



Elizabeth M. Sloffer¹, Cynthia Buckley³ Juan E. Andrade^{1,2}

¹Department of Food Science and Human Nutrition, University of Illinois, Urbana-Champaign

²Division of Nutritional Sciences, University of Illinois, Urbana-Champaign

³Department of Sociology, University of Illinois, Urbana-Champaign



ABSTRACT

Background: The Regional Center for the Horticulture Innovation Lab at Zamorano University in Honduras provides extension services and training to many low-income agricultural families in Honduras and Central America. In the Yeguaré Valley, the Center works primarily through its MIC-CC program in the department of Francisco Morazán or collaborates with NGOs like Obra Kolping in the department of El Paraiso. Families in these areas face environmental challenges and are frequently food insecure. Most technical assistance from USAID's mission in Honduras focuses on the Dry Corridor (northwest region). The primary intervention used by the Center is the Huerto Familiar con Enfoque Biotensivo. This is an organic farming system designed to provide a family's caloric and some nutrient needs in a small plot (100 m²). The objective of this work was to evaluate the impact of the Center's extension training with focus on the experience of women and their ability to promote nutrition in the household.

Methods: Forty families who received training from the Center during the last three years were selected to complete surveys and nutrition measurements. A subset of women from those families completed semi-structured interviews about their experience in the program. Roughly half of participants came from the Obra Kolping group in El Paraiso, and the rest came from the MIC-CC group in Francisco Morazan. The surveys included the Women's Empowerment in Agriculture Index (WEAI), the Coping Strategies Index (CSI), and Household Dietary Diversity (HDD), as well as social network, demographic and socioeconomic surveys.

Results: The WEAI score for this sample was 0.76. Lack of women's achievement in the empowerment domains of resource control, income, and time contributed the most to women's disempowerment in the sample. Men were more empowered (5DE mean=0.84±0.12; P<0.05) and more food secure (CSI; P<0.05) than women. Coping strategies against food insecurity vary on severity, but were similar between sexes. CSI and WEAI score did not correlate. Men's CSI scores were strongly associated (r=0.78; P<0.05) with the income decisions domain of empowerment. The Obra Kolping groups were both more empowered (P<0.05) and less food secure (P<0.05) than those under MIC-CC. For all respondents, CSI was negatively associated with HDD scores (r= -0.42; P<0.05). Basic grains and beans were the bulk of their diets (>90% respondents). A lesser proportion of respondents (37%) reported consuming fruit in the last 24 hours, vegetables (45%) or any kind of dairy product (54%). Mean HDD score was 7.5±2.1 of 12 food groups. Dietary diversity did not change based on sex or program. Interview and social network data showed participants do not readily identify authoritative sources of nutrition information. Often common sources were healthcare workers, agricultural extension agents, or family members, most of whom have no formal nutrition training. Nutrition knowledge is low in Honduras, and current agricultural extension services do not address nutrition.

Conclusion: Incorporating nutrition concepts, targeted to increase fruit and vegetable consumption, into the Center's training would be a simple program adaptation. However, as income, time and resource control are domains that constrain women's empowerment, training activities should be sensitive to their needs.

INTRODUCTION

Levels of food insecurity have been decreasing in Honduras. However, food insecurity affects upwards of 50% of households in some regions of the country.¹ Previous research has shown that extension projects that invest in women's agricultural activities provide larger payoff than those which do not.² One of the challenges of conducting this type of agriculture extension in Honduras is the women do not readily self-identify as farmers even though their daily activities contribute greatly to the wellbeing of the farm and household including managing small animals, preparing harvested crops for storage and processing, and bringing produce to market. Many women also keep home gardens where they produce fruits and vegetables for family consumption. The link between empowerment and food security remains unclear, but there is precedent for linking individual domains of empowerment to nutrition indicators.³

AIM

To examine how women's participation in agricultural extension programs provided by the Regional Center of the Horticulture Innovation Lab at Zamorano University contributes to household food security.

