

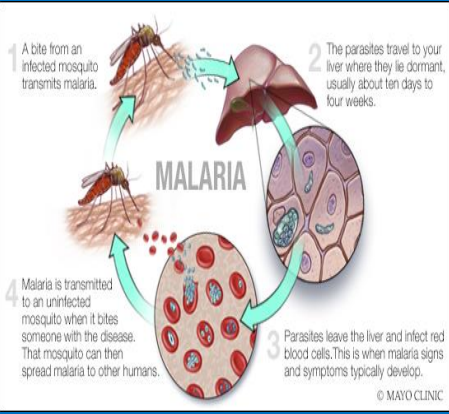
Livestock Farming, Maize Production and Maternal Anemia in Malaria Endemic Rural Low-income Setting

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Contents



The diagram illustrates the malaria transmission cycle with four numbered steps: 1. A bite from an infected mosquito transmits malaria. 2. The parasites travel to your liver where they lie dormant, usually about ten days to four weeks. 3. Parasites leave the liver and infect red blood cells. This is when malaria signs and symptoms typically develop. 4. Malaria is transmitted to an uninfected mosquito when it bites someone with the disease. That mosquito can then spread malaria to other humans. The word 'MALARIA' is written in the center of the cycle. © MAYO CLINIC

Introduction Objectives



Methods

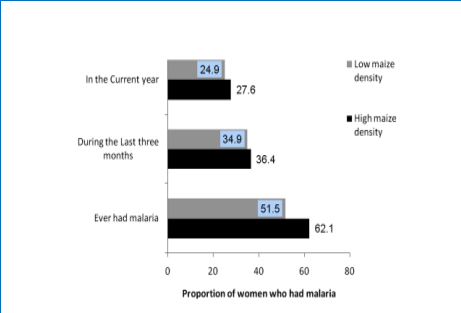
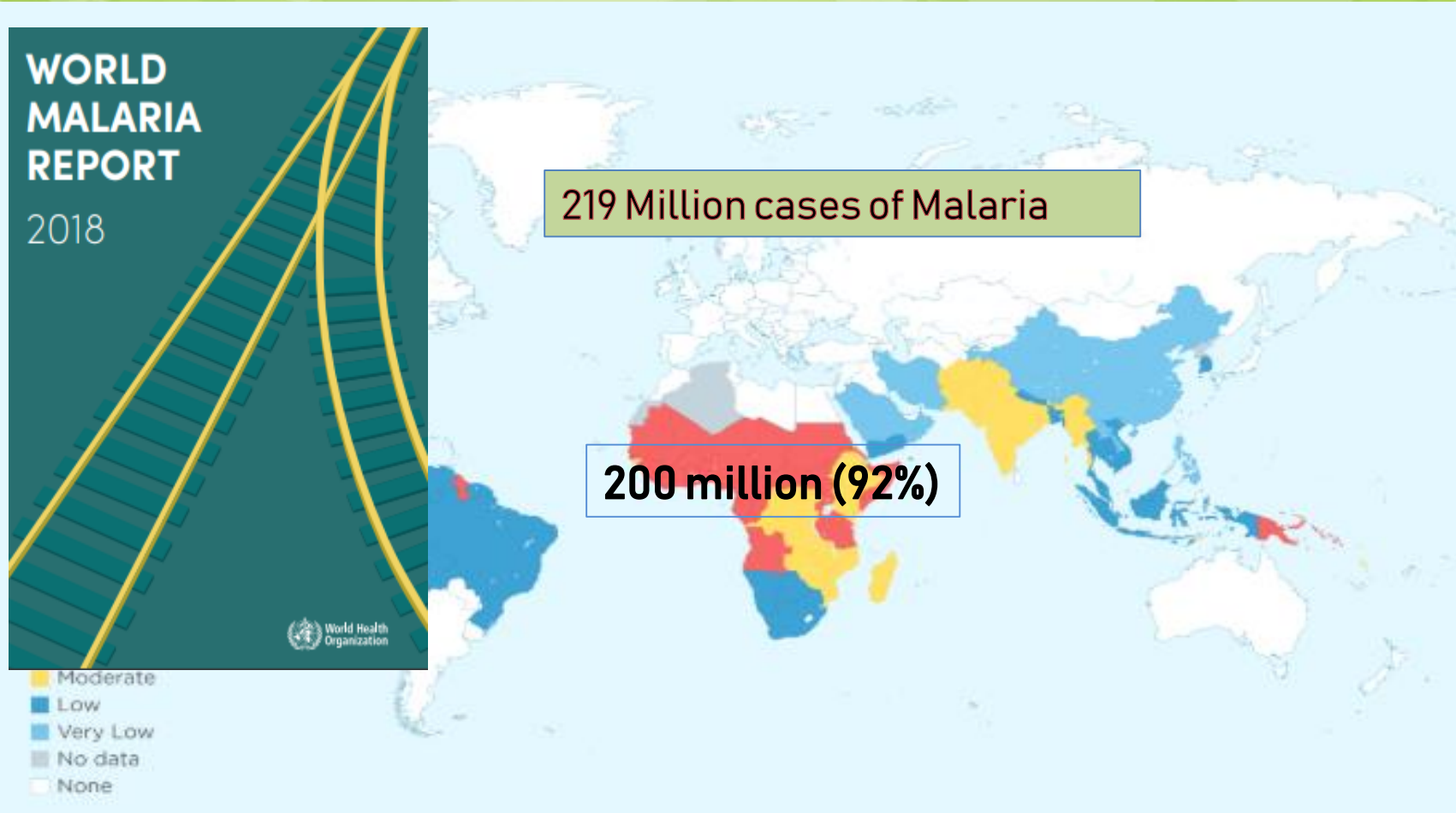


