

Access to Land and Empowerment of Women Organic Cashew Producers in the Collines Department of Benin: Technical Support from Support Institutions

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ABSTRACT

The purpose of this study is to determine the moderating role of technical support institutions in the economic empowerment of women engaged in organic cashew production who are beneficiaries of land in the Collines department of Benin. Socioeconomic Characteristics of the respondents were, collected randomly from 227 women involved in the CRADIB NGO project. The 5DE index and Fractional Regression Model technique were employed to assess the level of economic empowerment and its effects on the living conditions of the respondents. The results reveal that women engaged in cashew production in the Collines department are economically empowered to the extent of 23.74%. However, 10% of women who benefited from institutional support for land access achieved the threshold of empowerment, whereas nearly 46% of women who obtained land through inheritance have achieved empowerment. Furthermore, the primary factors limiting the economic empowerment of women cashew producers are the right to make decisions regarding household earnings, ownership of productive assets, and the ability to access and control agricultural credit. To guide economic policies, it is recommended that public policies focus on raising awareness in rural communities about women's rights on one hand, and institutions involved in facilitating women's access to land should consider the size of the land allocated as well as agricultural crop diversification.

Keywords: Land access, Women's empowerment, Support institutions, Cashew, Collines/Benin.

INTRODUCTION

Women's land rights are increasingly seen as a means to promote development by empowering women and increasing productivity and well-being (1). Women perform 66% of the world's work and produce 50% of the food but only receive 10% of the income and own a mere 1% of land (2). According to (3), women own only about 2% of the world's land, with sub-Saharan Africa having 15% of the land owned by women.

In Benin, the discrimination of women in land ownership is also common due to customary law, which is patrilineal and prohibits women from inheriting land (4). According to this source, land inherited by a woman becomes the property of her husband's lineage or a third lineage, depending on whether it is inherited by a son or a daughter. However, the 2007-03 law of October 16, 2007, on rural land tenure in the Republic of Benin is highly beneficial for rural women as it promotes their access to natural resources in general and agricultural land in particular. The reality is that this law is not well-known, especially among women in rural areas due to the high illiteracy rate observed in these areas. This explains why in some regions of Benin, only 2% to 12% of women own land (5). The Dutch Development Organization explains this land disparity as a result of the limited economic power of women compared to men and the customary

and traditional practices that do not favor women in this regard (6).

Faced with this issue, several non-governmental structures and organizations have worked to promote women's access to land in Benin (4; 6; 5). Support for the promotion of cooperatives is evident in the various processes of support or incubation for promoters and the services provided on an ad-hoc or continuous basis to cooperatives that are struggling to take off (15). Given the discrimination women face in land access (16), the support process acts as a guarantee for the sustainability of their activities. The assistance of institutions promotes women's empowerment and their agricultural activities, the acquisition of appropriate social capital, and networking between agricultural products and tropical product buyers (17). Among the organizations supporting women's access to land in Benin is the CRADIB NGO, which has worked to provide land access to 1,185 rural women in the Zou and Collines departments of Benin. These cooperatives are focused on the production of organic cashew.

Cashew cultivation represents the third pillar of Benin's economy (18). It is practiced by 65,000 households in Benin (19), with women constituting 60% of the workforce in the entire cashew sector (20). Despite representing 60% of the workforce in the entire cashew sector in Benin, women receive only 10% of the sector's income (20). The percentage of land ownership in the cashew sector in Benin is estimated at 19%. The Food and Agriculture Organization (FAO) has recently estimated that if the land productivity of land cultivated by women reached the level achieved by men, the agricultural production of "Southern" countries would increase by 2.5 to 4%, reducing the number of people suffering from hunger and malnutrition by 12 to 17%, benefiting at least 100 million people (21).

This article aims to assess the impact of CRADIB NGO's institutional support on the empowerment of women engaged in organic cashew production and who are beneficiaries of land in the Collines department of Benin.

THEORETICAL FRAMEWORK

The theoretical foundation of this study is based on the work of (7), which highlights how society perceives gender roles and the resulting power relations and their impact on women's access to land. Essentially, the gender concept in this study represents a social construct that establishes a distinction between the sexes, emphasizing the social nature of gender-related behaviors and meanings, as well as gender inequalities.

This social construct, also addressed in the works of (8), emphasizes the material aspect manifested through different behaviors and statuses based on gender, as well as an unequal distribution of resources and social spaces between men and women. Indeed, most studies examining the respective roles of men and women in the professional, family, political, and educational worlds highlight the presence of gender inequality. Thus, the unequal distribution of land between men and women is one of the evident proofs of this existing inequality.

