

HOE KUNNEN WE AGRO-ECOLOGIE METEN, ANALYSEREN EN EVALUEREN?

DE 'TOOL FOR AGROECOLOGY PERFORMANCE EVALUATION' (TAPE)

ir. Ruben Savels

AGRO-ECOLOGIE

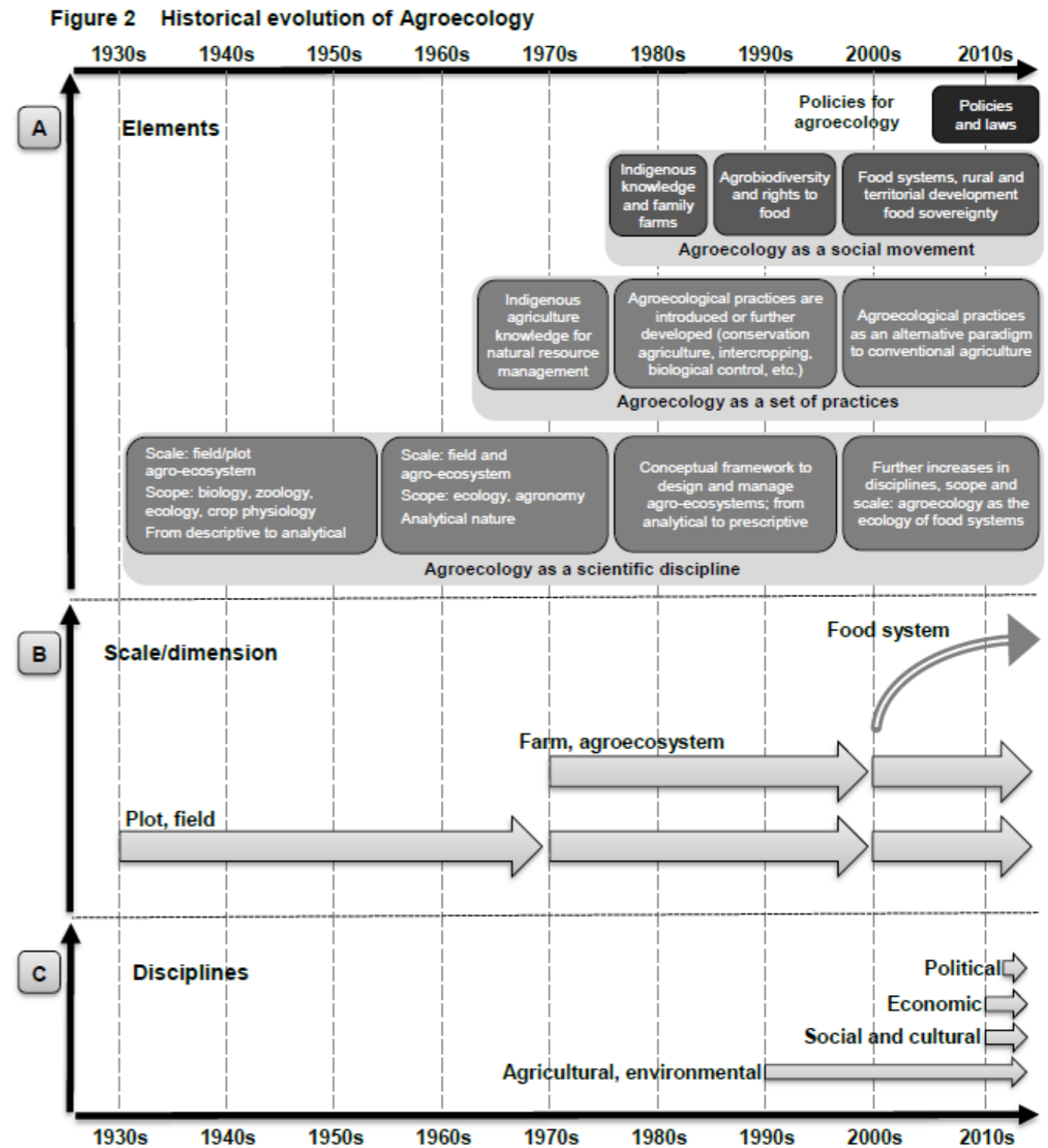
AGRO-ECOLOGIE?