METHODS

- The selection of survey participants was based on previous participation in extension trainings led by the Regional Center of the Horticulture Innovation Lab at Zamorano University, Honduras.
- N=40 families participated in surveys with male and female heads of household as much as possible.
- Surveys were completed for women (N=38) and men (N=20) from September-December 2016.
- The surveys included, demographic information, coping strategies index (CSI)⁵ household dietary diversity score (HDDS)⁴, and Women's Empowerment in Agriculture Index (WEAI).⁶
- All research protocols with human subjects were approved by the IRB at the University of Illinois at Urbana Champaign and the Comité de Ética en Investigación Biomédica at Universidad Nacional Autónoma de Honduras.

RESULTS

Figure 1. Dietary Diversity

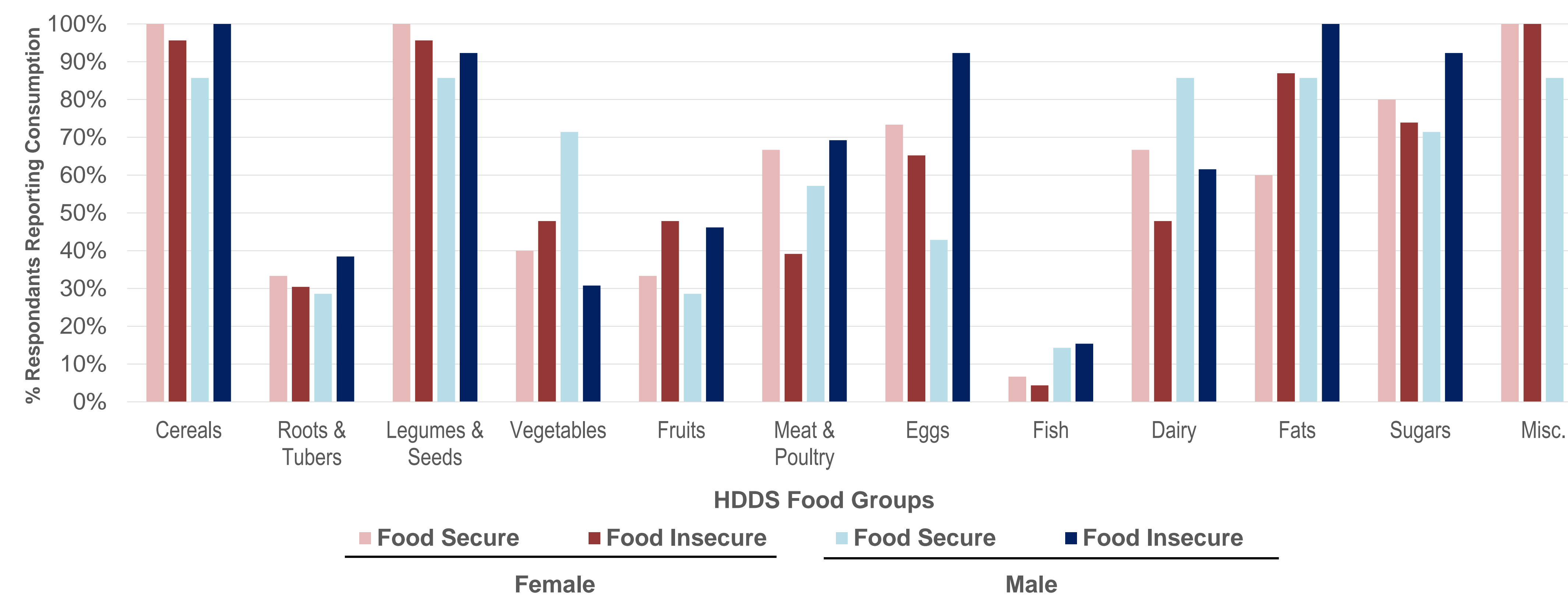
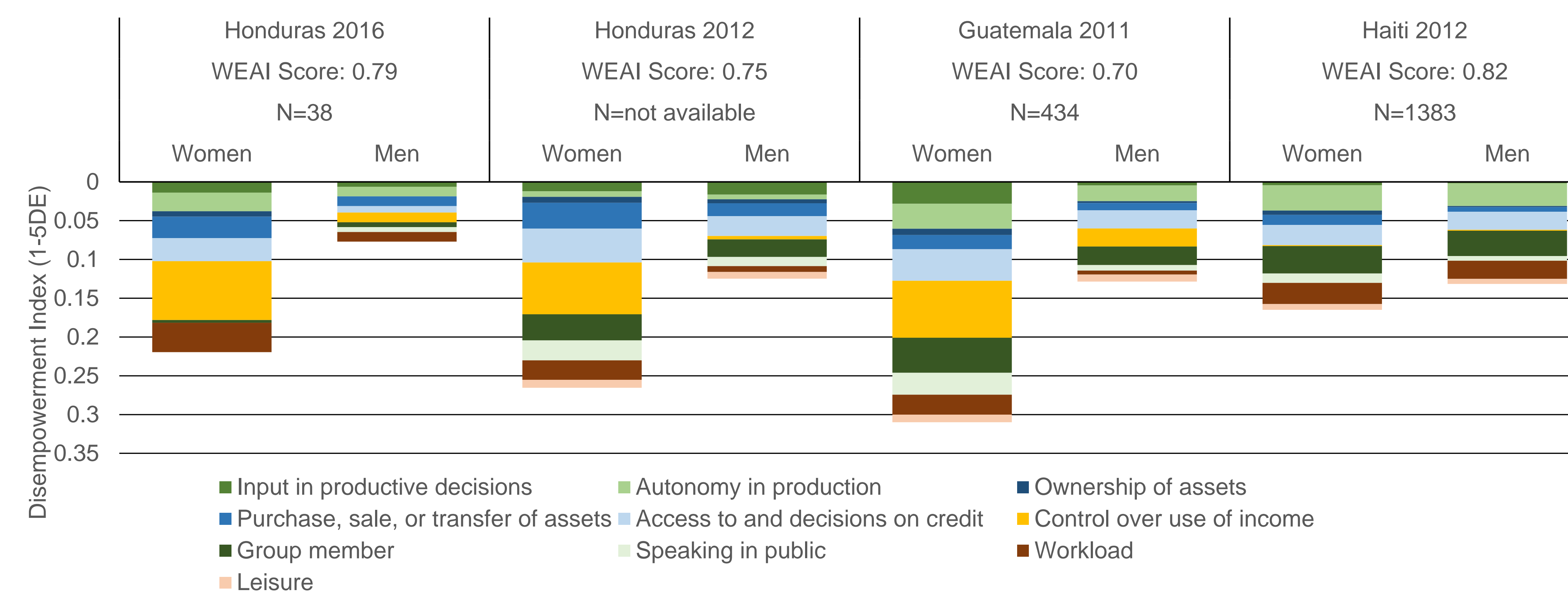


