

Table of contents

Acknowledgements	I
Table of contents.	V
List of figures	XI
List of tables	XV
List of abbreviations	XVII
Chapter 1: Introduction	19
1.1 Agroforestry, a traditional farming system that has been reinvented	20
1.2 Agroforestry systems to address challenges in modern agriculture	21
1.2.1 Agroforestry and the Sustainable Development Goals	21
1.2.2 Evaluating agroforestry against the Ecosystem Services Framework	23
1.3 Interpreting agroforestry as a transformative solution	27
1.3.1 A diversity of agricultural models	27
1.3.2 Positioning agroforestry within the spectrum of agricultural models.	30
1.3.3 Agroforestry as an example of an agroecological innovation	30
1.4 Policy support for agroforestry systems in the EU	33
1.5 Flanders as a case study	35
1.6 A systemic, interdisciplinary and participatory research project	38
1.7 Objectives, research questions and outline.	39
1.8 References.	43
Chapter 2: Research approach	51
2.1 A comprehensive overview of FSR.	52
2.2 A FSR approach to agricultural innovation.	53
2.3 Practical implementation of FSR in this thesis	58
2.3.1 General overview	58
2.3.2 FSR building blocks	59
2.3.3 Triangulation	61
• <i>Diagnosis and Design</i>	62

•	<i>Framework of Renting for exploring multifunctional agriculture</i>	<i>63</i>
2.3.4	Research approaches	64
•	<i>Chapter 3: Socio-psychological analysis and descriptive analysis</i>	<i>66</i>
•	<i>Chapter 4: Agricultural Innovation System analysis</i>	<i>67</i>
•	<i>Chapter 5: Q-methodology analysis</i>	<i>68</i>
•	<i>Chapter 6: Exploratory analysis</i>	<i>69</i>
•	<i>Other studies and activities conducted in the context of the agroforestry project</i>	<i>70</i>
3.3	References	70
 Chapter 3: Scene setting.		 73
3.1	Introduction	74
3.2	Materials and methods.	76
3.2.1	Study area	76
3.2.2	Theoretical framework	78
3.2.3	Procedure and data collection	81
3.2.4	Data analysis.	84
2.3	Results	85
2.3.1	Summary statistics.	85
3.3.2	Knowledge, perceptions and opinions.	88
3.3.3	Agroforestry in Flanders	92
3.4	Discussion	96
3.5	Conclusion	99
3.6	References.	100
 Chapter 4: AIS analysis.		 107
4.1	Introduction	108
4.2	Methodology	110
4.2.1	Study area	110
4.2.2	Conceptual framework	111
4.2.3	Data collection and analysis	113
4.3	Results and discussion	116
4.3.1	Actors and their contributions to system functions	116
•	<i>Research and education domain</i>	<i>120</i>

•	<i>Enterprise domain</i>	121
•	<i>Intermediary domain</i>	122
•	<i>Government domain</i>	123
•	<i>Society domain</i>	124
4.3.2	Systemic structural failures and merits	125
•	<i>Infrastructure</i>	127
•	<i>Institutions</i>	128
•	<i>Interaction</i>	129
•	<i>Capabilities</i>	130
•	<i>Market structure</i>	130
4.3.3	Systemic transformational failures and merits	131
•	<i>Directionality</i>	131
•	<i>Demand articulation</i>	133
•	<i>Policy coordination</i>	133
•	<i>Reflexivity</i>	134
4.3.4	Improvement pathways	134
4.4	Conclusion	140
4.5	References	141
 Chapter 5: Q-methodology analysis		 149
5.1	Introduction	150
5.2	Material and Methods	153
5.2.1	Step 1: Generating the communication concourse	153
5.2.2	Step 2: Setting up the Q-set	154
5.2.3	Step 3: Selection of Q-sorters	154
5.2.4	Step 4: Ranking of statements by respondents (i.e. the Q-sort)	156
5.2.5	Step 5: Factor analysis.	157
5.2.6	Step 6: Interpretation of factor scores.	157
5.3	Results	158
5.3.1	Interviews and Q-sorts	158
5.3.2	Factor analysis	158
5.3.3	Factor interpretation	164

