

***BOLSA VERDE*: AN EXPERIENCE FOR THE IMPLEMENTATION OF A PUBLIC POLICY TO ENCOURAGE THE COMMERCIAL PLANTING OF NATIVE TREES IN AGROFORESTRY SYSTEMS.**

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Abstract:

The "*Bolsa Verde*" action was implemented at Paulo Jackson Settlement, located in the Atlantic Forest Biome, municipality of Ibirapitanga, Southeast region of Bahia. The Project aims to establish a public policy model to encourage the planting of native trees and their future commercial use, bringing income to agrarian reform settlement projects. A total of 1,200 individuals of *pernambuco* (*Caesalpinia echinata* Lam) were planted as an arboreal component of the agroforestry arrangements, established to recover the "faults" existing after the fall of native trees, which make up the top protection (shading) of the Cocoa-Cabruca Agroforestry System. After 4 years of planting, an evaluation of the average survival rate of the individuals planted was performed and the result found was a survival of 64% of those individuals. This survival rate can be increased by maintaining technical assistance for a period of 4 years, which is the period for the establishment of individuals in agroforestry arrangements. We recommend the adoption of this public policy as a practice for the planting of native trees for commercial use in agroforestry arrangements in the Atlantic Forest Biome.

Keywords:

Agroforestry System, Public Policies, native trees, commercial planting, income generation

1. Introduction

The "*Bolsa Verde*" was implemented at Paulo Jackson Settlement Project located in the Atlantic Forest Biome, municipality of Ibirapitanga, Southeast region of Bahia. The agrarian reform settlement projects in Southeast Bahia, in many cases, were implemented in farming properties producing cocoa in the Cocoa-Cabruca Agroforestry System. In this Agroforestry System, the native trees of the Atlantic Forest shade the cocoa trees. One of the management practices of cocoa farming is the manual or chemical mowing. This practice eliminates - in addition to weeds, also the seedlings of the native trees, preventing their population dynamics. For natural reasons (winds, lightning, etc.) some of these trees are felled, destroying the cocoa trees when falling, thereby opening clearings, which is called "faults" in that region. These "faults" need to be recovered, aiming to maintain "standing" cocoa trees, thus ensuring the productivity of this crop.

In Project Settlements that adopt agroecology, the way of recovering these "faults" is through the implementation of Agroforestry Systems. Pau-brasil (*pernambuco*) (*Caesalpinia echinata* Lam), a naturally occurring tree in southeast Bahia, is listed by the Brazilian Institute for the Environment and Renewable Natural Resources as an endangered tree. This tree provides wood of excellent quality and, by using *pernambuco* as an arboreal component of agroforestry arrangements to recompose the "faults", this Project promoted the productive conservation of *pernambuco*.

The "International Pernambuco Conservation Initiative" (IPCI) in partnership with the Executive Committee of Cocoa Farming implemented this pilot project to establish a public policy model to encourage the planting of native trees and their future commercial use, generating income to dwellers of agrarian reform settlements located in the Atlantic Forest Biome.

2. Methodology

A Settlement Project working with Agroforestry Systems and Agroecology was identified by the Regional Office of the National Institute of Colonization and Agrarian Reform (INCRA). The Paulo Jackson Settlement Project, located in the municipality of Ibirapitanga – Bahia was chosen for this. A meeting was held with the Board of Directors of the Association representing the Settlement Project to explain the objective of the Project and its methodology. The methodology consisted of: a) The establishment of a Contract with the Association, so they could receive the financial resources (one Brazilian minimum wage to be paid in two installments) that were used by the settlers for the planting and maintenance of the seedlings for a period of 1 year; b) The donation of 1,200 *pernambuco* seedlings (*Caesalpinia echinata* Lam) in tubes to the Association; c) The training of the settlers who joined the Project on the planting and maintenance of seedlings in agroforestry arrangements; d) The Association handed over 60 seedlings and half minimum wage to the settlers who joined the Project; e) The delivery of technical assistance during the first year and the preparation of a technical report after the sixth month, describing the maintenance status of the planting; f) The release of the second installment of the Project funds to the Association to be transferred to the settlers who did the proper maintenance of the planting g) An evaluation after the fourth year of the planting conducted by the settlers.

3. Results and insights:

In the fourth year of the Project, an evaluation of the survival rate of the planted individuals was made. This evaluation consisted of a visit to the land plots of the settlers who joined the Project. In this visit, all those planted individuals of *pernambuco* (*Caesalpinia echinata* Lam) that survived during the described period were georeferenced (Table 1).

Survival rate of *pernambuco* planted in Paulo Jackson Settlement Project land plots after the fourth year of planting (Table 1):

Plots	No. of seedlings planted	No. of existing seedlings	Survival rate
Plot 1	60	57	95%
Plot 2	60	48	80%
Plot 3	60	33	55%
Plot 4	60	33	55%
Plot 5	60	57	95%
Plot 6	60	48	80%
Plot 7	60	33	55%
Plot 8	60	33	55%
Plot 9	60	46	77%
Plot10	60	39	65%
Plot 11	60	39	65%
Plot 12	60	43	72%
Plot13	60	24	40%
Plot 14	60	26	43%
Plot15	60	24	40%
Plot 16	60	27	45%
Plot 17	60	31	52%
Plot 18	60	40	67%
Plot 19	60	40	67%
Plot 20	60	46	77%

The results were: Plots 13 and 15 had the lowest survival rate, with only 24 *pernambuco* (*Caesalpinia echinata* Lam) individuals being georeferenced, and plots 1 and 5 had the highest survival rate, with 57 *pernambuco* (*Caesalpinia echinata* Lam) individuals being georeferenced. The Project Coordination, in a meeting with the leaders of the settlers, determined that the absence of technical assistance for a period of three years contributed to the mortality of individuals, since the plots where individual mortality was high, the planting maintenance (crowning plants and fighting ants) was very precarious.

4. Relationship of work and sustainability:

The Atlantic Forest is under serious threat. Many of the naturally occurring species are dying and there are no scientific studies being conducted on this. By proposing a public policy aimed at the planting of native trees, aiming at their productive conservation in agroforestry arrangements, we will be promoting studies on the native tree species of the Atlantic Forest Biome so that we may: conserve, manage and promote their future commercial use in a rational way.

5. Lessons learned:

Working in a Settlement Project, including the involvement and participation of the settlers, proved to be an efficient way to implement the model of productive conservation of tree species of the Atlantic Forest using Agroforestry Systems. The technical assistance model proved to be incomplete, as the forest outreach effort should remain until the consolidation of the tree species in agroforestry arrangements. The success of this experiment should be replicated, using other tree species from the Atlantic Forest, to compose agroforestry arrangements.