This observed inequality is also a reality of social life in the Collines department of Benin. In this context, gender is indeed a structuring principle of society (9). Furthermore, revealing the mechanisms of this power relationship was at the heart of the early feminist theories, which conceptualized it in terms of patriarchy (10; 11), gender, or appropriation (12). On the other hand, every individual, regardless of their gender, is constrained to conform to a gender norm, which involves socially expected behaviors and attitudes based on their gender (8). A more recent study by (13) highlights the theory of social justice focused on equity and justice in land access, particularly by shedding light on gender disparities and advocating for policies and reforms that ensure equal land rights. Additionally, theoretical work on gender empowerment by (14) emphasizes the need to promote women's economic and social autonomy by providing them with equal access to resources, including land. It underscores the importance of women's empowerment for poverty reduction and sustainable development.

MATERIALS AND METHODS

• Study Area and Sampling

1) Study Area

The Center for Research and Action for the Development of grassroots initiatives, recognized under the acronym CRADIB, is a non-governmental organization. The intervention of the NGO CRADIB within the framework of this project took place in the Zou and Collines departments. For the purpose of this study, the Collines department was chosen due to its potential in cashew production. Indeed, the Collines department is the leading department in cashew production (accounting for 39% of the total cashew production) in Benin. The Collines department (Procad, Pada, 2017) is entirely located in the Sudanian-Guinean climate zone, characterized by two rainy seasons covering the periods from April to July and from October to November. These characteristics are highly favorable for cashew cultivation. It comprises six communes, namely Dassa-Zoumé, Savalou, Bantè, Savè, and Ouèssè (Singbo et al, 2004).

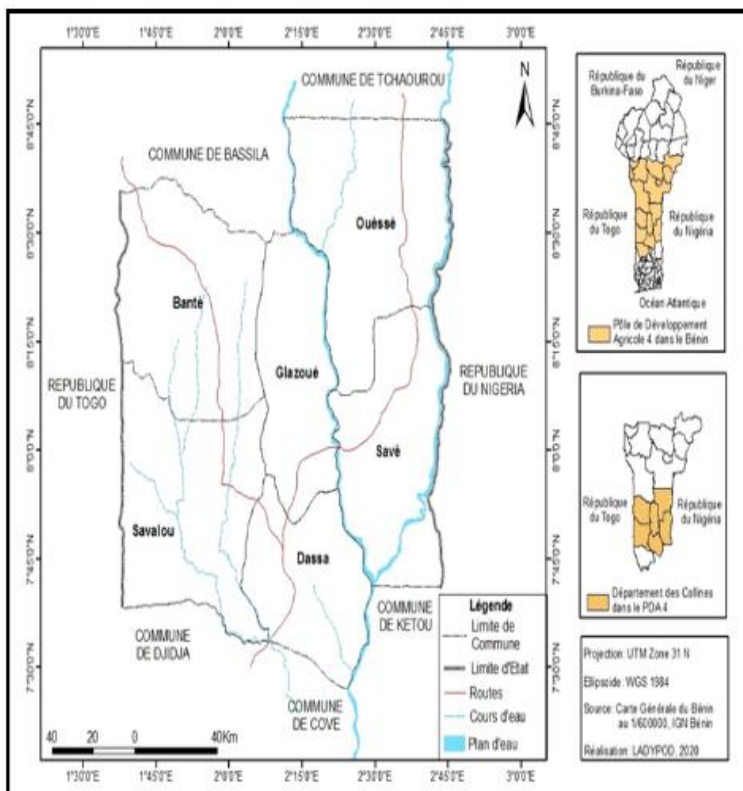


Fig 1: Geographic Location of the Collines Department in Benin

2) Sampling

Sampling encompasses the six (06) communes of the Collines department. The identified target population consists of women beneficiaries of CRADIB's intervention in organic cashew production.

Sample Size

Randomly, 227 women involved in CRADIB's project were surveyed in the Collines department. The distribution of the number of surveyed women per commune is presented in the table below.

Communes	Number of women concerned	Number of women retained
Glazoué	240	32
Dassa	253	33

Savè	190	25
Savalou	240	32
Bantè	298	39
Ouèssè	504	66
TOTAL	1725	227

Table 1: Size of the Representative Sample

Source: CRADIB Members List

Data Collection and Processing Tools

Data was collected using the Open Data Kit (ODK) software and processed using STATA 16 software.