- Meerdere definities, interpretaties en frameworks
- Ga naar www.menti.com en gebruik de code **4175 0308** of scan de QR-code



AGRO-ECOLOGIE?

- Meerdere definities, interpretaties en frameworks
- *“Agro-ecologie als een wetenschap, een sociale beweging en een set aan praktijken”* (Wezel, 2009)
- In toenemende mate gebruikt als concept binnen (international) ngo's en onderzoek, maar ook overheden en intergouvernementele instellingen zoals de Food and Agriculture Organization (FAO) van de Verenigde Naties
- *“Een geïntegreerde aanpak die tezelfdertijd ecologische en sociale concepten en principes toepast bij het ontwerp en beheer van landbouw- en voedselssystemen”* (FAO, 2018)



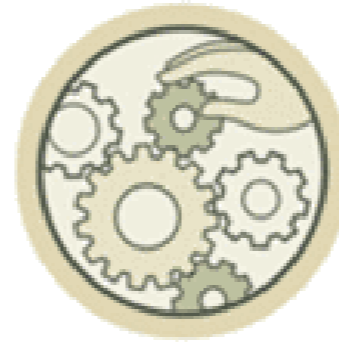
FAO – 10 ELEMENTS OF AGROECOLOGY



DIVERSITY



CO-CREATION AND
SHARING KNOWLEDGE



SYNERGIES



EFFICIENCY



RECYCLING



RESILIENCE



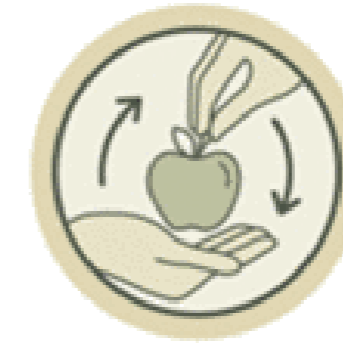
HUMAN AND
SOCIAL VALUES



CULTURE AND
FOOD TRADITIONS



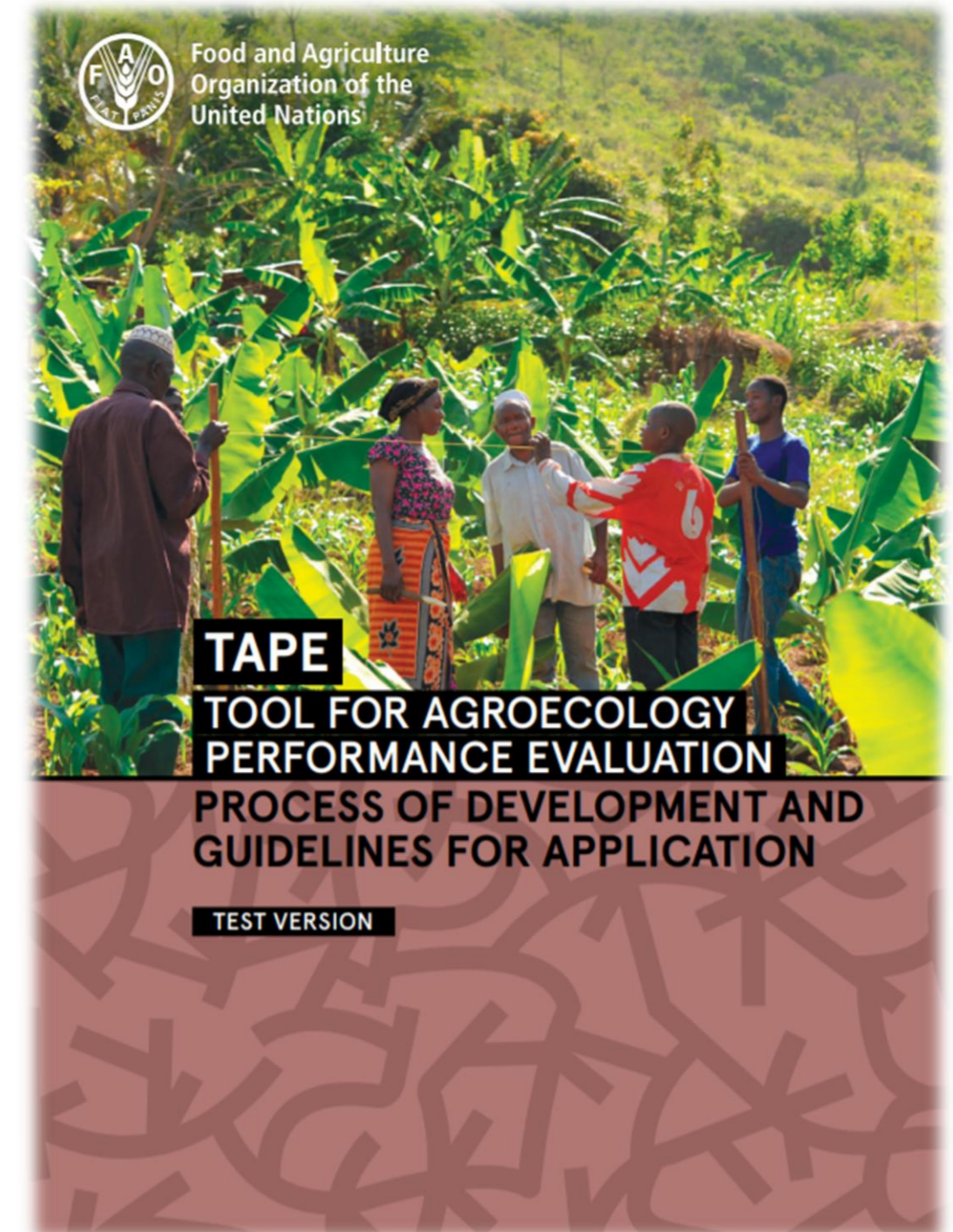
RESPONSIBLE
GOVERNANCE



CIRCULAR AND
SOLIDARITY ECONOMY

FAO – TOOL FOR AGROECOLOGY PERFORMANCE EVALUATION (TAPE)

- **Stap 0: Beschrijving van systemen en context**
Gebaseerd op primaire en secundaire informatie
- **Stap 1: Karakterisatie van de agro-ecologische transitie**
Het karakteriseren van het niveau van transitie naar agro-ecologie van landbouwsystemen (bv. boerderijen, huishoudens, gemeenschappen) gebaseerd op de '10 Elements of Agroecology'
- **Stap 2: Meten van de belangrijkste performantiecriteria**
Het meten van de prestatie van het systeem over meerdere dimensies van duurzaamheid aan de hand van een lijst met de belangrijkste performantiecriteria die direct gelinkt zijn met de Sustainable Development Goals (SDG's)
- **Stap 3: Analyse en participatieve interpretatie**
Met als doel om:
 - (1) de adequaatheid en prestatie van het framework na te gaan;
 - (2) de analyse te bevestigen of herzien en synergieën en trade-offs te identificeren;
 - (3) toekomstige trajecten te ontwerpen, waarbij de tool gebruikt kan worden om voortgang te meten