Figure 2

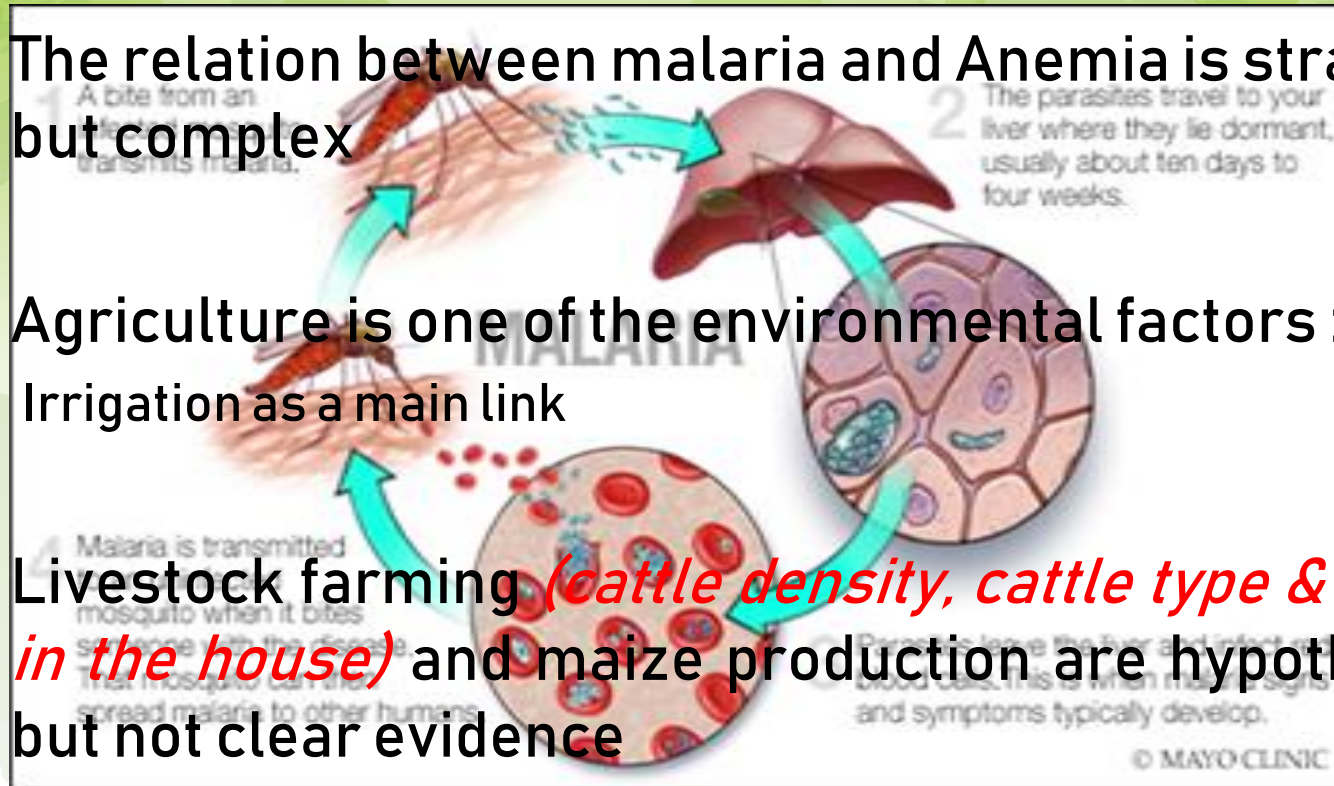
Time Period	Low maize density	High maize density
In the Current year	24.9	27.6
During the Last three months	34.9	38.4
Ever had malaria	51.5	62.1

