.9)
MUAC (cm)			
< 21	25 (11.7)	34 (14.8)	59 (13.3)
21 -23	65 (30.4)	91 (39.7)	156 (35.2)
> 23	124 (57.9)	104 (45.4)	228 (51.5)
Land size (Hectares)			
< 1	157 (75.5)	178 (77.7)	335 (76.7)
1 - 2	43 (20.7)	41 (17.9)	84 (19.2)
> 2	8 (3.8)	10 (4.4)	18 (4.1)

Figure 1: Malaria experience (Lifetime, Recent and Current) of WRA.

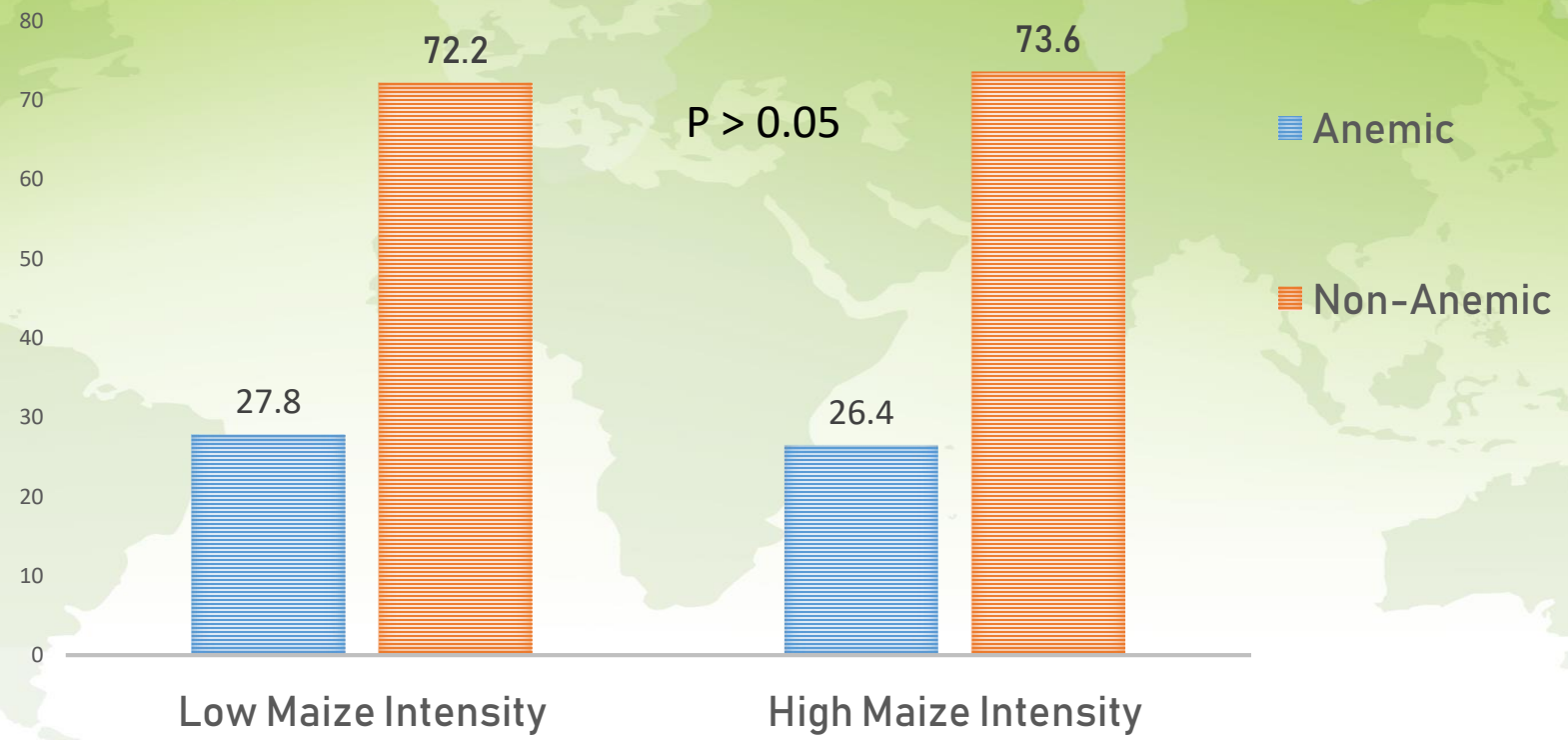


Figure 1: Maize production intensity & anemia status among high versus low maize producing villages

Table 2: Mean Hgb concentration by maize production intensity & Livestock ownership.