Table 1. Most Commonly Consumed Foods by Food Group

HDDS Food Group	Cereals	Roots & Tubers	Legumes & Seeds	Vegetables	Fruits	Meat & Poultry	Eggs	Fish	Dairy	Fats	Sugars	Miscellaneous
Top Food	Corn Tortilla	Potato	Red Beans	Onion	Orange	Chicken	Eggs	Tilapia	Cheese	Palm Shortening	Sugar	Coffee
2 nd Food	Rice	Yucca		Tomato	Banana or Plantain	Pork		Mantequilla	Vegetable Oil	Soda		Salt
3 rd Food	Wheat products	Sweet Potato or Carrot		Patate (cucurbit)	Lemons or Limes	Beef		Milk				Spices

Figure 2. WEAI Results: Disempowerment Disaggregated by Indicator



RESULTS (CONTINUED)

Table 2. Strategies to cope with food insecurity used by households participating in extension projects

Coping Strategies	Severity Ranking	Proportion of population (n=58)
1 Dietary Change		
a. Rely on less preferred and less expensive foods?	1	93%
2 Increase short-term household food availability		
b. Borrow food, or rely on help from friends or relatives?	2	29%
c. Purchase food on credit?	2	67%
d. Gather wild food, hunt, or harvest immature crops	4	43%
e. Consume seed stock held for next season?	3	32%
3 Decrease numbers of people eating at home		
f. Send children to eat with neighbors?	3	3%
g. Send household members to beg?	4	2%
4 Rationing		
h. Limit portion size at mealtimes?	1	45%
i. Restrict consumption by adults in order for small children to eat?	2	47%
j. Feed working members of HH at the expense of non-working members?	2	10%
k. Ration money you have and buy prepared food?	2	83%
l. Reduce number of meals eaten in a day?	2	40%
m. Eat once a day?	3	21%
n. Skip entire days without eating?	4	10%

RESULTS SUMMARY

- Men were more empowered than women (5DE 0.887 vs. 0.784; P<0.05).
- Dietary diversity and food security were inversely related (-0.33; P<0.05).
- Dietary diversity and food insecurity did not differ based on sex.
- For all respondents, higher dietary diversity was associated with working longer hours (0.27; P<0.05).
- Higher HDDS in women was associated with making more decisions about the use of income (0.30; P<0.1).

REFERENCES

- Chicoine, A. L.; Kemmer, T. M.; Coello, M.; Sevilla, R. M. M.; Sepulveda, S. V. P.; Ariaga, R. V. ELCSA, a Survey for Measuring Household Food Security, Reveals an Extremely High Prevalence of Food Insecurity in the Montaña de la Flor and Santa María Regions of Honduras. *Top. Clin. Nutr.* 2014, 29 (3), 239-249.
- Hanson, J.; Just, R.; Hanson, J.; Just, R.; Lainez, J.; Administracion, P. D. Evaluating a Publicly Funded, Privately Delivered Agricultural Extension System in Honduras by 2004, 2014.
- Malapit, H. J. L.; Quisumbing, A. R. What dimensions of women's empowerment in agriculture matter for nutrition in Ghana? *Food Policy* 2015, 52, 54-63.
- The Coping Strategies Index: Field Methods Manual 2nd Edition <https://www.wfp.org/content/coping-strategies-index-field-methods-manual-2nd-edition> (accessed Sep 5, 2016).
- Swindale, A.; Bilinsky, P. Household dietary diversity score (HDDS) for measurement of household food access: indicator guide. *Wash. DC Food Nutr. Techn. Assisit. Proj. Acad. Educ. Dev.* 2006.
- Alkire, S.; Meinzen-Dick, R.; Peterman, A.; Quisumbing, A.; Seymour, G.; Vaz, A. The Women's Empowerment in Agriculture Index. *World Dev.* 2013, 52, 71-91.
- Peterman, A.; Quisumbing, A.; Meinzen-Dick, R.; Dardón, M.; Hassan, M. Z.; Kamusime, H.; Malapit, H. Women's Empowerment in Agriculture Index (WEAI) Pilot for Guatemala. *Harvard Dataverse* 2016.
- Malapit, H.; Sproule, K.; Kovarik, C.; Meinzen-Dick, R.; Quisumbing, A.; Ramzan, F.; Hogue, E.; Alkire, S. *Measuring Progress Toward Empowerment: Women's Empowerment in Agriculture Index: Baseline Report*, International Food Policy Research Institute: Washington, D.C., 2014; Vol. 2015.

ACKNOWLEDGMENTS

The authors would like to thank the College of ACES Office of International Programs, WGGP Barbara A. Yates International Research Award, staff of the Regional Center of the Horticulture Innovation Lab at Zamorano University, and all participants. The authors would also like to thank the USAID-supported U.S. Borlaug Fellows in Global Food Security and the INGENAES Project.

This poster was made possible by the generous support of the American people through the United States Agency for International Development, USAID. The contents are the responsibility of the author(s) and do not necessarily reflect the views of USAID or the United States Government.