



# Soybean Innovation Lab

*Feed the Future Innovation Lab for  
Soybean Value Chain Research*

## What Numbers Tell Us (or Don't) about Men and Women Farmers in Rural Ghana: WEAI+ Preliminary Results

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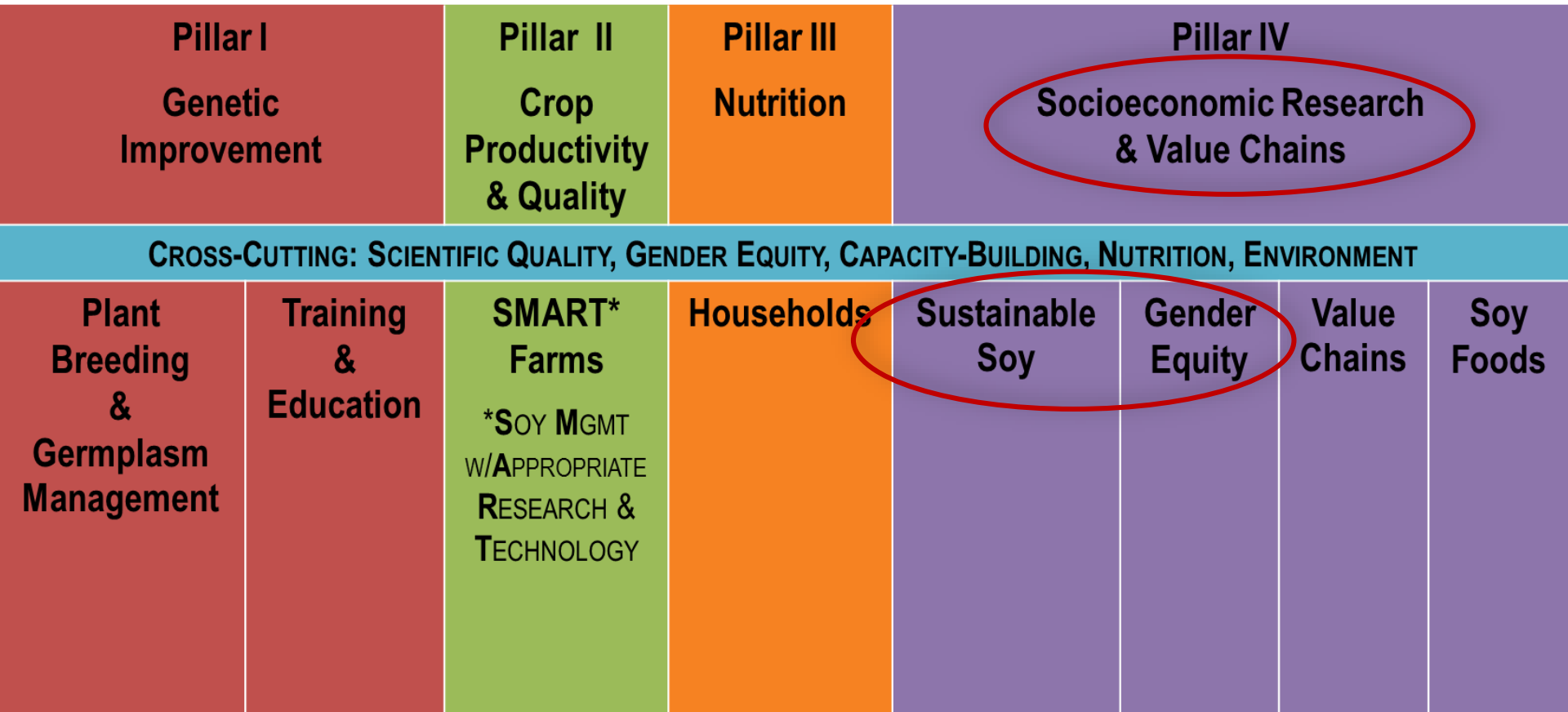