Findings





- 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.

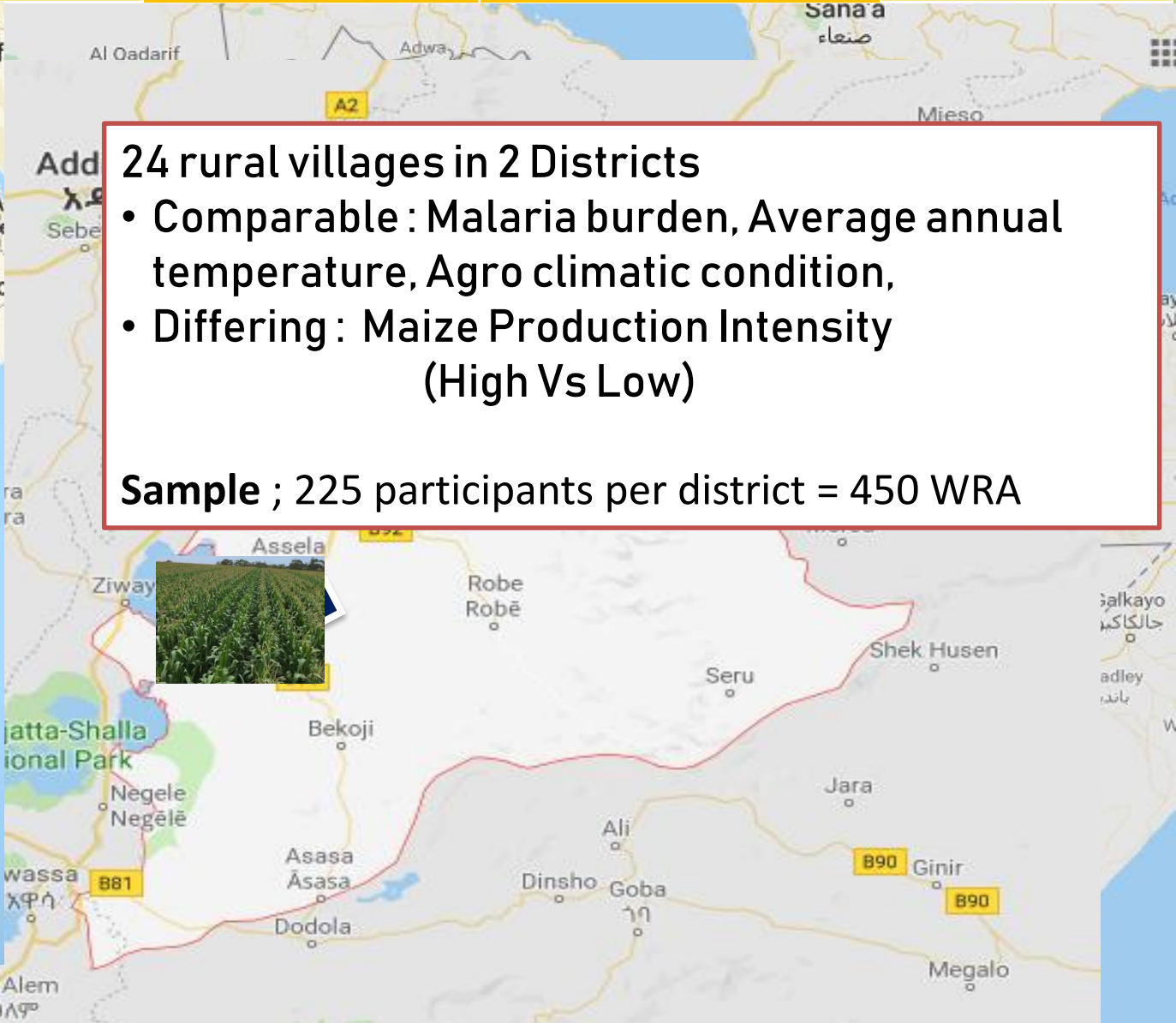




24 rural villages in 2 Districts

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

Sample ; 225 participants per district = 450 WRA



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)