Livestock **Ownership**	**No (%)**	Hemoglobin level (Mean ± SD)	**P - value***
Maize production intensity			
High	214 (49.4)	13.59 ± 1.39	0.19
Low/No	229 (50.6)	13.39 ± 1.65	
Women (Household) have:			
Livestock (at least one)	**368 (84.9)**	**14.03 ± 1.16**	**0.02***
Yes	**74 (15.1)**	**13.37 ± 1.68**	
No			
Cow			
Yes	253 (53.6)	13.62 ± 1.73	0.30
No	180 (46.4)	13.27 ± 1.49	
Ox (Oxen)			
Yes	276 (63.7)	13.47 ± 1.65	0.79
No	156 (46.3)	13.51 ± 1.57	
Chicken			
Yes	**180 (41.6)**	**13.76 ± 1.21**	**0.00***
No	**255 (58.4)**	**13.09 ± 2.01**	
Sheep/goat			
Yes			

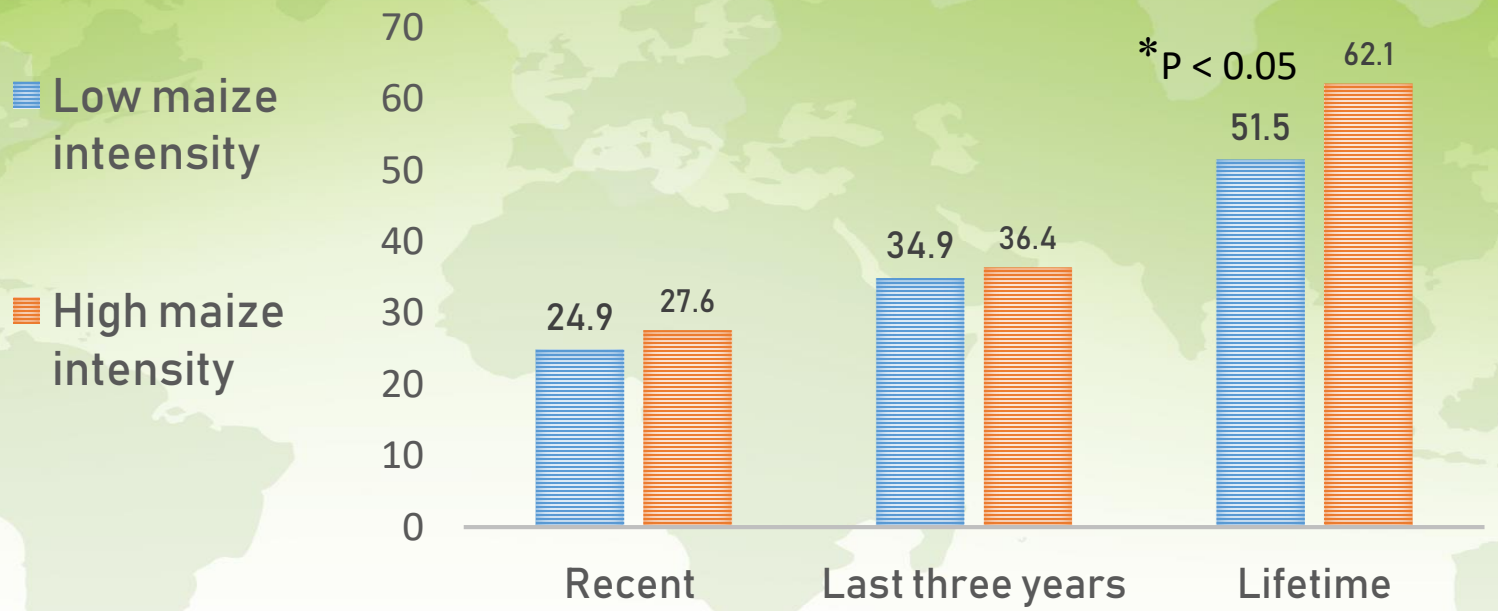


Figure 2: Maize production intensity and malaria experience by maize production intensity among WRA.

Summary

- Ownership of **at least one livestock** in the HH; particularly **chicken**, was associated with a **higher mean hemoglobin** concentration, and **lower anemia risks.**

- Unlike presence of stronger hypothesis by scientists in the field, we did **not find association** between maize production intensity and malaria risks.

- Wide scale nutrition, agricultural and health studies integrated with nutrition and health outcomes are needed to support our findings.

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I THANK YOU

Taddese Alemu Zerfu; PhD

Post-Doctorial Research Scientist

Maternal and Child Wellbeing (MCW) Unit
African Population and Health Research Center (APHRC)

Nairobi, Kenya

taddese.alemu1

Tel : +254731809099

tadalzerfu@gmail.com