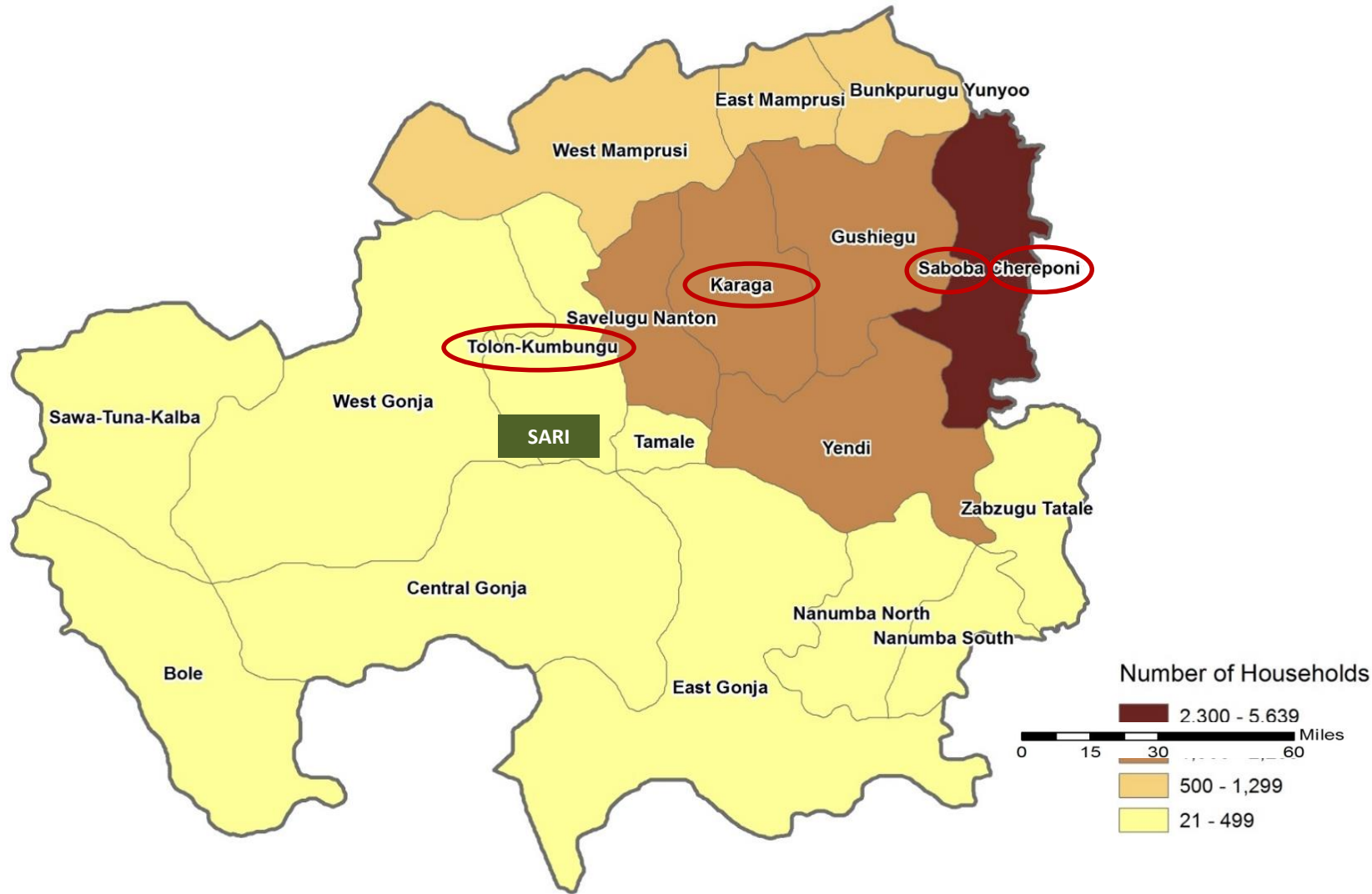
# WEAI + Baseline Survey Preliminary Results

# FTF Soybean Innovation Lab (SIL)

## Four Research Pillars



# Household Soy Cultivation in Ghana's Northern Region, 2010



# WEAI+ Baseline: May 2014

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- ◆ Women's Empowerment in Agriculture Index (WEAI) + Soy Modules = **WEAI+**
- ◆ Administered WEAI+ to **675 men and women farmers** in Ghana's Northern Region over three weeks in 2014



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# WEAI+ Community Mobilization



“ *directly captures women’s empowerment and inclusion levels in the agricultural sector*

— *Feed the Future, 2014*



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**FEED THE FUTURE**  
The U.S. Government's Global Hunger and Food Security Initiative



“ *empowering women farmers with the*  
***same access to land,***  
***new technologies and***  
***capital*** *as men can increase*  
*crop yields by as much as 30 percent*

— USAID, 2015



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# WEAI: Women's Empowerment in Agriculture Index

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- ◆ WEAI collects data on **male** and **female HH Heads**
- ◆ Construct **composite measure of empowerment**
- ◆ WEAI allows us to compare a person's empowerment
  - ...vis-à-vis that of their spouse
  - ...across communities
  - ...AND across countries

# WEAI: Five Domains of Empowerment (5DE)

Domain	Indicators
Production	Input in productive decision-making
	Autonomy in production
Resources	Ownership of assets
	Purchase, sale, or transfer of assets
	Access to and decisions on credit
Income	Control over use of income
Leadership	Group member
	Speaking up in public
Time	Workload
	Leisure

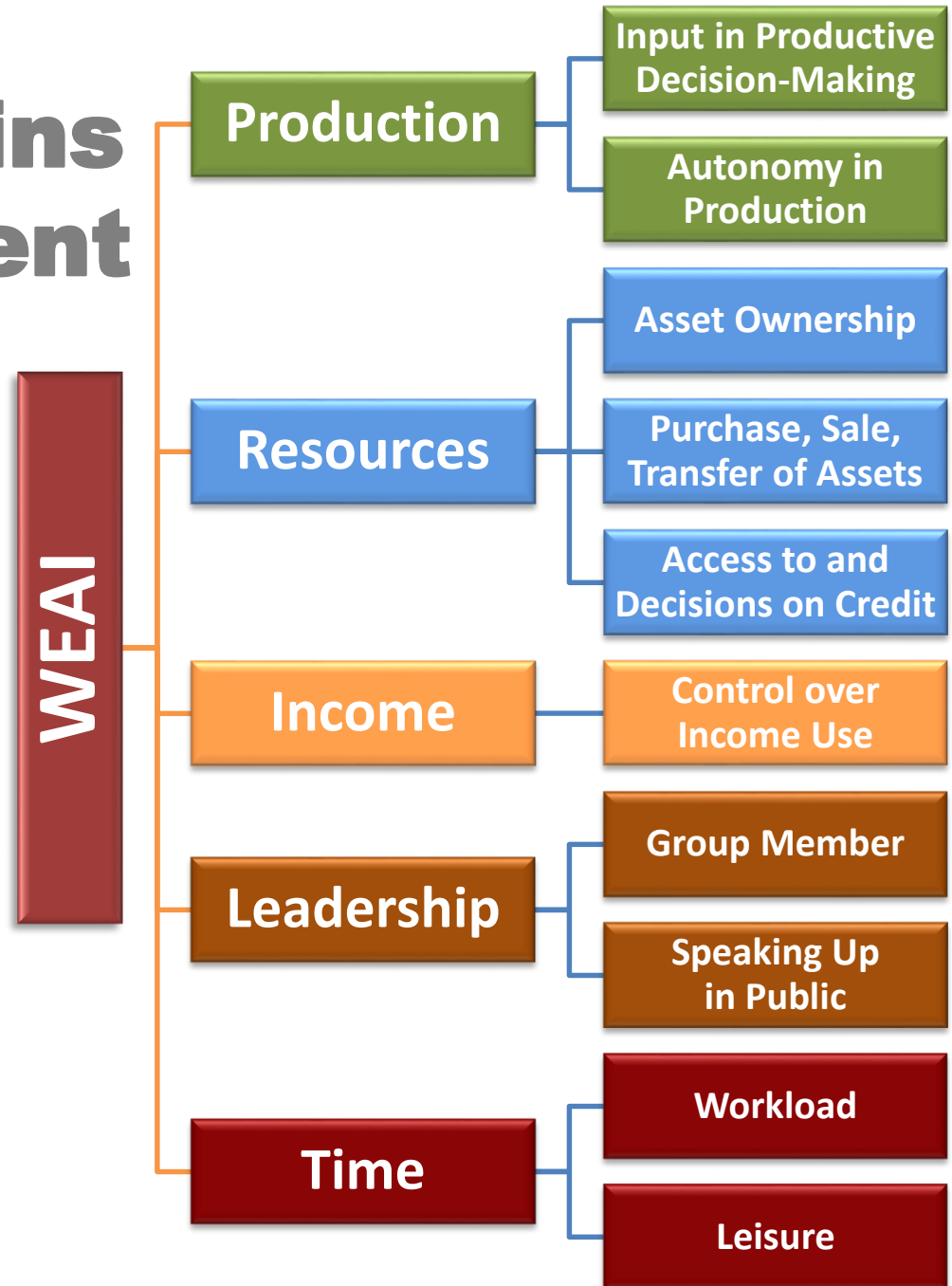
# WEAI+ GH YR1: Demographics (N=675)