• <i>Design and Management</i>	164
• <i>Policy and Regulation</i>	165
• <i>Economy and market.</i>	165
• <i>Sociology and ecology</i>	166
• <i>Productivity and Efficiency</i>	166
• <i>Neoliberalism, Neomercantilism and Multifunctionality</i>	167

5.4 Discussion	168
5.4.1 Stakeholders interpret agroforestry and its enabling environment differently.	168
5.4.2 Agroforestry perspectives are associated with discourses on agricultural food production	170
5.4.3 Policy implications.	171
5.5 Conclusion	172
5.6 References	173

Chapter 6: Exploratory analysis 181

6.1 Introduction	182
6.2 Methodology	183
6.3 Results and discussion	185
6.3.1 Exploratory analysis	185
6.3.2 Case study analysis	188
• <i>Agroforestry plantation subsidy.</i>	189
• <i>Agroforestry plantation subsidy.</i>	193
• <i>Humusaufbau project</i>	194
• <i>'Woodland eggs' brand</i>	195
• <i>Pomona</i>	196
6.3.3 Insights and policy recommendations	197
6.4 Conclusion	198
6.5 References	199

Chapter 7: Discussion 205

7.1 Introduction	206
7.2 Development pathways and recommendations	207
7.2.1 The science and technological pathway (S&T)	207

7.2.2	The market and financial pathway (M&F)	210
7.2.3	The policy and institutional pathway (P&I)	212
7.2.4	The educational and organizational pathway (E&O)	215
7.2.5	The social and behavioral pathway (S&B)	216
7.3	Reflections	219
7.3.1	Reflections on agroecological transitions	219
	• <i>Leveling the playing field for AF systems in Flanders</i>	219
	• <i>Holistic versus reductionist agroecology</i>	219
	• <i>Bottom-up versus top-down approach for agroecological transitions</i>	222
	• <i>Realizing through AF the promise of an agroecological approach</i>	223
7.3.2	Reflections on the research approach	225
	• <i>Systems thinking</i>	226
	• <i>Participation</i>	227
	• <i>Interdisciplinarity</i>	228
	• <i>Reflexive note</i>	230
7.3.3	Contributions to temperate agroforestry literature	230
7.4	Conclusions	232
7.5	References.	233
Chapter 8: Conclusion		239
8.1	Take-home messages	240
	<i>THM 1 The current state of agriculture does not leave space for AF adoption</i>	240
	<i>THM 2 The adoption of valuable AF depends on changing perspectives on agriculture</i>	240
	<i>THM 3 Creating opportunities for AF requests systemic change and collaborative action</i>	241
	<i>THM 4 New economic instruments can create leeway for AF adoption</i>	241
8.2	Suggestions for further research.	242
8.2.1	Suggestions for agroforestry adoption and development research	242
	• <i>Conducting comparative case study analyses</i>	242
	• <i>Developing tailored actions plans for agroforestry pathways</i>	242
8.2.2	Suggestions for farming systems research.	243
	• <i>Developing multi-dimensional frameworks for evaluating FSR</i>	243

- *Developing appropriate research performance measures*243

8.3 References **244**

Annexes **245**

Annex 1 - Factor analysis and interpretation **246**

 A.1.1 Factor analysis 246

- *Step 1: Input table*246
- *Step 2: Matrix with correlation coefficients*246
- *Step 3: Principal component analysis*.246
- *Step 4: Varimax rotation*.246

 A.1.2 Factor interpretation 248

- *Factor loadings*.248
- *Q-sort scores*248
- *Distinguishing statements*.249

 A.1.3 Decision on the amount of factors to retain. 250

 A.1.4 References 251

Annex 2 - Curriculum Vitae **257**

Annex 3 - Doctoral training results **258**

Annex 4 - English summary **260**

Annex 5 - Résumé français **261**