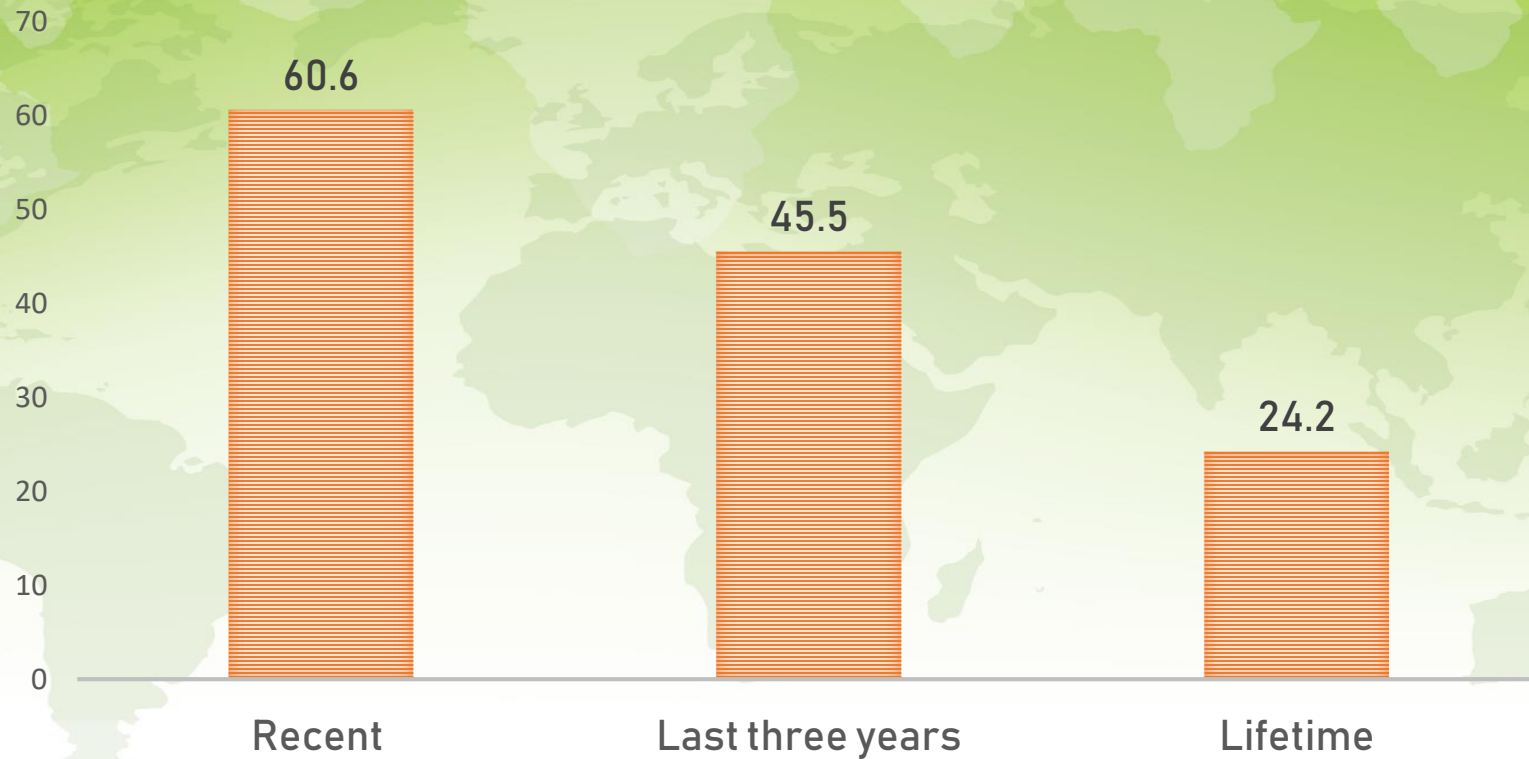


Figure 1: Malaria experience (Lifetime, Recent and Current) of WRA.



