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Farmers' Willingness to Pay for Quality Seeds of Bean Varieties with Preferred Traits: Evidence from two Central American Countries

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Legume Innovation Lab

Feed the Future Innovation Lab for Collaborative Research on Grain Legumes

USAID
FROM THE AMERICAN PEOPLE

Introduction

- Farmer preference of varietal traits
  - Breeders
  - Seed Producers and Distributors
  - Community Based Seed Enterprises

- Willingness to Pay (WTP) for Improved Varieties with preferred traits
  - Needed to design effective seed system strategies
  - Target dissemination of IVs using "3-pronged approach"

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WTP for Preferred Varietal Traits

- Not WTP for quality seed (Certified, QDS or recycled seed)

- Data from household surveys in Guatemala and Honduras

Data Source

- Beneficiary farmers of the Bean Technology Dissemination (BTD) project

  – **Effectiveness of the bean seed dissemination models implemented under the Bean Technology Dissemination (BTD) Project: Results of key informant interviews in Guatemala, Honduras and Nicaragua**

  http://ageconsearch.umn.edu/record/196539?ln=en

  – **Farmer perspective on the use of and demand for seeds of improved bean varieties: Results of beneficiary surveys in Guatemala, Honduras and Nicaragua**

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Region of Study

- Honduras
  - 7 Departments: Atlántida, Copan*, Intibucá*, Lempira*, Ocotepeque*, Santa Barbara* and Yoro
  - 35 Municipalities
  - 93 Communities
- Guatemala
  - 5 Departments: Huehuetenango*, Quetzaltenango*, Quiché*, San Marcos* and Totonicapán*
  - 27 Municipalities
  - 93 Communities

  *indicates Feed the Future priority departments

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Farmer Preference Questionnaire

If I gave you numbers 1 to 10, where 1 means 'most preferred by you and your family,' how would you assign those number to the following traits in a bean variety? Describe your preference for a specify trait.	
Traits (*first read them all, then ask to rank all*)	Rank (*assign number 1-10 without repeating*) *99=Not preferred at all*
Seed color and size	
Resistance to field pests and diseases	
Resistance to storage pests	
Cooking time	
Yield	
Taste	
Earliness of maturity	
Marketability (Easy to sell)	
Taste of green pods	
Other (specify)	

Farmer Preference Results

	Honduras	Guatemala	Total
Number of Observations	383	410	793
Varietal Average Ranking (1 to 10, 1 is better)			
Seed color and size	4.03	4.57***	4.31
	(2.28)	(2.17)	(2.24)
Resistance to field pests and diseases	4.01	5.63***	4.85
	(2.19)	(2.04)	(2.26)
Resistance to storage pests	4.63	6.20***	5.45
	(2.13)	(2.01)	(2.21)
Cooking time	5.67	4.12***	4.86
	(2.17)	(2.27)	(2.36)
Yield	2.78	3.59***	3.20
	(2.16)	(2.36)	(2.30)
Taste	5.34	2.82***	4.03
	(2.25)	(2.13)	(2.52)
Earliness of maturity	5.07	4.51***	4.78
	(2.33)	(2.42)	(2.39)
Marketability (Easy to sell)	6.41	7.05***	6.75
	(2.56)	(2.19)	(2.39)
Taste of green pods	7.20	6.31***	6.74
	(2.34)	(2.74)	(2.59)

Can bean breeders keep everyone happy?

	Guatemala	Honduras
1	Taste	Yield
2	Yield	Resistance to field pests and diseases
3	Cooking time	Seed color and size
4	Earliness of maturity	Resistance to storage pests
5	Seed color and size	Earliness of maturity
6	Resistance to field pests and diseases	Taste
7	Resistance to storage pests	Cooking time
8	Taste of green pods	Marketability (Easy to sell)
9	Marketability (Easy to sell)	Taste of green pods

WTP for Seed of Variety with Preferred Traits : Descriptive Statistics of Control Variables
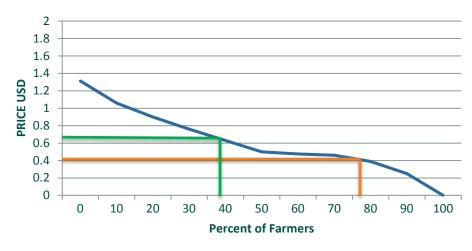
	Honduras	Guatemala	Total
Number of Observations	383	410	793
Tropical Livestock Units	1.86	1.09 ***	1.46
	(3.79)	(1.70)	(2.92)
Distance to Paved Road (KMs)	15.65	6.14 ***	10.72
	(14.57)	(7.07)	(12.28)
Area Planted (MZ=.7 Ha)	1.54	0.60 ***	1.05
	(2.17)	(0.77)	(1.67)
% of Bean Consumption from Own Production	0.64	0.39 ***	0.51
	(0.26)	(0.28)	(0.30)
Age of Respondent (years)	43.07	42.12	42.58
	(13.36)	(12.55)	(12.95)
Years of Education of Household Head	4.31	2.71 ***	3.48
	(3.11)	(2.84)	(3.08)
Gender of Respondent (% Male)	0.81	0.46 ***	0.63
	(0.40)	(0.50)	(0.48)

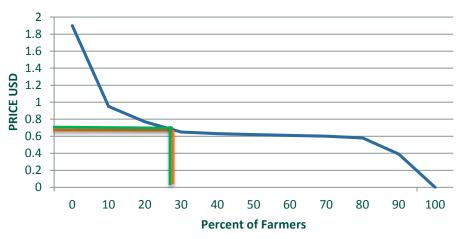# WTP for Seed of Variety with Preferred Traits: Demand Curves

	Honduras	Guatemala	Total
Number of Observations	383	410	793
Willingness to Pay (USD/lb)	0.67	0.70**	0.69
	(0.33)	(0.21)	(0.27)

Honduras Demand Curve

Guatemala Demand Curve

— WTP — Price of Grain

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WTP for Seed of Variety with Preferred Traits: Linear Regression Results (Community Level Cluster)

Variable	Coefficient	Std. Dev.
Resistance to field pests and diseases	0.026	(0.01)***
Cooking time	0.013	(0.01)**
Yield	0.009	(0.01)*
Taste of green pods	0.013	(0.01)*
Tropical Livestock Units	0.008	(0.01)*
Distance to Paved Road (KMs)	-0.002	(0.00)**
% of Bean Consumption from Own Production	-0.059	(0.03)*
Age of Respondent (years)	-0.001	(0.00)*
Gender (1=Male)	-0.041	(0.02)*
Constant	1.146	(0.20)***

Conclusions

- Yield was trait ranked highest by farmer
- Farmers were WTP a price premium for a variety with diseased and field pest resistance
- Over 75% Honduran farmers were WTP a price premium above the price of grain at the time of the survey…
- Yet the price farmers were WTP for a variety of preferred traits was close to the price of grain
- Females and farmer from households with a low percent of bean household consumption satisfied by own production were WTP more for a variety with preferred traits

Acknowledgements

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