

# Indicators for sustainable palm cultivation in the Amazon of targeting the market for Biofuel

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## Introduction

The African palm (*Elaeis guineensis*) or oil palm, as it is popularly known, is a palm native of northwestern Africa (Guinea-Bissau) (Beker, 2010), who excels in world agriculture because it has high oil yield, reaching more than six tonnes per hectare per year (Homma, 005). World production of palm oil, derived from the fruit of this palm tree is growing in numbers similar to those of soy, and most consumed in Asian markets like India, China and Japan but also in growing demand in U.S. markets, Canada, European Community and South America This diverse international market generates a variety of requirements on the modes of producing and the social and environmental impacts, which stimulated the creation of regulatory bodies that sustainable production chain, such as the Roundtable for Sustainable Palm Oil (RSPO) and Roundtable on Sustainable Biofuels (RSB), which aim to principles and criteria for productive social responsibility (Monteiro, 2010). This study aims to analyze the main indicators of social and environmental sustainability of the culture of palm, checking their application as tools for environmental management in family farming projects for the production of palm in Para State, under this context of expansion of activity with agroenergetic purposes.

## Methodology

The study was conducted in an exploratory way with a set of 19 family farmers, suppliers of raw materials for agro-industry of palm oil and biodiesel in the municipalities of Moju and Thailand, Tome-Acu microregion of 120 km from Bethlehem

The collection method was based on the verification module (Ambitec-Environmental Protocol of the Palm Oil). Tool composed of a set of weighting matrices, or clusters of indicators, constructed for the analysis of compliance with the principles and sustainability criteria in the present protocol, in addition to a set of environmental performance indicators and socio-directed environmental management units productive with palm in the state, as well as addressing the verification of protocol conformance of palm oil. (Rodrigues et al.,2010)

In the final results all coefficients are expressed in the same scale ranging from -15 to +15, the highest value observed by directly comparing the environmental performance of productive activities that assessment. Notes on the model of table 1 the weighting matrix with some of the environmental performance indicators.

## **Results**

Negative values for indicators of agrochemical use and energy use, showed that at present there have been increased use of agrochemicals and energy characteristic of the initial deployment of palm plantations.

Were observed impacts on soil quality and water, which has contributed to the improvement and recovery of soil planted with palms, the coverage associated with *Pueraria phaseoloides* legume used since the establishment of seedlings. Regarding the water quality there was no pollution or disordered use in the projects studied

The criteria environmental restoration, biodiversity and atmosphere were also positive, according to understandings of the producers participating in the surveys, as these projects were implemented in areas previously altered, contributing significantly to minimize the pressure on areas of native vegetation.

Regarding socioeconomic indicators on a scale ranging weighting of -15 to 15, the projects analyzed showed a significant positive aspect in all indicators in relation to income generation, the valuation of property, income diversification, security food, quality of work, dedication and responsibility profile (Fig. 2). The results demonstrate the valuable contribution that these projects offer palm to the local economy and regional, as well as higher employment and income generation for rural communities in the Amazon.

In relation to social and environmental compliance assistance to the socio-environmental protocol of oil palm in the state of Para, the analysis showed that the number of farmers reached levels that ranged from 64% to 83% in meeting the principles and criteria of the protocol.

## **Conclusion**

The indicators analyzed as soil quality, water quality, environmental restoration, atmosphere are elements of fundamental importance for the certification of the palm, is to serve the market of vegetable oils, is the market for biofuel.

The participation of family farming in the design of palm, as suppliers of raw material for the biodiesel industry, has shown that the production practices adopted show gains related to the environmental sustainability of the value chain of biodiesel in the Amazon.

The sustainability of projects aimed at the cultivation of palm biofuel market was evident in the largest attendance the social, economic and environmental protocol present in the oil palm in the state of Pará

Supported by EMBRAPA AMAZONIA ORIENTAL E UFRA

**Author Publications (2009-2010):**

MONTEIRO, K. F. G. , KERN, D. C. ; RUIVO, M. L. P. , RODRIGUES, T. E. ; COMETTI, J. L. S. . Using wood waste as an alternative to improve the environmental conditions in reforestation system .. Acta Amazonica (Print), v. 40,p.45-60,2010.

MONTEIRO, K. F. G. ; RUIVO, M. L. P. , KERN, D. C. , RODRIGUES, T. E. . Use of waste from the lumber industry in the soil as an alternative for improving environmental conditions in an agroforestry for reforestation, Thailand-PA. In: Roberto Porro. (Org.). Alternative Agroforestry Transformation in the Amazon. Brasilia: Embrapa Information Technology, 2009, v., P. 705-716.

MONTEIRO, K. F. G. , KERN, D. C. ; RUIVO, M. L. P. , RODRIGUES, T. E. ; FARIAS, P. R. S. , COSTA, M. L. ; JUVENAL, F. , ROCHA, J. B. ; MACIEL, I. J. ; LENT, H. D. A. B. ; COMETTI, J. L. S. . Use of Waste Vegetable Ground: Grants for Training of New Terra Preta in Thailand (AP). In: TEIXEIRA, W. G., KERN, D. C., Madar, B. E., LIMA, H. N; WOODS, W. (Org.). The Dark Soil Amazon: its characterization and use this knowledge to create new areas. Bethlehem: UFAM, 2009, v. 1, p. 314-327.

MONTEIRO, K. F. G. Palm Oil Production Prospects for biofuels in the Brazilian Amazon. Biofuel: Algae a solution coming from the water, Biofuel Magazine, N° 38. p. 8-8, 05 August 2009.

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