



# Impacts of *Shamba Maisha* Agricultural and Finance Intervention on Agricultural Production and Nutritional Status for Kenyans Living with HIV

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## Introduction

- Climate change may compromise HIV health through negative impacts on agriculture, food security, and nutrition.
- Only 4% of arable land in Africa is irrigated compared to >40% in Asia.
- Irrigation has the potential to radically improve agricultural production in Africa.
- We hypothesize that a climate-responsive agriculture and finance intervention could enable smallholder farmers living with HIV in climate-affected regions (unpredictable and heavy rain, flooding, rising temperatures and more frequent and severe droughts) to improve their agricultural production, dietary quality, and nutritional status.

## About *Shamba Maisha*

- A cluster randomized control trial testing the effects of an agriculture and finance intervention on HIV health, agriculture productivity, and nutritional status of people living with HIV (PLHIV) in rural Nyanza Province, Western Kenya (2016-2019).
- 366 intervention (344 completed study) and 354 control participants (333 completed study) were enrolled (55% women, 45% men).

## Intervention

- Bank loan to purchase farming commodities**  
KickStart MoneyMaker irrigation treadle pump, fertilizer, pesticides, climate-adaptive seeds
- Farmer training**  
Entrepreneurial, sustainable, climate-adaptive
- Financial training**  
Saving methods, investing, record keeping