Data Collected

The collected data include women’s land access, the practice of other farming or income-generating activities, cashew apple utilization, yield, land size, and socio-economic household decisions.

- **Statistical Analysis Method**

1. Women’s Cashew Producers Empowerment Index

The USAID (2012) has defined five domains of empowerment (5DE) in agriculture. The complex measurement designed and calculated for empowerment within agricultural production involves ten indicators distributed across five domains. In the WEAI methodology, empowerment scores for women and men, based on the results obtained in each of the five identified domains, are calculated and compared using a gender parity index.

Table 2: The Five Women’s Empowerment Domains in WEAI

DOMAIN	INDICATORS	WEIGHT
Production	Contribution to production decisions	1/10
	Autonomy in production	1/10
Ressources	Ownership of productive assets or resources	1/15
	Purchase, sale, or transfer of assets	1/15
	Access to productive resources	1/15
Revenue	Control over income use	1/5
Leadership	Membership in a group	1/10
	Contribution to production decisions	1/10
Time	Autonomy in production	1/10
	Ownership of productive assets or resources	1/10

Source: Alkire et al. 2013

The measurement of the five domains of empowerment (5DE) is done using a number ranging from 0 to 1, with the highest value (1) indicating greater empowerment. The calculation formula for 5DE is as follows:

$$5DE=1-MO \quad (1)$$

$$MO=H*A \quad (2)$$

Where **H** is the proportion of individuals being inadequate (taking into account all 10 indicators), **A** is the average inadequacy score, and **MO** is the inadequacy index. Through this formula, it is evident that the 5DE index of women can be improved by reducing the percentage of inadequate women (H) or the proportion of domains in which inadequate women do not have a satisfactory level.

Improving the 5DE index implies an overall improvement in women's empowerment in the agricultural sector (WEAI).

2. Determinants of Empowerment of Surveyed Women

In order to identify the determinants of empowerment, an equation was estimated with the empowerment index as the variable to explain. This equation is presented as follows:

$$IAAP_i = a_0 + a_1X_i + U_i \quad (3)$$

Where: IAAP is the empowerment index in cashew farming;

a_0 is the constant;

X_i is the vector of explanatory variables; and

U_i is the error term.

The variable to be explained is of a continuous quantitative nature, and in this case, we could have used Ordinary Least Squares (OLS) estimation, but this would introduce biases. Given the values taken by the index, it is more appropriate to use the Fractional Regression Model technique proposed by Papke and Wooldridge (1996), which is shown to be better suited for indices with values between 0 and 1.

To determine the effects of cashew production on the living conditions of female producers, a two-step approach was adopted:

(i) first Identifying variables to measure living conditions.

(ii) Then Estimate equations.

In the first step, three variables were identified as measures of living conditions. These are the proportions of income allocated to education, health, and nutrition. This choice is justified by the fact that these three expenditure categories are related to important needs of the economic agent. In the second step, the empowerment index was included as an explanatory variable, along with other control variables. Ordinary Least Squares (OLS) estimation was then carried out.

RESULTS

A) Descriptive Statistics of Socio-demographic Variables of Surveyed Women

The analysis of Table 3 below shows that, on average, the surveyed women are between 26 and 76 years

old, with an average age of 49 years. 83.11% of these women are married, and 10.04% have lost their husbands. Singles represent only 6.85% in the cashew sector. This indicates that cashew farming is primarily practiced by older and responsible individuals. These women have an average of 17 years of experience in cashew production, taking into account their involvement in agricultural activities since

childhood for most of them. On average, each woman has six children. The land area cultivated by each woman is an average of 2.57 hectares, ranging from 0.25 to 23 hectares for all surveyed women. Additionally, these women make decisions to engage in other farming or income-generating activities, utilize cashew apples, and access credit in proportions of 61%, 30%, and 54%, respectively.