Demographics	M % (342)	F % (333)
Gender	50.7	49.3
Married	87.4	92.8
Dual-adult HH; married couple	94.7	92.8
Primary HH religion is Islam	66.0	70.2
Less than primary education (or no school)	83.5	87.6



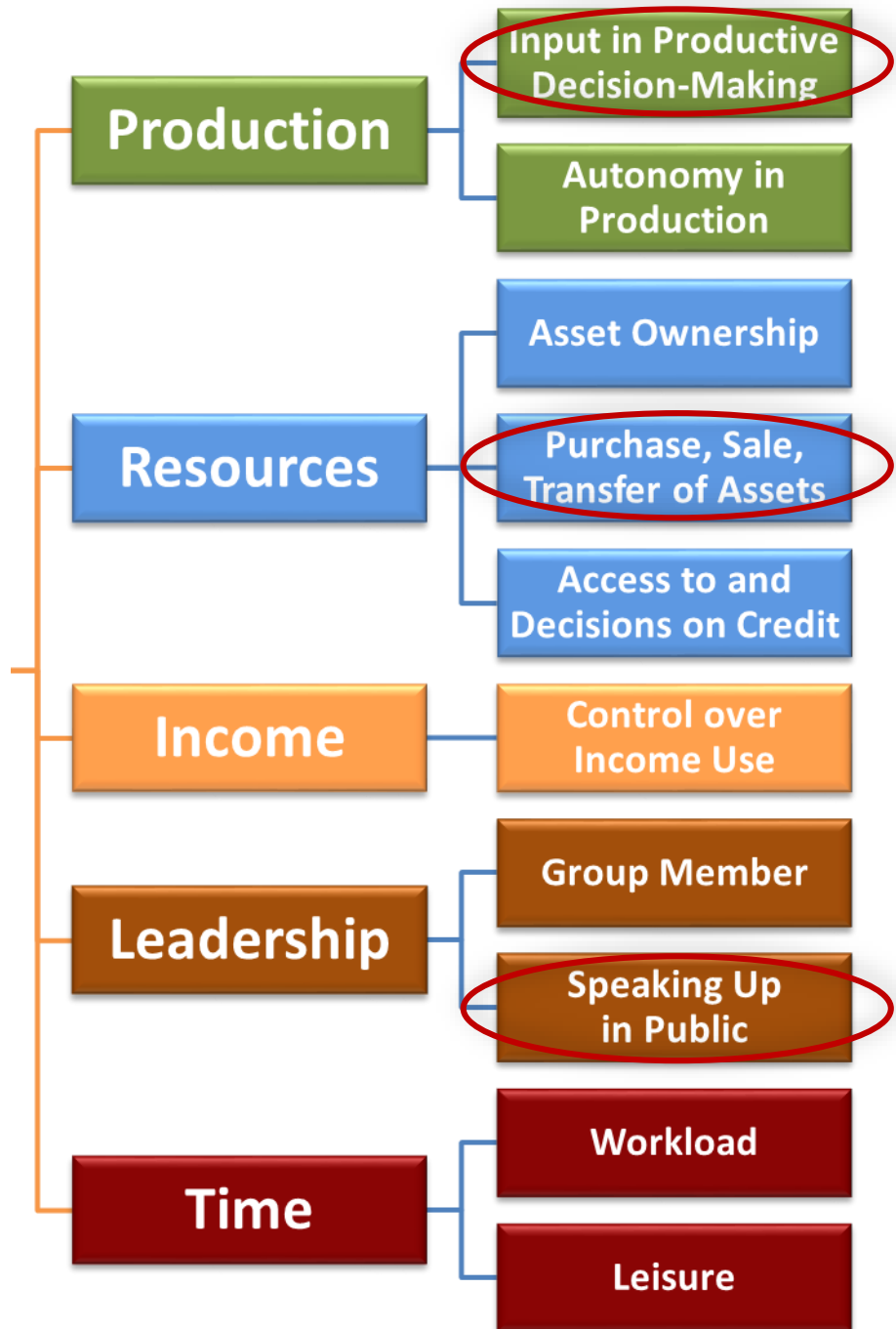
# WEAI: 5 Domains of Empowerment (5DE) with 10 indicators