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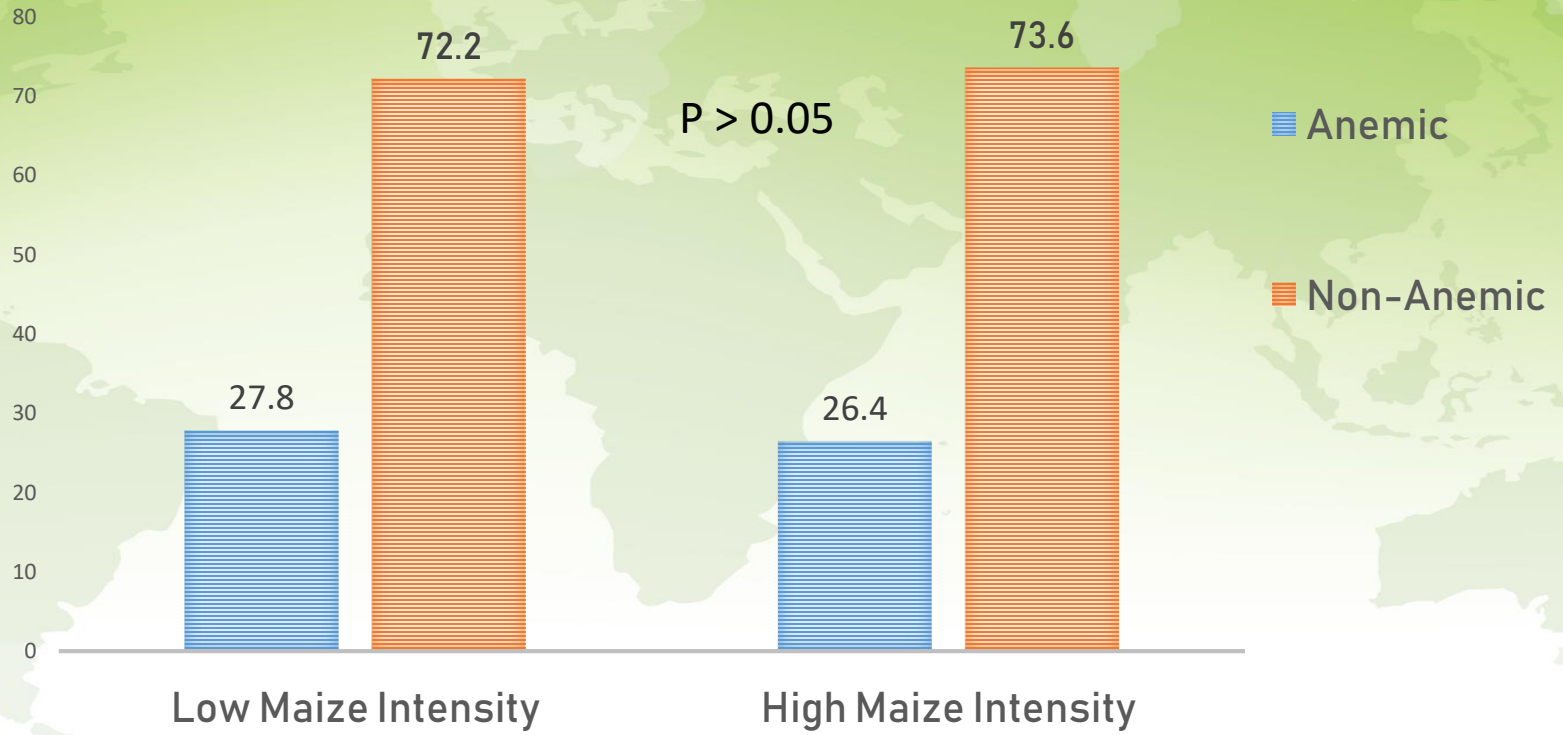


