



Arisbe Mendoza Escalante (Autor)
**Analysis of Smallholder Agricultural Production in
the Eastern Amazon: Empirical Evidence and Policy
Perspectives for the Bragantina Region**

Arisbe Mendoza Escalante

Analysis of Smallholder Agricultural Production in the Eastern
Amazon: Empirical Evidence and Policy Perspectives
for the Bragantina Region



Cuvillier Verlag Göttingen

<https://cuvillier.de/de/shop/publications/2573>

Copyright:
Cuvillier Verlag, Inhaberin Annette Jentsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,
Germany
Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>

Contents

List of Tables.....	iii
List of Figures.....	iv
Abbreviations and Acronyms.....	v
Acknowledgments.....	vii
1 Introduction.....	10
1.1 Research Background	10
1.2 Problem Statement.....	12
1.3 Objectives and Research Questions.....	15
1.3.1 Smallholders' Agricultural Production	16
1.3.2 The Case of Fire-Free Agricultural Practices	17
1.4 Summary of the Empirical Research Design.....	18
1.5 Study Overview.....	19
2 Smallholder Agricultural Development in the Bragantina Region.....	22
2.1 Why Smallholder Farming is an Important Issue?	22
2.2 Historical Background of Smallholdings in the Bragantina	24
2.3 Agricultural and Environmental Policies in the Region	26
2.4 The role of Agricultural Innovations.....	30
2.5 Chapter Summary.....	33
3 Smallholder's Profile in the Bragantina Region.....	36
3.1 General Information of the Bragantina Region	37
3.1.1 Geographical Characteristics	37
3.1.2 Demographic Characteristics	40
3.2 An Overview of Smallholders' Characteristics.....	41
3.2.1 Sources and Quantities of Income	41
3.2.2 Household Socio-Demographic Characteristics.....	44
3.2.3 Access to Services, Inputs and Assets	47
3.2.4 Structure of Production	50
3.3 Chapter Summary.....	52
PART I: Smallholders' Agricultural Production.....	56
4 Agricultural Production Analysis: Modelling Approach.....	57
4.1 Review of the Approaches to Modelling Agricultural Systems	58
4.2 Review of the Theory of Production Decisions	59
4.2.1 Technology and Production Function	60
4.2.2 Duality of Production Technology and Profit Function	62
4.2.3 Factor Demand and Supply Functions from the Profit Function.....	63
4.2.4 Multi-output Technologies and Profit Function	65
4.3 Structure of the Profit Function Model for the Bragantina Region of Brazil	68
4.3.1 Overview of the Model	68
4.3.2 Environmental Factors: Determinants of Agricultural Production	70
4.3.3 Model of Optimal Producer Behaviour: Profit Function	71
4.4 Chapter Summary.....	75

5	The Empirical Model: Specification and Estimation of the Profit Function.....	77
5.1	Functional Form	77
5.2	Model Specification	80
5.3	Data Sources and Definition of Variables Specified in the Profit Function .	85
5.3.1	Data Sources	85
5.3.2	Definition of Variables Specified in the Profit Function	86
5.4	Estimation Procedures.....	92
5.4.1	System Estimation	92
5.4.2	A Note on Price Variability	93
5.4.3	Treatment of Zero Fertilizer Use.....	94
5.4.4	Econometric Issues	96
5.5	Discussion and Estimation Results	98
5.5.1	Estimated Coefficients and Computed Elasticities	98
5.6	Chapter Summary	108
PART II: The Case of Fire-Free Practices.....		112
6	Model of Technology Choice: Profit Function.....	113
6.1	Empirical Investigation	114
6.1.1	Data Sources	115
6.1.2	Farmer’s Perspective on Advantages and Disadvantages of MT	115
6.1.3	Reasons of Testing Mulching Technologies According to Farmers ...	117
6.1.4	Profit Model	118
6.2	Results and Discussion	120
6.2.1	Profit Function Results	121
6.2.2	Probit Model Results	124
6.3	Chapter Summary	126
7	Potential for the Adoption of Mulching Technologies: An Application of Contingent Valuation Methods.....	130
7.1	Conceptual Framework to Analyze Potential Adoption.....	131
7.2	Model of Willingness to Adopt Fire-free Technologies	133
7.3	Methods of Analysis.....	135
7.3.1	Data Set and Survey Implementation	135
7.3.2	Econometric Analysis.....	136
7.4	Discussion of the Estimation Results.....	140
7.5	Chapter summary	147
8	Summary and Conclusions.....	151
8.1	Research and Questions Studied	151
8.2	Policy Implications	155
8.3	Future Research Areas	157
Appendices.....		159
Appendix I Empirical Research Design and Data Collection Methods.....		159
Appendix II Documentation of Variables Included in Part I.....		179
References.....		193