- ◆ Respondent has either **INADEQUATE** or **ADEQUATE** empowerment in each of 10 indicators



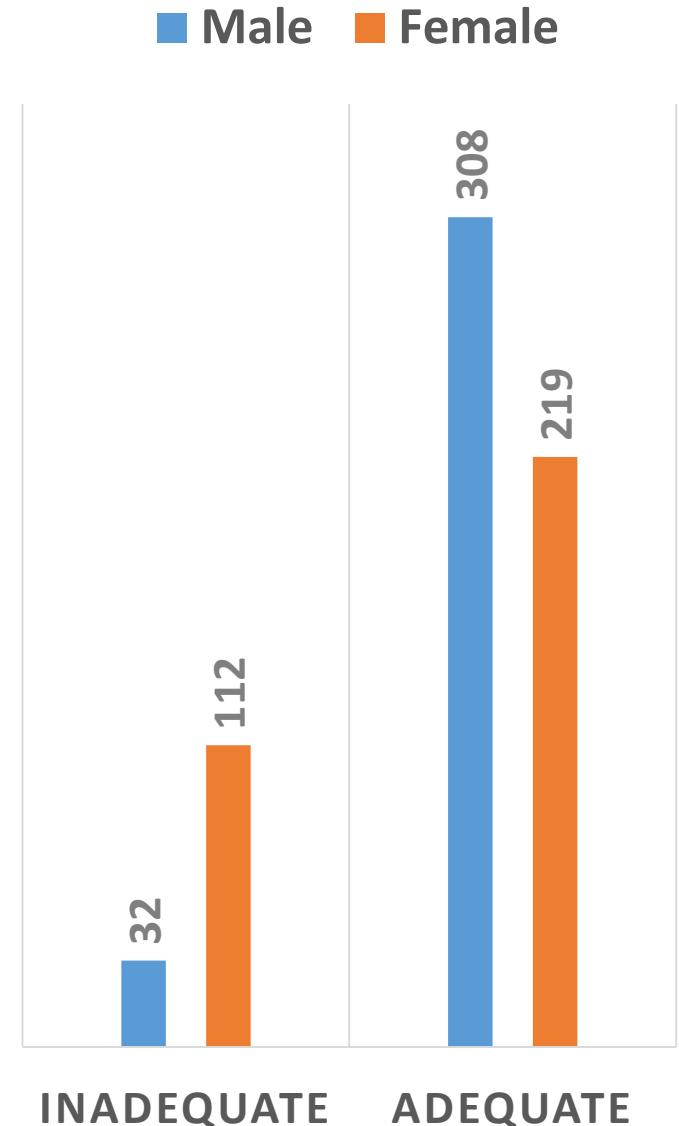
# WEAI+GH YR1: Prelim Results I

- ◆ Significant gender differences in empowerment – ALL FAVORING MALES – were found in 3 of 10 indicators



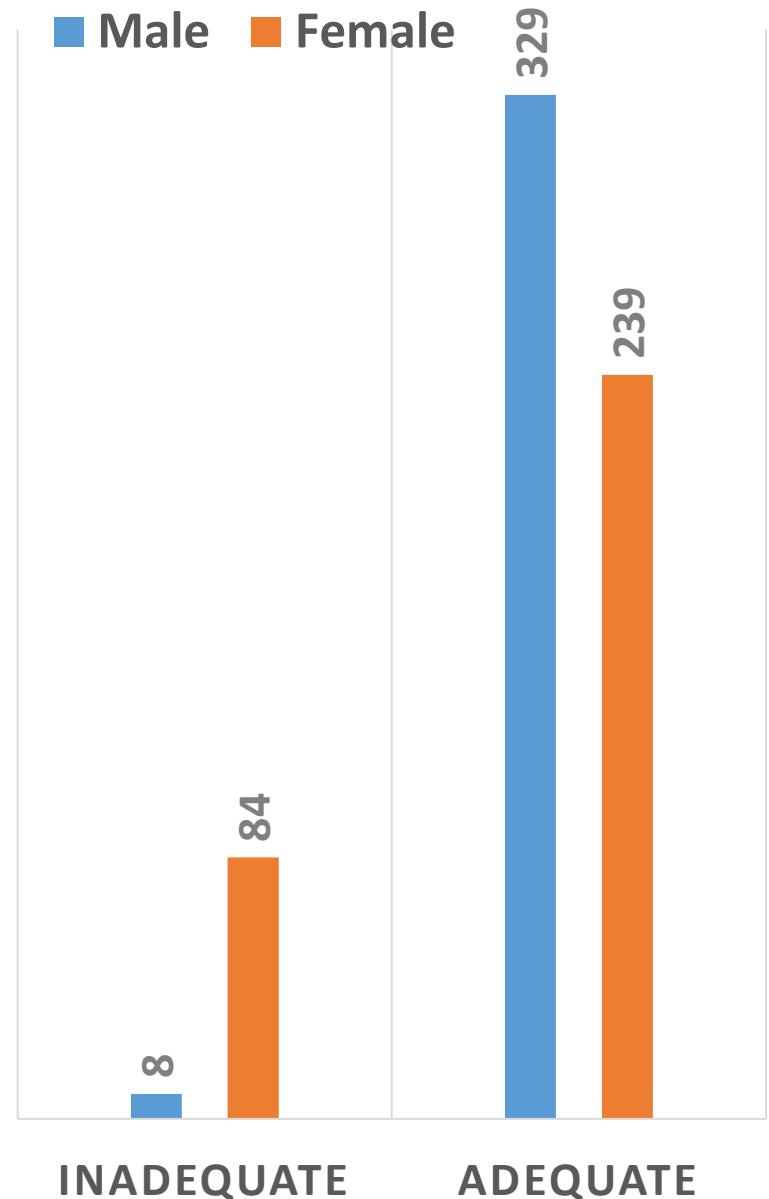
# WEAI+GHYR1: Prelim Results II

- ◆ Significantly more women than men have **INADEQUATE** empowerment in **INPUT IN PRODUCTIVE DECISION-MAKING**
- ◆  $\chi^2 (1, N = 671) = 59.37$ ,  
 $p < .001, \phi = .30$