Figure 1: Maize production intensity & anemia status among high versus low maize producing villages



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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)			
Yes	74 (15.1)	13.37 ± 1.68	0.02*
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	



Low maize intensity
High maize intensity

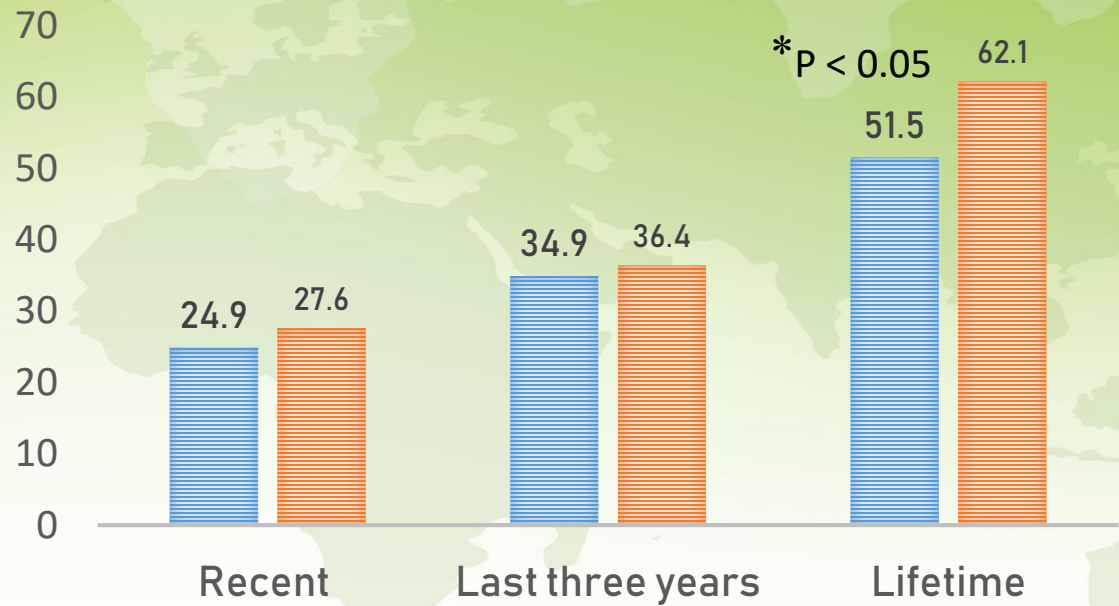


Figure 2: Maize production intensity and malaria experience by maize production intensity among WRA.



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

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