Table 3: Descriptive Statistics of Socio-demographic Characteristics of Surveyed Women

Quantitative Variables	Average	Std Deviation	Min	Max
Age of respondents	48,49772	10,22247	26	76
Experience	17,84475	9,670422	2	51
Height_Men	5,826484	2,638291	0	15
Super_Cult	2,573059	3,270809	0,25	23
Qualitative Variables	Modalité	Percentage		
Marital Status	Single	6.85		
	Married	83.11		
	Widowed	10.04		
Val_Pommes	No	70.32		
	Yes	29.68		
AUT_Activ	No	38.81		
	Yes	61.19		
Acc_Cred	Yes	54.79		
	No	45.21		

Source: Results from estimation

B) Women’s Land Access Method

The figure below shows that more than half (51%) of the surveyed women have access to land through donations facilitated by the NGO CRADIB, in collaboration with local communities and the husbands of the women involved. However, some women who joined cooperatives established by the NGO CRADIB for organic cashew production gained access to land through inheritance (38%) and purchase (11%). It should be noted that most women who have lost their husbands fall into the category of those who inherited land left by their deceased husbands.

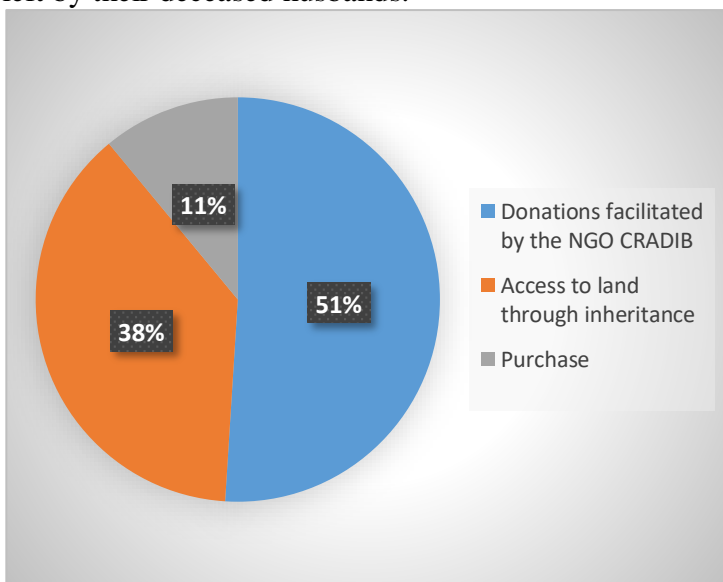


Figure 2: Women’s Land Access Method

C) Empowerment Index of Women Cashew Producers in the Collines Department of Benin

In the intervention area of the NGO CRADIB, Table 4 reveals that 23.74% of women are empowered. Among the 76.26% of women who are not yet empowered, the deficit in empowerment is observed in 52.16% of the five considered domains. This results in a non-empowerment index of 0.4 with some variation by domain.

Table 4: Empowerment Index of Surveyed Women

Indice 5DE	Women
Empowerment Index	0,6
Percentage of non-autonomous individuals (H)	76.26
Percentage of autonomous individuals (1-H)	23.74
Observed deficit of autonomy (A)	52.16
Index of non-empowerment ($M_o=H*A$)	0,4
Empowerment Index (1- M_o)	0,6

Source: Results from estimation

Among the 76.26% of women who are not yet empowered, income control and utilization (75.45%) is the primary factor for non-empowerment, followed by ownership of productive assets (52.69%) and access to and control of credit (43.11%) for the surveyed women (Figure 3).

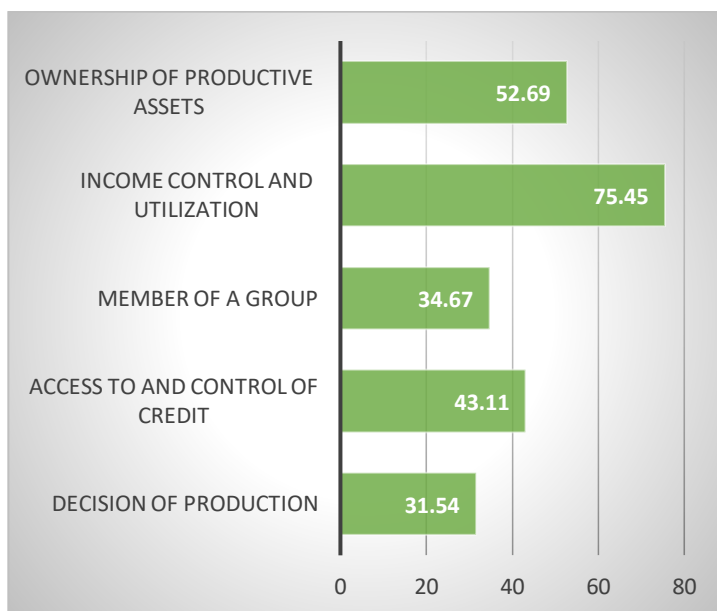


Figure 3: Empowerment Deficit in Non-Empowered Women by Domain

1. Distribution of Empowerment among Surveyed Women by Land Access Mode

According to Table 5 below, women who have access to land through inheritance are more empowered (44%) than those who gain land access through donation (30%), purchase (12.5%), and institutional support (10.8%).

