

TABLE OF CONTENTS

ACKNOWLEDGMENT	ii
ABSTRACT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES.....	vi
LIST OF FIGURES	viii
ABBREVIATIONS AND ACRONYMS	ix
1. Introduction.....	1
2. Reliability of Assurance Systems in the Food Industry	4
2.1. <i>The Concept of Asymmetric Information</i>	6
2.2. <i>The Concept of Opportunistic Behaviour</i>	9
2.3. <i>Key Factors Influencing the Reliability of Quality Assurance Systems</i>	13
3. Requirements for Unannounced Inspections in Organic Food Standards.....	15
3.1. <i>Codex alimentarius</i>	15
3.2. <i>IFOAM</i>	16
3.3. <i>EU-Regulation on Organic Farming</i>	18
3.4. <i>The United State Of America National Organic Program (NOP)</i> <i>Regulation</i>	19
3.5. <i>Japanese Agricultural Standard (JAS) for Organic Agricultural Product</i>	19
3.6. <i>Costa Rican Organic Agriculture Regulation</i>	20
4. Theoretical Overview of the Effects of Unannounced Inspections.....	23
4.1. <i>Research Hypothesis</i>	26
5. Data and Sample Analysis	26
5.1. <i>Statistical Approach</i>	28
6. Results	29
6.1. <i>Data description</i>	29
6.1.1. Frequency of Inspections	31
6.1.2. Frequency of Non-Conformities.....	36

6.2. Relationship Between Unannounced Inspections and Non-Conformities	41
6.3. Comparison of sanctions and unannounced inspection frequencies between CBs.....	45
7. Discussion.....	53
8. Limitations and Recommendations	57
9. Conclusions.....	58
References.....	59
Appendixes	64
Appendix 1: Detail information about the classification of operators based on their activities.....	64
Appendix 2: Calculation of Herfindahl-Hirschman Index for Market Concentration.....	65
Appendix 3: List of German Control Bodies	66

LIST OF TABLES

Table 1. Comparison regarding unannounced inspection between organic food standards	22
Table 2. Total number of operators per year.....	29
Table 3. Total number of operators per CB.....	30
Table 4. Share of operators according to their activity sector	30
Table 5. Total number of operators with additional inspections per year and percentage change between years	31
Table 6. Total number of inspections per year and operator.....	32
Table 7. Average number of inspections per operator	34
Table 8. Percentage changes in announced and unannounced inspections per operator and year	34
Table 9. Average number of inspections per operators and share of unannounced inspections per CB	35
Table 10. Total number of samples collected and suggesting violation to the regulation per year and operator.....	37
Table 11. Total number of irregularities and evident violations per year, per activity of the operator.....	38
Table 12. Average number of irregularities and evident violations per CBs and year.....	39
Table 13. Total number of sanctions per operators and years	40
Table 14. Average number of sanctions per client and year imposed by each CB.....	41
Table 15. Correlation between unannounced inspections with the number of samples analysed and suggesting violations per operator.....	42
Table 16. Correlation between unannounced inspections with the number of sanctions per operator	44
Table 17. Zo statistics for paired comparison of sanctions frequencies between CBs in year 2007	46
Table 18. Zo statistics for paired comparison of sanctions frequencies between CBs in year 2008.....	47

Table 19. Zo statistics for paired comparison of sanctions frequencies between CBs in year 2009.....	48
Table 20. Zo statistics for paired comparison of unannounced inspections frequencies between CBs in year 2007	50
Table 21. Zo statistics for paired comparison of unannounced inspections frequencies between CBs in year 2008	51
Table 22. Zo statistics for paired comparison of unannounced inspections frequencies between CBs in year 2009	52

LIST OF FIGURES

Figure 1. Historical development of certification schemes	5
Figure 2. Typology of goods based on information economics	7
Figure 3. Basic structure of the organic certification system	12
Figure 4. Determination of the minimal-cost strategy for inspections.....	24
Figure 5. Share of unannounced inspections per year and operator	33
Figure 6. Average number of unannounced inspections per CB's client	36
Figure 7. Number of total irregularities and average number of unannounced inspections per year	43
Figure 8. Number of total evident violations and unannounced inspections per year.....	44

ABBREVIATIONS AND ACRONYMS

APEDA	Agricultural and Processed Food Products Export Development Authority
BLE	Bundesanstalt für Landwirtschaft und Ernährung (Federal Agency for Agriculture and Food).
CB	Control Body
EU	European Union
IFOAM	International Federation of Organic Agriculture Movement
ISO	International Organization for Standardization
JAS	Japanese Agricultural Standards
GM	Genetically Modified
GP	Good Practice
GAP	Good Agricultural Practice
GMP	Good Manufacturing Practice
HACCP	Hazard Analysis and Critical Control Points
NOP	National Organic Program
MAFF	Japanese Ministry of Agriculture Forestry and Fishery
QA	Quality Assurance
USA	United States of America
WTO	World Trade Organization