Alliance

Bioversity International

CIAT
International Center for Tropical Agriculture
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Boosting the adoption of sustainable land-use systems for climate-change mitigation and peacebuilding

Lisset.perez@cgiar.org

Pérez Marulanda, L. (1);
Rudbeck Jepsen, M. (2);
Castro-Nunez, A. (1)

1 The Alliance of Bioversity International and CIAT
2 University of Copenhagen, Copenhagen, Denmark

CGIAR

Bioversity International and the International Center for Tropical Agriculture (CIAT) are CGIAR Research Centers.
CGIAR is a global research partnership for a food-secure future.

Background of the study

Cesar

- Caribbean
- Armed conflict
- High soil degradation rates
- Water scarcity

Caquetá

- Amazon
- Armed conflict
- High Deforestation rates

Armed Conflict

https://www.las2orillas.co/las-farc-son-un-monstruo-que-compra-conciencias-por-doquier-en-caqueta/

Drug trafficking

https://www.washingtonpost.com/world/th
of-peace-in-colombia-a-cocaine
us/2017/05/07/6fb5d468-294a-11e7-9081-

Deforestation

Source:https://especiales.semana.com/deforestacion/caqueta.html

General Objective: To determine how policies to promote SLUS in Colombia can target real barriers and increase its adoption to promote climate-change mitigation and peacebuilding.

1. What are the factors which boost SLUS adoption?

2. Are these aligned with the policies promoting cocoa production systems in Colombia?

Sustainable cocoa production system (SLUS) definition

COMPLEMENTARY PRACTICES

COCOA AGROFORESTRY SYSTEM

HIGH FOREST TREE DENSITY

ORGANIC PRODUCTION

PRODUCT QUALITY

Mitigation Potential

Market potential

Co-benefits

Climate change mitigation

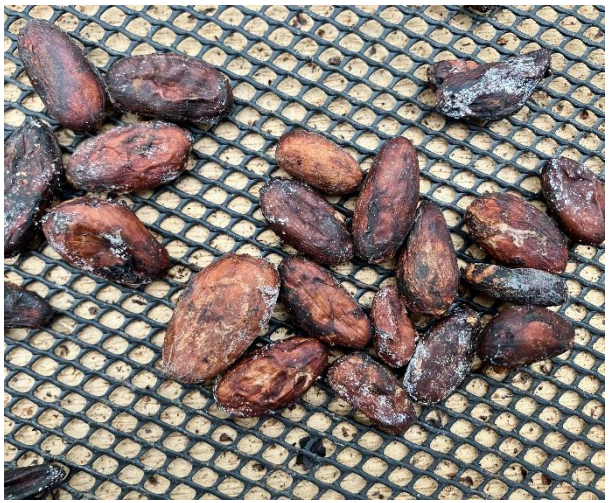
Peacebuilding

Agricultural production

Sustainable cocoa production system (SLUS) definition

Agroforestry system

Sustainable cocoa production system (SLUS) definition



Organic fertilization & post- harvest practices

Sustainable cocoa production system (SLUS) definition

Rainwater reservoir

Given the co-benefits of SLUS, how can we promote its adoption?

Methodology

1

Adoption Factors

2

Econometric approach [ordered probit]

3

They are aligned with current policies?

4

Relevant adoption factors in the study context

Data: 922 households. [Caquetá (54%) and César (46%)]. January to August 2021 (Data Collection II)

Econometric approach: The econometric approach [Ordered probit model]

Adoption factors

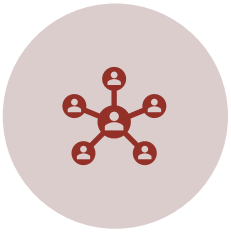
HOUSEHOLD

HOUSEHOLD HEAD

FARM

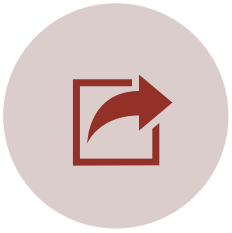
FINANCIAL

ENVIRONMENTAL



SOCIAL

EXOGENOUS FACTORS



TECHNOLOGY TRANSFER

Results: Marginal effects of the ordered probit regression (Caquetá)

	Probability of adoption			
	(Y=1|X)	(Y=2|X)	(Y=3|X)	(Y=4|X)
Household head characteristics				
Age	-0.005	0.000	0.002	0.002
Farmer education	-0.011	0.000	0.005	0.006
Gender	0.030	0.000	-0.014	-0.016
Victim of the armed conflict	0	0	0	0
Household characteristics				
Household size	0.001	0.000	0.000	0.000
Home Assets Index	0.034	-0.001	-0.016	-0.017
Farm characteristics				
Farm size (ha)	0.001	0.000	0.000	0.000
Farming experience (cocoa plantation age)	-0.008	0.000	0.004	0.004
Financial				
Land tenure	-0.011	0.000	0.010	0.006
Credit	-0.005	0.000	0.000	0.002
Distance to market	-0.015	0.000	0.010	0.008
Environmental				
% of area in primary forest	-0.312	0.010	0.146	0.157
Social				
Technical assistance	-0.234	0.155	0.002	0.076
Networking	-0.207	0.012	0.094	0.101
Technology transfer				
Farmer-to-farmer interactions	-0.148	0.002	0.068	0.077
N	426			
Chi Sqrt	114.19			
Log-likelihood	-504			
LRI	0.1			
AIC	1050			

Significance level		Coefficient sign (+)	(-)
0.1	*	*	
0.05	**	**	
0.01	***	***	

Conclusions: relevant adoption factors

Cocoa plantation age

Technical assistance

Strong social network structures contribute to creating an enabling environment for systemic adoption, facilitating social contagion and information spill-overs

Implications for agricultural practices and policy

- In terms of policy, it proposed increase hectares in the agroforestry cocoa production system area in Colombia.

  - ✓ This action should be implemented in previously degraded areas;
  - ✓ degraded areas will be restored
  - ✓ sequential cropping for restoration of degraded areas could be a solution (Villarino et al., 2021);
  - ✓ Prevent encroachment into the forest