Table 5: Distribution of Empowered Women by Land Access Mode

Empowered	Purchase	Donation	Institutional Grant	Inheritance
No (%)	87.5	70	89.2	56
Yes (%)	12.5	30	10.8	44

Source: Results from estimation

However, Table 6 shows that all women who received institutional support to access land have a cultivated land area of less than 5 hectares, while women who acquired land through purchase and inheritance are found in the category of land areas cultivated beyond 5 hectares. Therefore, the proportion of cultivated land is an explanatory factor for the level of empowerment of women in agriculture.

Table 6: Cultivated Land Area by Land Access Mode of Surveyed Women

SurfaceArea (ha)	Means of access to land				
	Purchase	Institutional Grant	Donation	Inheritance	Total
[0 ; 5[23	101	8	51	183
[5 ; 10[1	0	2	23	26
Greater than or equal to 10ha	0	0	0	10	10
Total	24	101	10	84	219

Source: Results from estimation

D) Analysis of Determinants of Empowerment of Surveyed Women

The results from our regression analysis reveal that the factors explaining the empowerment of women in cashew production are age, engagement in other crops, cultivated land area, cashew apple utilization, net income from cashew production, and expenditures on food, health, and children's education (Table 7).

Table 7: Determinants of Empowerment of Surveyed Women

Indice_IAF	Coef.	Std. Err.	z	P>z
MOD_ACC_TE	0.069	0.078	0.890	0.373
SM	-0.012	0.014	-0.830	0.407
EXP	-0.00	0.008	-0.250	0.802
AGE	0.015	0.007	2.030	0.043**
TM	-0.007	0.024	-0.280	0.778
AUT_CUL	0.199	0.101	1.970	0.048**
SUP	0.090	0.037	2.420	0.016**
Val_POM	1.240	0.189	6.580	0.000***
REV_NET	-0.000	0.000	-3.250	0.001***
D_ALIM	0.000	0.000	2.460	0.014***
D_SANT	0.000	0.000	2.630	0.009**
D_SCOL	0.000	0.000	2.410	0.016**
_cons	-0.878	0.276	-3.190	0.001
Pseudo R2	0.0723			
Prob > chi2	0.0000			

Source: Results from estimation

E) Beneficial Effects of Empowerment on Living Conditions

Women’s empowerment in cashew production significantly improves living conditions, particularly in terms of food, health, and education. An increase of 1% in the level of empowerment results in an increase of 153,159 FCFA in the ability to cover food expenses, 25,583 FCFA in health expenses, and 83,225 FCFA in education expenses, respectively. The same applies to the land area cultivated. Empowered women with large landholdings are able to combat hunger, ensure the education and health of their children.

Table 8: Beneficial Effects of Empowerment on the Living Conditions of Surveyed Women

VARIABLES	(1) Spending on food	(2) Spending on health	(3) Spending on education
AUTON	153159***	25582.11**	83224.98**
	-33012.4	11850.33	30402.71
MOD ACC TE	-51591.32**	-25140.28***	-36993.55**
	-20659.3	-7415.99	-19026.2
SM	-1526.88	173.2644	402.0617
	-8379.27	-3007.88	-7716.88
EXP	1856.632	1279.965*	3564.847**
	-1982.7	-711.723	-1825.97
AGE	-1113.465	-964.683	-3363.967*
	-1982.33	-711.589	-1825.62
TM	-1319.18	660.9115	739.2085
	-5996.61	-2152.58	-5522.56
AUT CULT	-21308.4	-16899.42**	18248.57
	-24578.1	-8822.7	-22635.1
SUP	79144.52***	27241.4***	41656.93***
	-4508.29	-1618.32	-4151.9
adjusted R ²	0,7194	0,6629	0,449
Prob>F	0,000	0,000	0,000