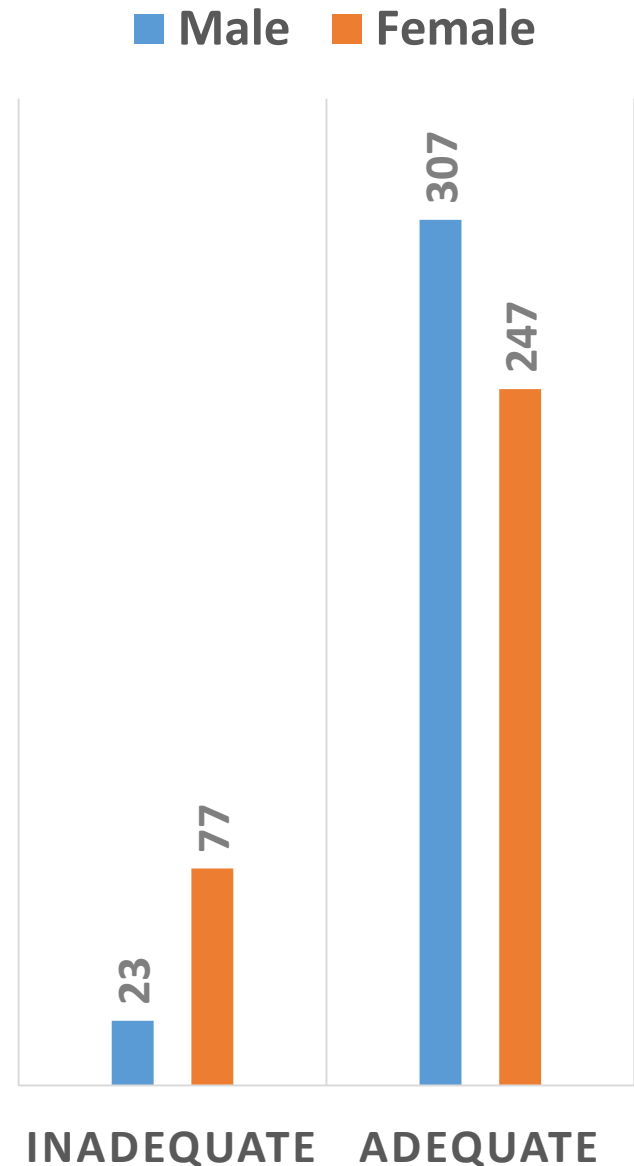
# WEAI+GHYR1: Prelim Results III

- ◆ Significantly more women than men have **INADEQUATE** empowerment in **PURCHASE, SALE OR TRANSFER OF ASSETS**
- ◆  $\chi^2(1, N = 660) = 76.78$ ,  
 $p < .001, \phi = .34$



# WEAI+GH YR1: Prelim Results IV

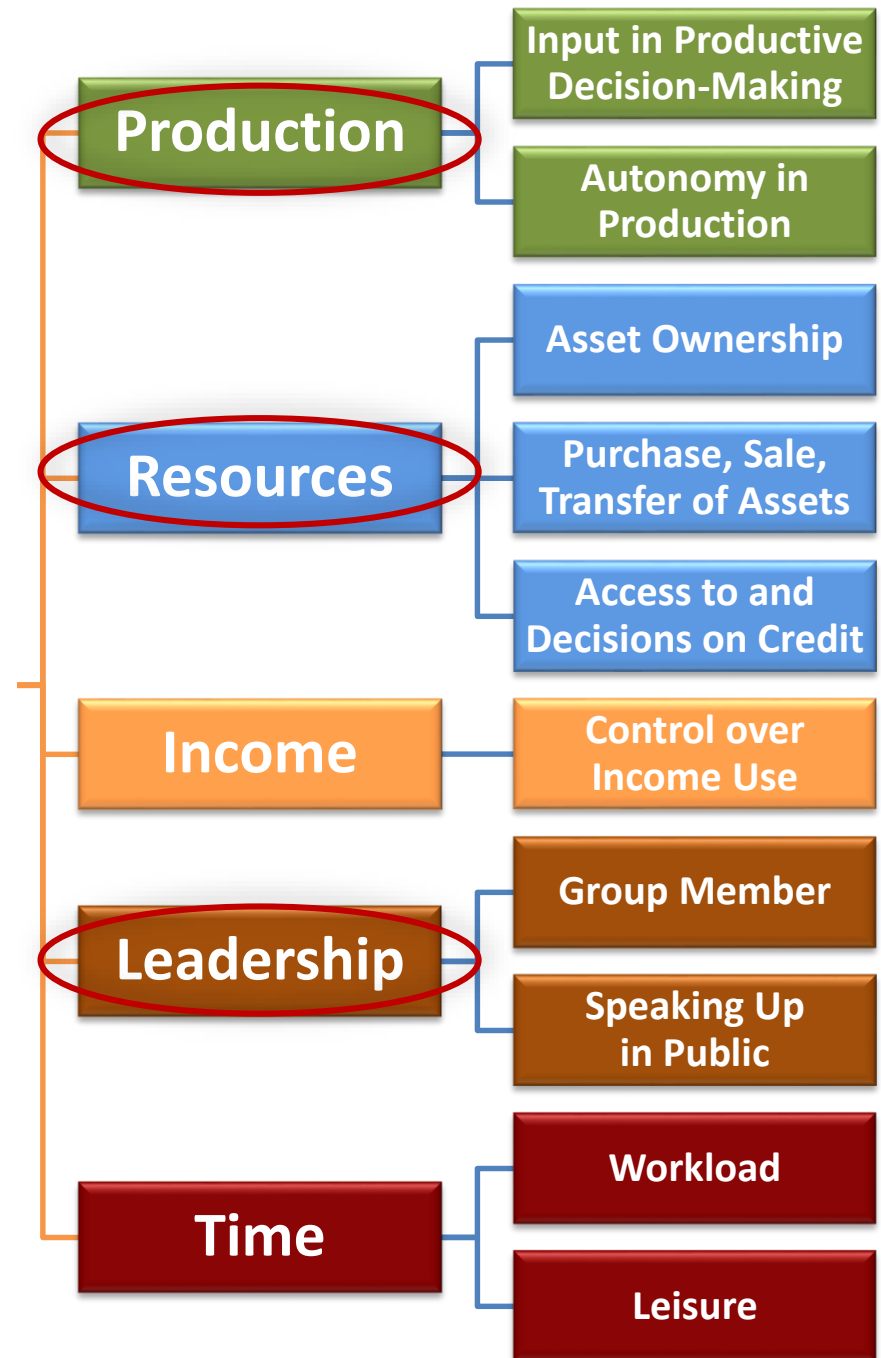
- ◆ Significantly more women than men have **INADEQUATE** empowerment in **SPEAKING UP IN PUBLIC**
- ◆  $\chi^2(1, N = 654) = 35.61$ ,  
 $p < .001, \phi = .23$