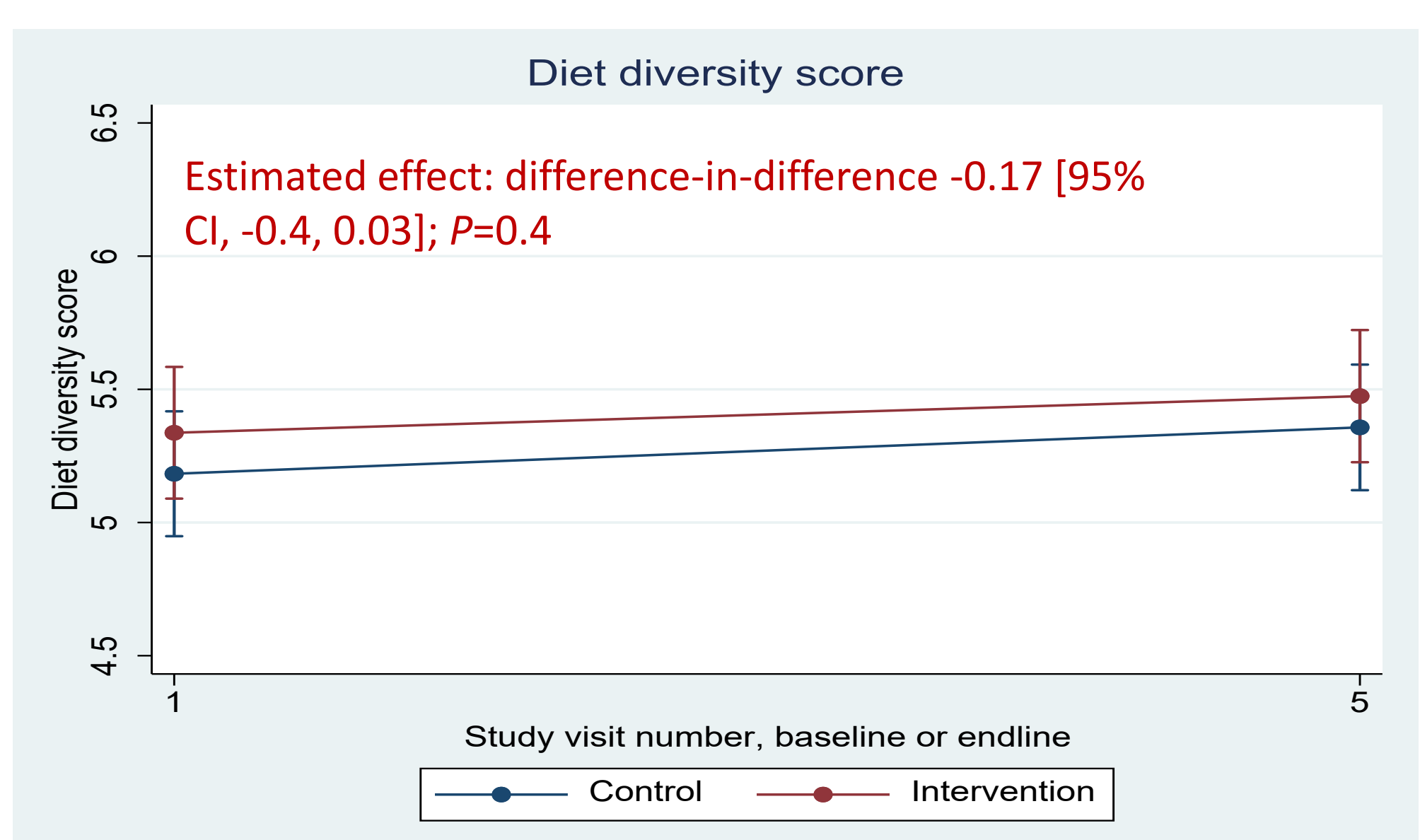
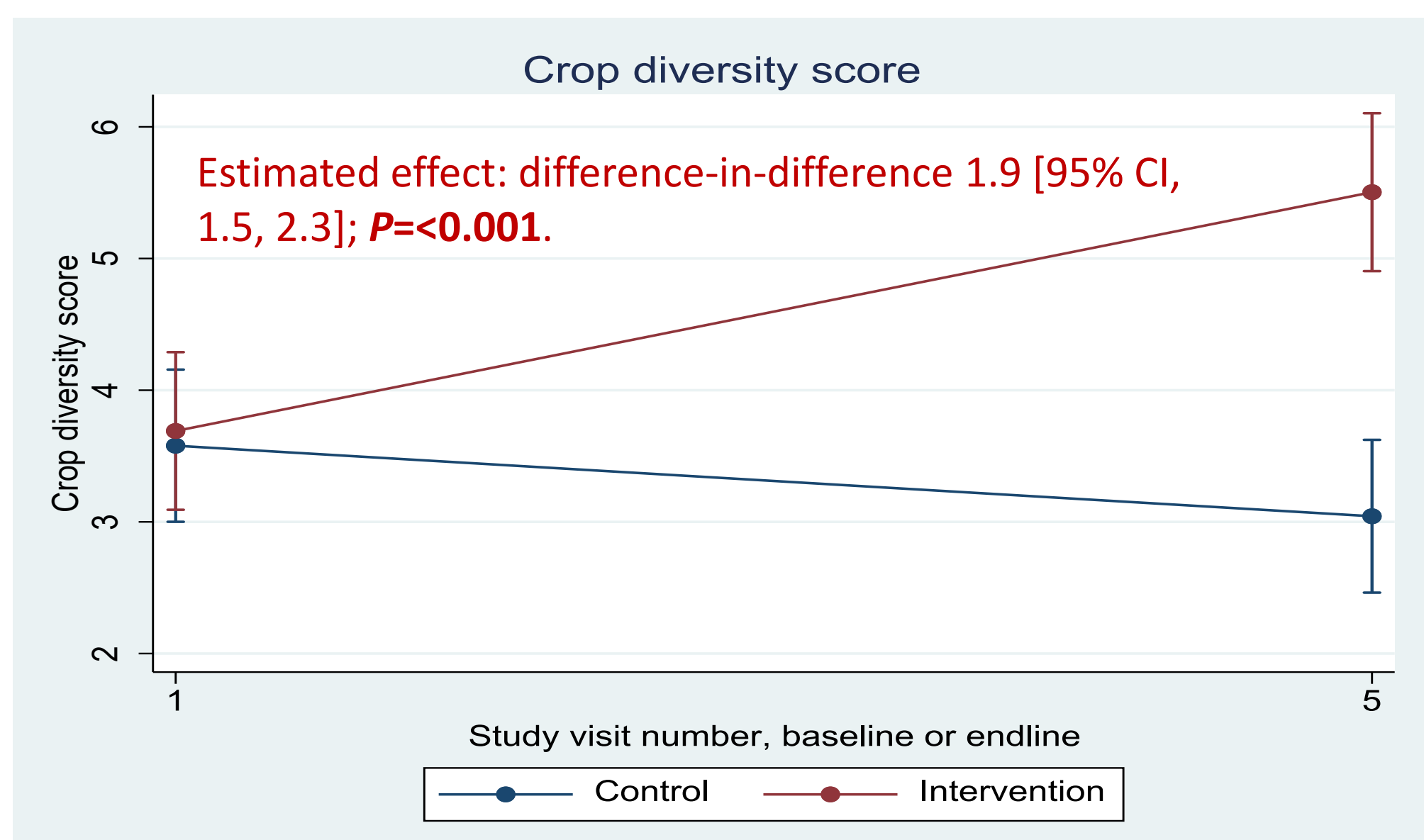
- Qualified participants had access to shallow well or surface water.
- Training took place during first 3 months of enrollment.
- Surveyed at enrollment and every six months for 24 months.