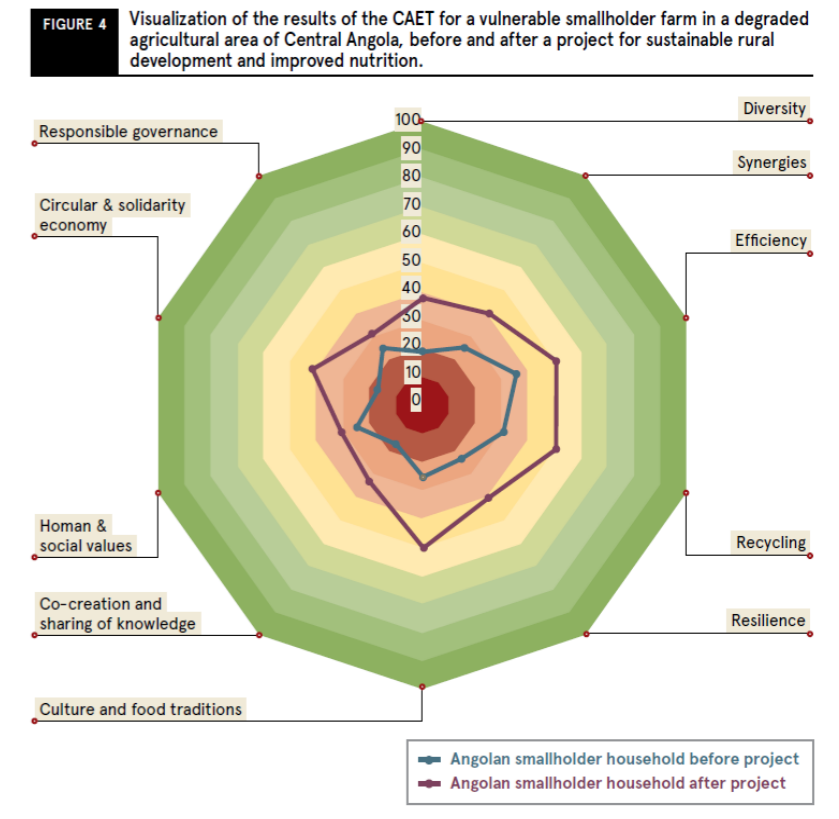
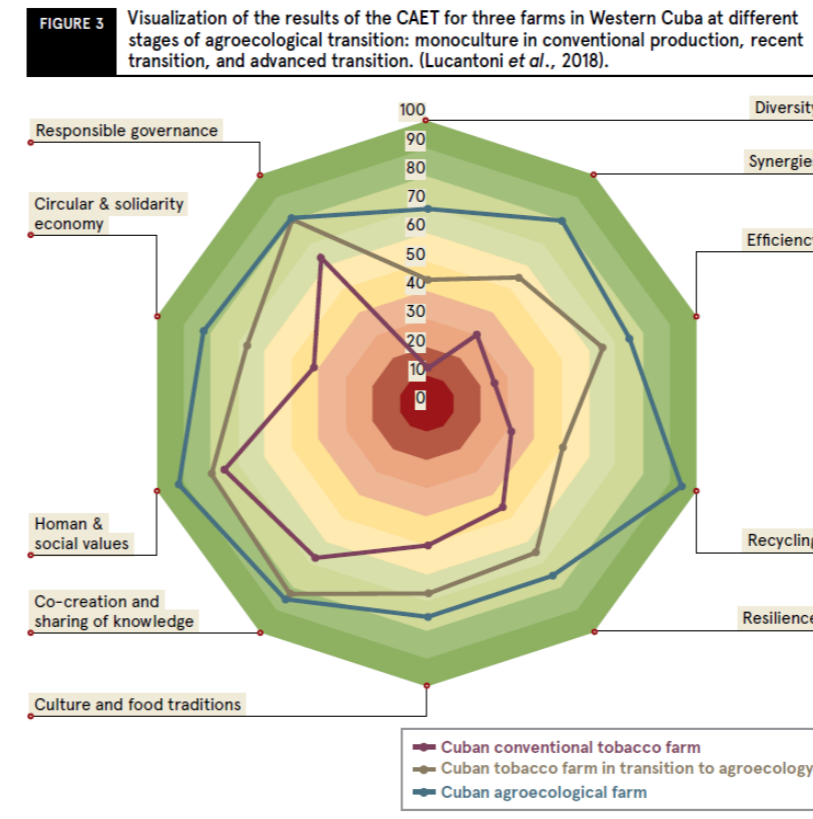
FAO – TOOL FOR AGROECOLOGY PERFORMANCE EVALUATION (TAPE)

➤ Stap 1: Karakterisatie van de agro-ecologische transitie

- Het karakteriseren van het niveau van transitie naar agro-ecologie van landbouwsystemen (bv. boerderijen, huishoudens, gemeenschappen) gebaseerd op de ‘10 Elements of Agroecology’

TABLE 2 Characterization of Agroecological Transitions (CAET): Descriptive scales and scores for the element of “Diversity”

INDEX		0	1	2	3	4
DIVERSITY	Crops	Monoculture (or no crops cultivated)	One crop covering more than 80% of cultivated area	Two or three crops	More than 3 crops adapted to local and changing climatic conditions	More than 3 crops and varieties adapted to local conditions. Spatially diversified farm by multi-, poly- or inter-cropping
	Animals (including fish and insects)	No animals raised	One species only	Several species, with few animals	Several species with significant number of animals	High number of species with different breeds well adapted to local and changing climatic conditions
	Trees (and other perennials)	No trees (nor other perennials)	Few trees (and/or other perennials) of one species only	Some trees (and/or other perennials) of more than one species	Significant number of trees (and/or other perennials) of different species	High number of trees (and/or other perennials) of different species integrated within the farm land
	Diversity of activities, products and services	One productive activity only (e.g. selling only one crop)	Two or three productive activities (e.g. selling 2 crops, or one crop and one type of animals)	More than 3 productive activities	More than 3 productive activities and one service (e.g. processing products on the farm, ecotourism, transport of agricultural goods, training etc.)	More than 3 productive activities, and several services