# WEAI+GH YR1: Prelim Results V

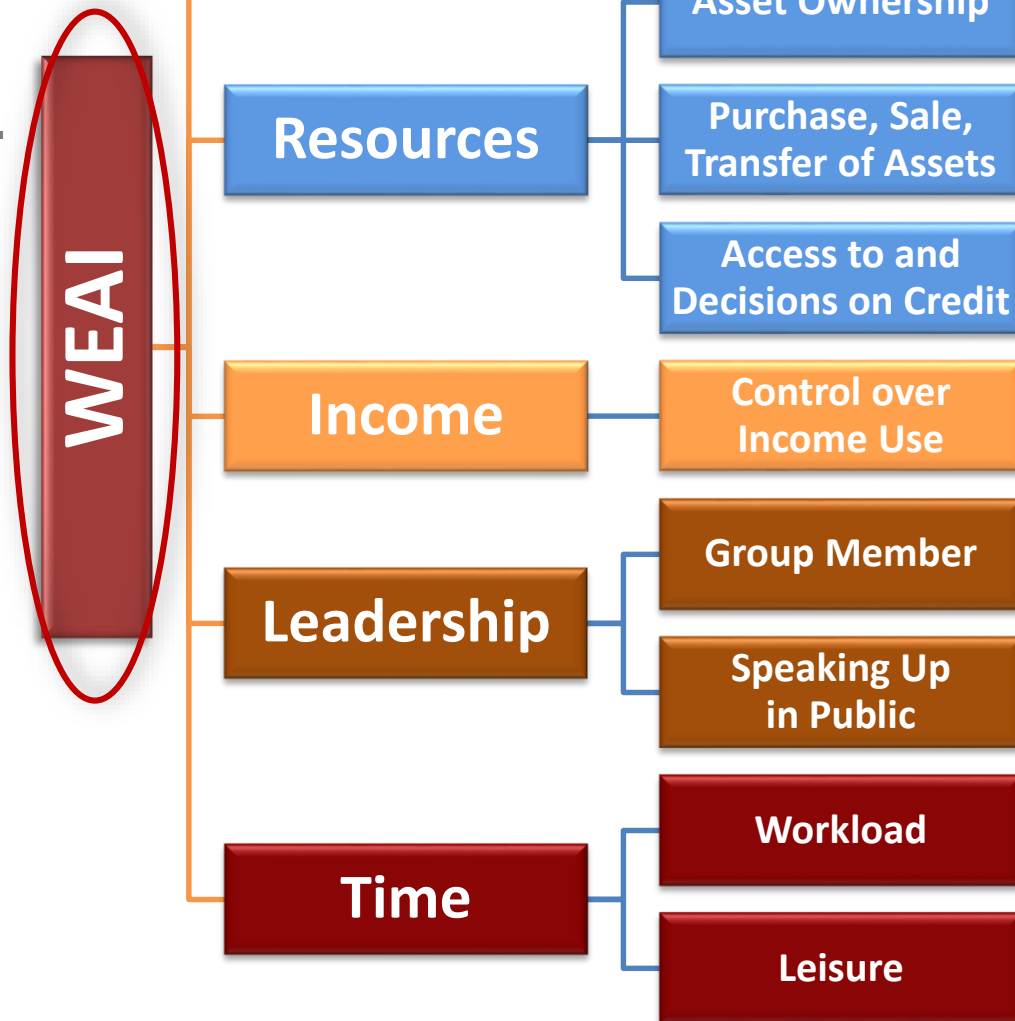
- ◆ Significant gender differences – ALL FAVORING MALES – were found in 3DE
- ◆ **Production:**  $t(505.61) = 4.03, p < .001, r = .17$
- ◆ **Resources:**  $t(113.46) = 2.41, p = .02, r = .19$
- ◆ **Leadership:**  $t(438.00) = 2.96, p = .003, r = .14$



# WEAI+GH YR1: Prelim Results VI

- ◆ A significant gender difference – **FAVORING MALES** – was found in the overall WEAI score

- ◆ **WEAI:**  $t(85.55) = 3.20, p = .002, r = .32$



# WEAI+: Leadership & Influence in Community



Comfortable speaking up in public:

To ask Extension Agents questions about agricultural practices, policies, or decisions that affect you?