## Methods

- Intent-to-treat (ITT) analysis using difference-in-difference linear and logistic regression.

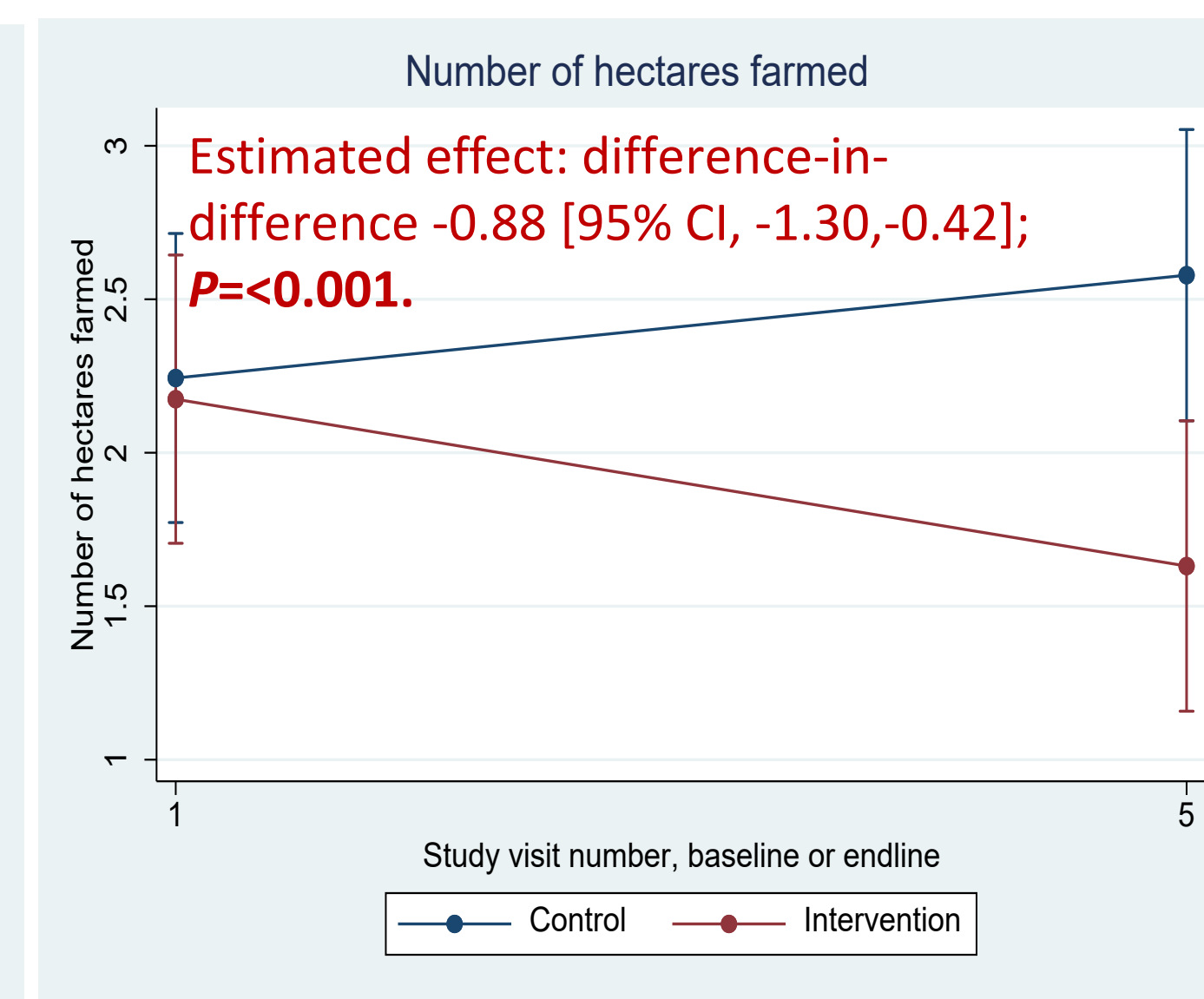
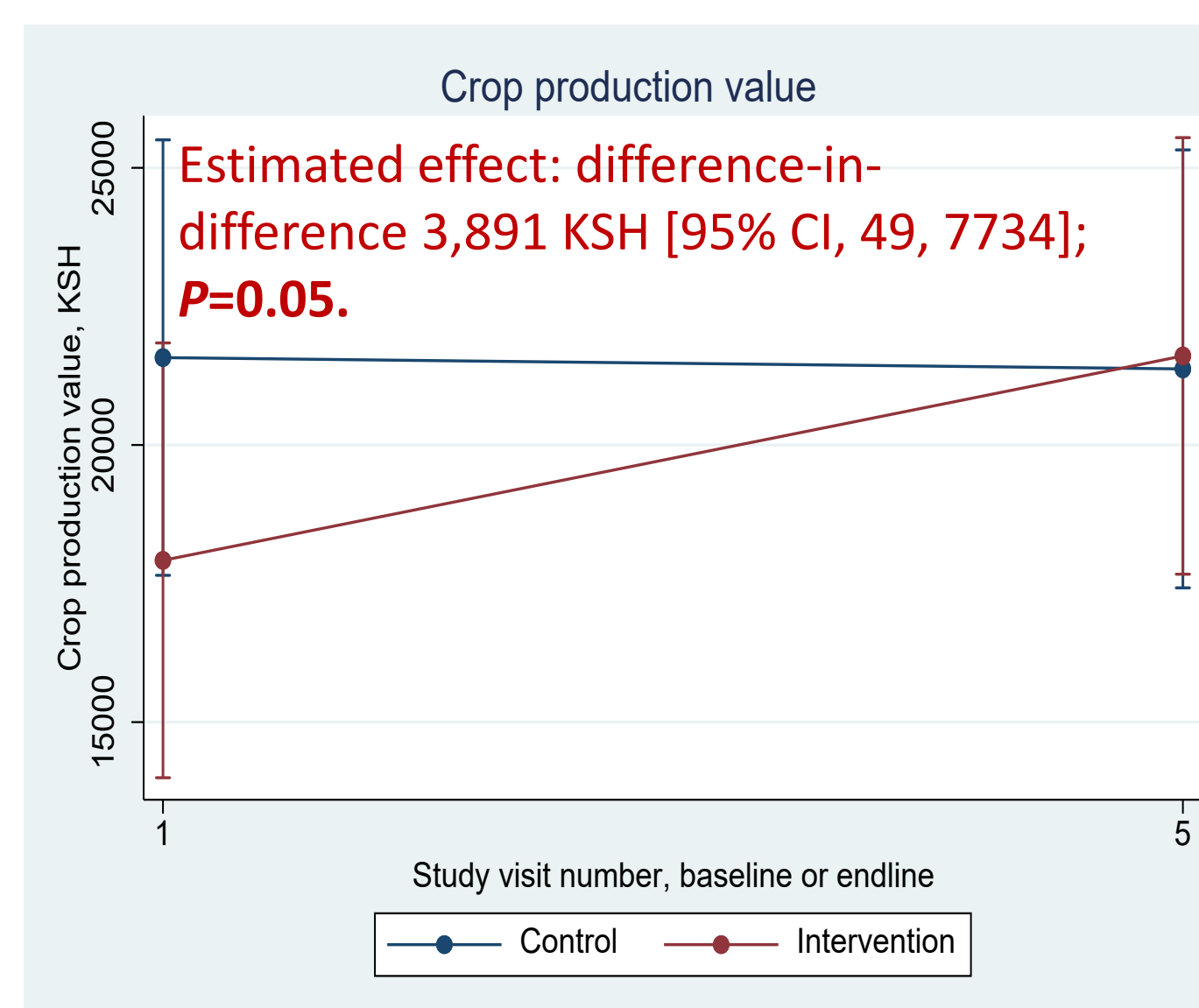
## Results