Source: Results from estimation

DISCUSSION

This study aimed to determine the level of empowerment of women engaged in organic cashew production based on their land access mode. The results of our estimations revealed that 23.74% of women involved in organic cashew production are empowered in the study area. This result is higher than the 19% found by Tomavo and Dègla (2019) in central Benin and lower than the 46.5% found by IPA (2016) in Senegal. Similarly, the empowerment index for women (0.6) in our work is lower than the one (0.776) found by IPA (2016) in Senegal. Our findings confirm the studies of USAID (2016), which concluded that women are not empowered in agricultural production. The factors limiting the empowerment of women cashew producers are low control and utilization of income (76%), low ownership of productive assets (52.69%), and limited access to and control of credit (43.11%). These results corroborate the work of Tomavo and Degla (2019) on the socio-economic analysis of rural women’s empowerment in central Benin. Indeed, these authors showed

that women in central Benin do not enjoy autonomy in making decisions about their households. Most women have no rights to make decisions alone regarding household operations, whether it involves the use of their husbands' earnings to which they contributed (94.81%) or major household expenditures (90.12%). The results are also consistent with the study by Abdoulaye and Monique (2020) on the social status of Adja women in Benin, which concluded that women in this community are not sufficiently empowered due to their strong dependence on men and the Adja community in Dogbo. However, our findings are contrary to those found by Lombardini (2018) in Tunisia. In her study on women's empowerment in Tunisia, Lombardini (2018) demonstrated that important characteristics defining an empowered woman in Tunisia include self-confidence, the ability to make decisions independently, and knowledge and awareness of women's rights.

Furthermore, women who have access to land through inheritance are more empowered (44%) than those who gain access through purchase (12.5%) and institutional support (10.8%). The main reason for this difference is that institutional support allowed women to access land but with land areas of less than 5 hectares. Institutional support should not only concern women's accessibility to land but also work to provide them access to larger land areas. In addition, despite the small land areas they possess, women benefiting from institutional support can engage in other crops and invest in cashew apple utilization, as these two variables have shown to have a positive impact on increasing the level of empowerment of women cashew producers.

Expenses on food, health, and education were considered to analyze the impact of cashew production on the living conditions of women and their households using the empowerment index. Econometric analysis revealed that an increase in the level of empowerment of women cashew producers increases food expenses by more than 150,000 FCFA on average. The same applies to health and education expenses, which improve by 25,000 FCFA and 83,000 FCFA, respectively. Douboğan (2017) in her study in Benin has demonstrated that the more economically empowered women are, the more they influence the well-being of households. The author showed that most economically empowered women allocate their entire monthly income to their household expenses. Women's empowerment contributes to food security and children's education. Thus, the results of this study have demonstrated that women's economic empowerment is a crucial factor for household food security and children's education. In the same vein, the work of Quang et al. (2020) in Vietnam has proven that land use rights held exclusively by women lead to a decrease in children's disease incidence, an increase in their health insurance coverage, schooling, and the reallocation of household expenses toward food and away from alcohol and tobacco in rural areas of Vietnam.

CONCLUSION

This study assessed the moderating role of institutions in the empowerment of women engaged in organic cashew production and beneficiaries of land in the Collines department of Benin. The results of this study reveal that the support provided by the CRADIB NGO in the Collines department has enabled 51% of the surveyed women to gain access to land through donations in their respective localities, either in their paternal families or their husbands' families. Women involved in cashew production in the Collines department exhibit a 23.74% level of autonomy. However, women who access land through inheritance are more autonomous than those who acquired land through purchase or donation, respectively. More precisely, 10% of the women who received institutional support have reached the threshold of autonomy, while nearly 46% of those who obtained land through inheritance have achieved autonomy. The main determining factor lies in the land area obtained by each woman. Furthermore, the primary factors limiting the empowerment of women engaged in cashew production are their rights to make decisions about household income, ownership of productive assets, and access to and control of agricultural credit. Additionally, the empowerment of women engaged in cashew production enhances household spending on food, health, and education. Regarding the determinants, the value of cashew apples, age, engagement in other agricultural activities, and the cultivated land area enhance the level of women's empowerment, in contrast to household

size and marital status.

To guide economic policies, it is recommended that public policies focus on raising awareness in rural communities regarding women's rights. Institutions responsible for facilitating women's access to land should take into consideration the size of allocated land and the diversification of agricultural crops. Furthermore, regular monitoring of beneficiaries is crucial to ensure the optimal utilization of acquired land. In this perspective, female farmers are encouraged to concentrate on the processing of cashew apples, an activity with the potential for diversifying income sources and creating employment opportunities for young people.

A limitation of this study is the comparison of the level of empowerment of women engaged in organic cashew production who are not beneficiaries of the CRADIB NGO project with the level of economic empowerment of the target beneficiaries of this project. Our future studies will address this comparison.

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