No, not at all comfortable

**Yes, very comfortable**

M  
%

F  
%

9.1

27.9

**62.4**

**36.5**



# WEAI+: Preliminary Results From Soy Modules

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- ◆ **Soy Modules** were added to address soybean production and other agricultural-related issues:
  - ◆ Soybean and other seed access
  - ◆ Soybean cultivation
  - ◆ Cultivation months
  - ◆ Income-generating months

# WEAI+ GH YR1: Soy Uptake Results I

Soybean Seed Access	M %	F %
Any HH member tried growing soybean	82.1	82.8
<b>You tried growing soybean (p=.000)</b>	<b>85.0</b>	<b>70.7</b>
Soybean seed given out free locally	30.7	31.1
<b>Know where to buy soybean seed (p=.018)</b>	<b>62.9</b>	<b>53.8</b>



# WEAI+ GH YR1: Soy Uptake Results II

Soybean Seed Access	M %	F %
Ever received FREE improved seed (soybean, etc.)?	58.2	66.3
If YES, from whom most recently...		
<b>Agricultural extension agent</b>	<b>27.1</b>	20.8
Relative in your village	26.1	25.8
<b>Local market</b>	25.1	<b>33.9</b>
NGO	5.0	3.2
Relative in another village	4.0	9.5
Seed company agent	3.0	2.3
Farmers association	3.0	0.5



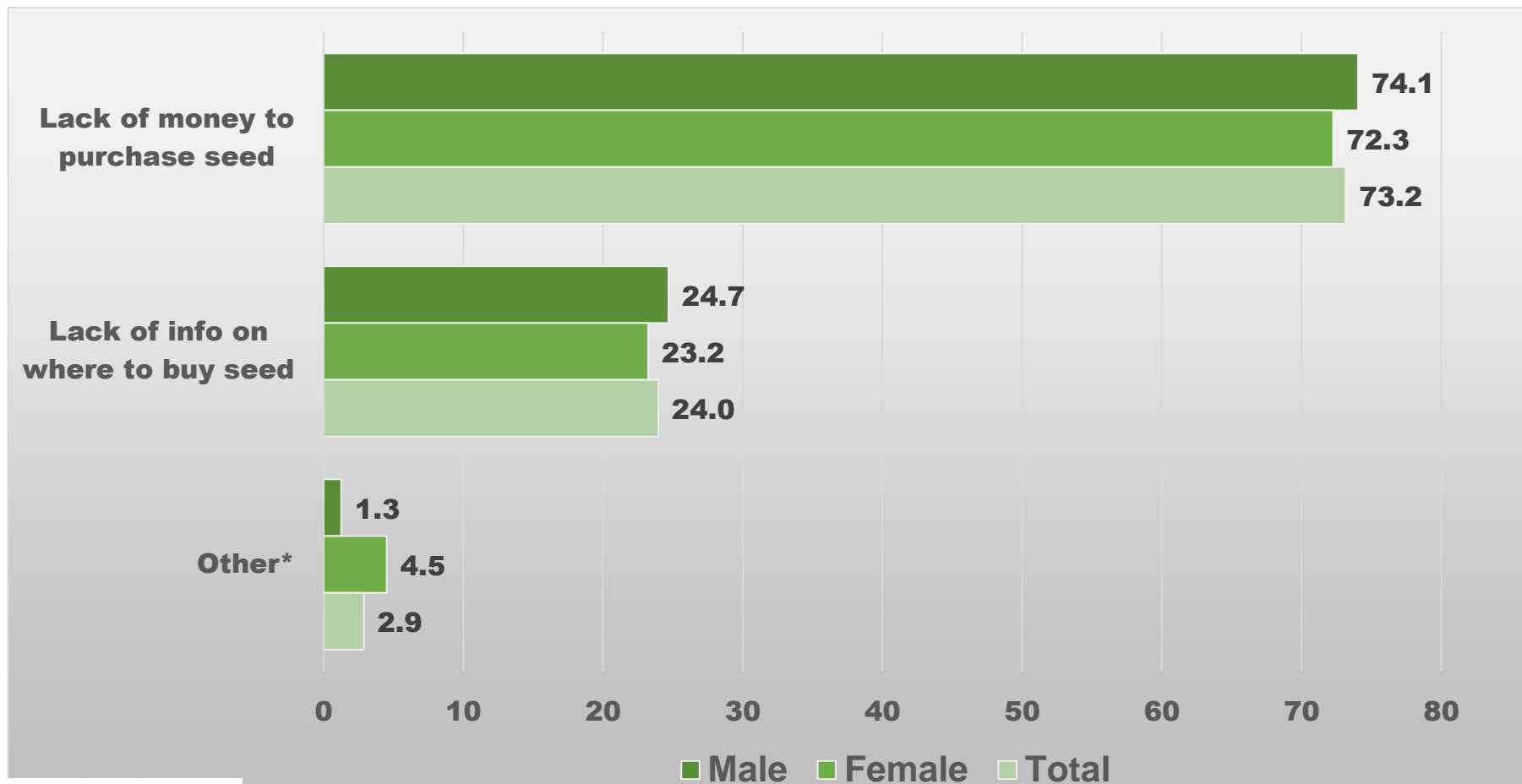
# WEAI+ GH YR1: Soy Uptake Results III

Soy Seed Access	M %	F %
Ever PURCHASED improved seed (soybean, etc.)?	78.4	82.3
If YES, from whom most recently...		
<b>Local market</b>	48.9	<b>66.4</b>
Relative in your village	19.4	10.2
Agricultural extension agent	17.2	11.7
Friend or neighbor in your village	4.1	1.5
Relative in another village	3.4	4.7