PRIMARY OUTCOMES



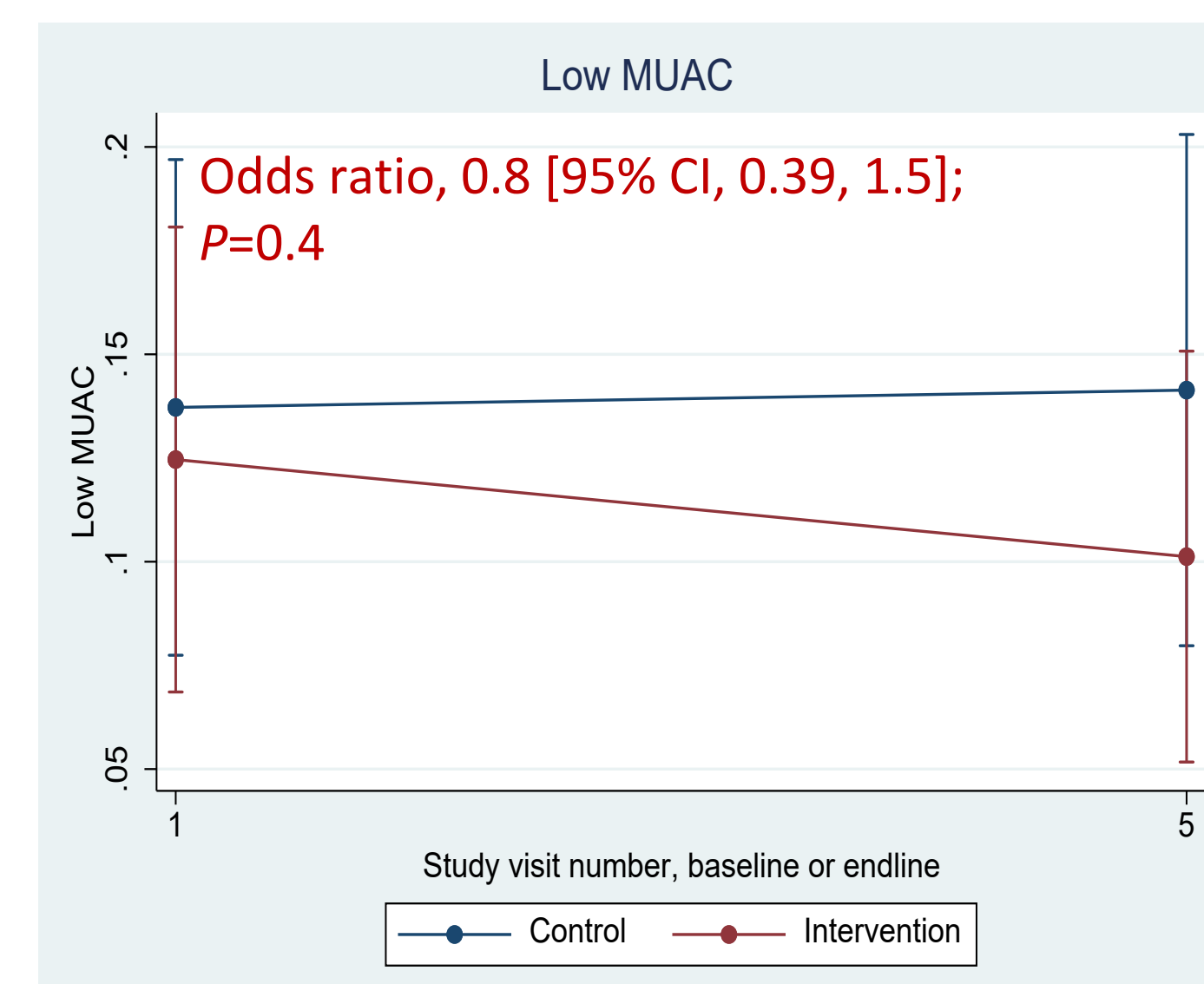
## Results continued

### SECONDARY OUTCOMES



### IMPACTS OF INTERVENTION

- Earned more money from crops.
- Grew more different types of crops.
- Used less land to earn more and grow more diverse crops.



## SUB-GROUPS ANALYSES

Sub-group analysis	Outcome and subgroup	Mean difference-in-difference	95% CI	P value
Per-protocol*	Crop diversity	2.3	1.9, 2.8	<0.001
	Dietary diversity	-0.04	-0.26, 0.19	0.75
Crop diversity stratified by season and sex	Season			
	Rainy	1.8	1.4, 2.2	<0.001
	Dry	1.9	1.6, 2.3	<0.001
	Sex			
	Women	1.7	1.2, 2.3	<0.001
	Men	2.2	1.6, 2.8	<0.001
Dietary diversity stratified by season within sex**	Women			
	Rainy	-0.72	-1.3, -0.14	0.01
	Dry	-0.26	-0.68, 0.16	0.22
	Men			
	Rainy	-0.12	-0.77, 0.52	0.7
	Dry	0.04	-0.41, 0.45	0.89

### OUTCOMES

- Crop diversity increased:**
  - \*Attending at least 6 of 8 agriculture and 1 of 2 finance trainings.
  - During both seasons.
  - For both sexes.
- Diet diversity decreased**
  - For women during rainy season
  - \*\*Dietary diversity stratified by season within sex is an exploratory analysis.

## Implications

- Shamba Maisha* could act to boost climate resilience for farmers living with HIV in climate-affected regions.
- Using less land while improving production and income could help PLHIV reduce high-energy labor needed for farming.
- Reduced diet diversity for women in the rainy season requires in-depth inquiry to understand why and how the reduction occurred and how to adjust the intervention to prevent the reduction in the future.

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