# WEAI+ GH YR1: Soy Seed Access

Factor most likely to prevent access to improved soy in first year





# WEAI+ GH YR1: Soy Cultivation I

	M	F
Use of Inoculum	%	%
<b>Used inoculum on your soybean before planting (p=.029)</b>	<b>17.4</b>	<b>24.8</b>
If yes, obtained most recently from...		
<b>Agricultural extension agent</b>	<b>42.1</b>	<b>30.4</b>
<b>Local market</b>	<b>30.3</b>	<b>40.0</b>
Relative in your village	6.6	17.4
Relative in another village	6.6	7.0
NGO	6.6	2.6
Seed company agent	6.6	1.7



# WEAI+ GH YR1: Soy Cultivation II

Immediate past cropping season:	M (% Yes)	F (% Yes)
<b>Used phosphorus fertilizer on your soybean any time before harvest (p=.005)</b>	<b>15.7</b>	<b>25.2</b>
Planted your soybean by hand	94.6	92.2
Planted your soybean by push planter	2.5	0.5
Planted your soybean by mechanical planter	2.9	7.3
Planted your soybean in hills	21.3	17.2
Planted your soybean in rows	39.3	32.9



# Beyond the Numbers

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- ◆ SIL '**Soybean Success Kit**' Intervention
- ◆ Focus Group Discussions
- ◆ Field Observations and Interviews
- ◆ Digging Deeper

# SIL 'Soybean Success Kits': March-April 2015

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- ◆ Motto: **Eat Some, Save Some, Sell Some**
- ◆ SIL Pillar I: Drs. Kristin Bilyeu and Kerry Clark
- ◆ Produced and delivered **1200** Soybean Success Kits to farmers in 9 villages
- ◆ Kits: 2.5 kilos of locally produced Jenguma (SARI), 2 kilos of fertilizer (Yara Ghana), inoculant (US), sugar, donated gloves (US)









the smart approach (dr. reynolds presentation)

sil 2014 update (dr. diers presentation)

**soybean extension video**

soybean extension guides (english & portuguese)

soy processing for nutrition - an extension guide

smart farm established in ghana

socio-economic research underway

## Soybean Extension

Soybean Innovation Lab researchers Dr. Kristin Bilyeu and Dr. Kerry Clark with the University of Missouri developed the extension video below to show the proper method for soybean planting in Ghana & Mozambique.



### Managed Research Areas

- MRA 1 Plant Breeding and Germplasm
- MRA 2 Grain and Seed Quality
- MRA 3 Production and Agronomy
- MRA 4 Plant Breeder Education
- MRA 5 Utilization for Human Nutrition
- MRA 6 Utilization for Livestock Nutrition
- MRA 7 Gender Impacts
- MRA 8 Economic Impacts
- MRA 9 Environmental Impacts
- MRA 10 Seed Systems

SIL researchers have also developed an extension module and cartoon schematic for soybean production in Ghana and Mozambique. Click the links below to access the extension materials and cartoon schematic.



Soybean Inoculation and Planting for Africa:

[https://www.youtube.com/watch?v=Obgq\\_REq9Zo](https://www.youtube.com/watch?v=Obgq_REq9Zo)





# How to grow soybean in Ghana



**Soybean is an excellent crop to raise on your farm**

**Soybean is very nutritious and is a good substitute for meat.**

**It can be made into many different types of food including milk, flour and curd.**

# Soy Intervention Villages: September 2015



# Soy Intervention Villages: September 2015

- ◆ Toured soy fields
- ◆ Interviewed men and women soy farmers in their fields
- ◆ Conducted focus group with women soy farmers



Photo: K. Ragsdale





# Focus Group with Women Soy Farmers



# Digging Deeper: Soy Productivity Barriers

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- ◆ Gender empowerment gaps
- ◆ Extreme rurality
- ◆ Low literacy
- ◆ Seed quality
- ◆ HH soy utilization

# Digging Deeper

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- ◆ **Gender empowerment**
- ◆ Women farmers' had inadequate empowerment in
  - Agric decision-making
  - Control over assets
  - Speaking up in public





# Digging Deeper

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- ◆ Gender empowerment
- ◆ **Extreme rurality**
- ◆ **Low literacy**



# Digging Deeper

- ◆ Gender empowerment
- ◆ Extreme rurality
- ◆ Low literacy
- ◆ **Seed quality**



# Digging Deeper

- ◆ Gender empowerment
- ◆ Extreme rurality
- ◆ Low literacy
- ◆ Seed quality
- ◆ **HH soy utilization**



# Digging Deeper

- ◆ **Q1:** In terms of soy production to increase HH nutrition, what soy products are affordable and available to rural families



# Digging Deeper

- ◆ **Q2:** How are soy farmers able to put “**Eat Some, Save Some, Sell Some**” into practice long-term





# YR3 Goals

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- ◆ Present at USAID and TOPS/FSNN Knowledge Sharing Meeting
- ◆ Disseminate **WEAI+ GH YR1** database to USAID, IFPRI, others
- ◆ Field **SUNS Wave 1–Ghana** (SOYBEAN UPTAKE & NETWORK SURVEY) and analyze results
- ◆ Study barriers to achieving **Soybean Success Kit** goals among women soy farmers

Photo: K. Regisdale



Approach

Progress

Countries ▾

Partner With Us ▾

News & Events

NEWS & EVENTS / FIELD STORY

## First-of-Its-Kind Research Addresses Gender Inequalities in Soybean Production

February 26, 2015

Feed the Future | Newsletter



Catholic Relief Services

Researchers from the Feed the Future Soybean Innovation Lab discuss soybean farming with villagers in Ghana.

addresses the challenges facing smallholder soybean farmers, specifically how and if they can sustainably participate in commercial value chains. It is also among the first to identify the role of women in the soybean value chain, which is vital because soybean is primarily a commercial, non-native, labor-intensive crop.

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This research, the first of its kind,

VIDEOS

**This research — the first of its kind — addresses the challenges facing smallholder soybean farmers... and the role of women in the soybean value chain, which is vital**

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# *Me das se!*

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Photo: K. Ragsdale



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