FAO – TOOL FOR AGROECOLOGY PERFORMANCE EVALUATION (TAPE)

➤ Stap 2: Meten van de belangrijkste performantiecriteri

- Het meten van de performantie van het system over meerdere dimensies van duurzaamheid aan de hand van een lijst met de belangrijkste performantiecriteri die direct gelinkt zijn met de Sustainable Development Goals (SDG's)



MAIN DIMENSION	#	CORE CRITERIA OF PERFORMANCE	PROPOSED METHOD OF ASSESSMENT IN SURVEY	SDG	SDG INDICATORS
Governance	1	Secure land tenure (or mobility for pastoralists)	Type of tenure over land: property, lease + duration, verbal, not explicit (SDG 1.4.2, 5.a.1 and 2.4.1 sub-indicator 11) Existence and use of pastoral agreements and mobility corridors	1 2 5	1.4.2 2.4.1 5.a.1
	2	Productivity	Farm output value per hectare (SDG 2.4.1 sub-indicator 1) Farm output value per person	2	2.3.1 2.4.1
Economy	3	Income	Outputs - inputs - operating expenses - depreciation + other income (SDG 2.4.1 sub-indicator 2)	1 2 10	1.1.1, 1.2.1 and 1.2.2 2.3.2 2.4.1 10.2.1
	4	Added value	Net income +rents +taxes +interests - subsidies	10	10.1.1 10.2.1
Health & nutrition	5	Exposure to pesticides	Quantity applied, area, toxicity and existence of risk mitigation equipment and practices	3	3.9.1 3.9.2 3.9.3
	6	Dietary diversity	Minimum Dietary Diversity for Women (FAO and FHI 360, 2016)	2	2.1.1 2.1.2 2.2.1 2.2.2 2.4.1
Society & Culture	7	Women's empowerment	Abbreviated Women's Empowerment in Agriculture Index, A-WEAI (IFPRI, 2012)	2 5	2.4.1 5.a.1 5.a.2
	8	Youth employment opportunity	Access to jobs, training, education or migration (SDG 8.6.1)	8	8.6.1
Environment	9	Agricultural biodiversity	Relative importance of crops varieties, livestock breeds, trees and semi-natural environments on farm (SDG 2.4.1 sub-indicator 8.1, 8.6 and 8.7)	2 15	2.4.1 2.5.1
	10	Soil health	Adapted SOCLA rapid and farmer friendly agroecological method to assess soil health (Nicholls <i>et al.</i> , 2004)	2 15	2.4.1 15.3.1

EERSTE RESULTATEN

FRUITTEELT IN VLAANDEREN

— Verkennende bachelorproef



	Farm 1	Farm 2	Farm 3	Farm 4	Farm 5	Farm 6	Farm 7	Farm 8	Farm 9
Diversity	25,00	31,25	37,50	37,50	37,50	37,50	50,00	25,00	81,25
Synergies	33,33	41,67	25,00	33,33	33,33	33,33	41,67	50,00	81,25
Efficiency	68,75	75,00	43,75	25,00	43,75	56,25	87,50	43,75	87,50
Recycling	50,00	50,00	68,75	37,50	43,75	50,00	50,00	31,25	75,00
Resilience	81,25	56,25	62,50	56,25	62,50	56,25	75,00	56,25	68,75
Culture and food traditions	50,00	66,67	66,67	83,33	50,00	91,67	83,33	83,33	83,33
Co-creation and sharing of knowledge	75,00	75,00	91,67	50,00	66,67	66,67	75,00	58,33	75,00
Human and social values	66,67	91,67	66,67	50,00	75,00	91,67	33,33	58,33	93,75
Circular and solidarity economy	50,00	33,33	41,67	25,00	33,33	75,00	41,67	8,33	58,33
Responsible governance	91,67	83,33	91,67	75,00	66,67	41,67	75,00	16,67	83,33

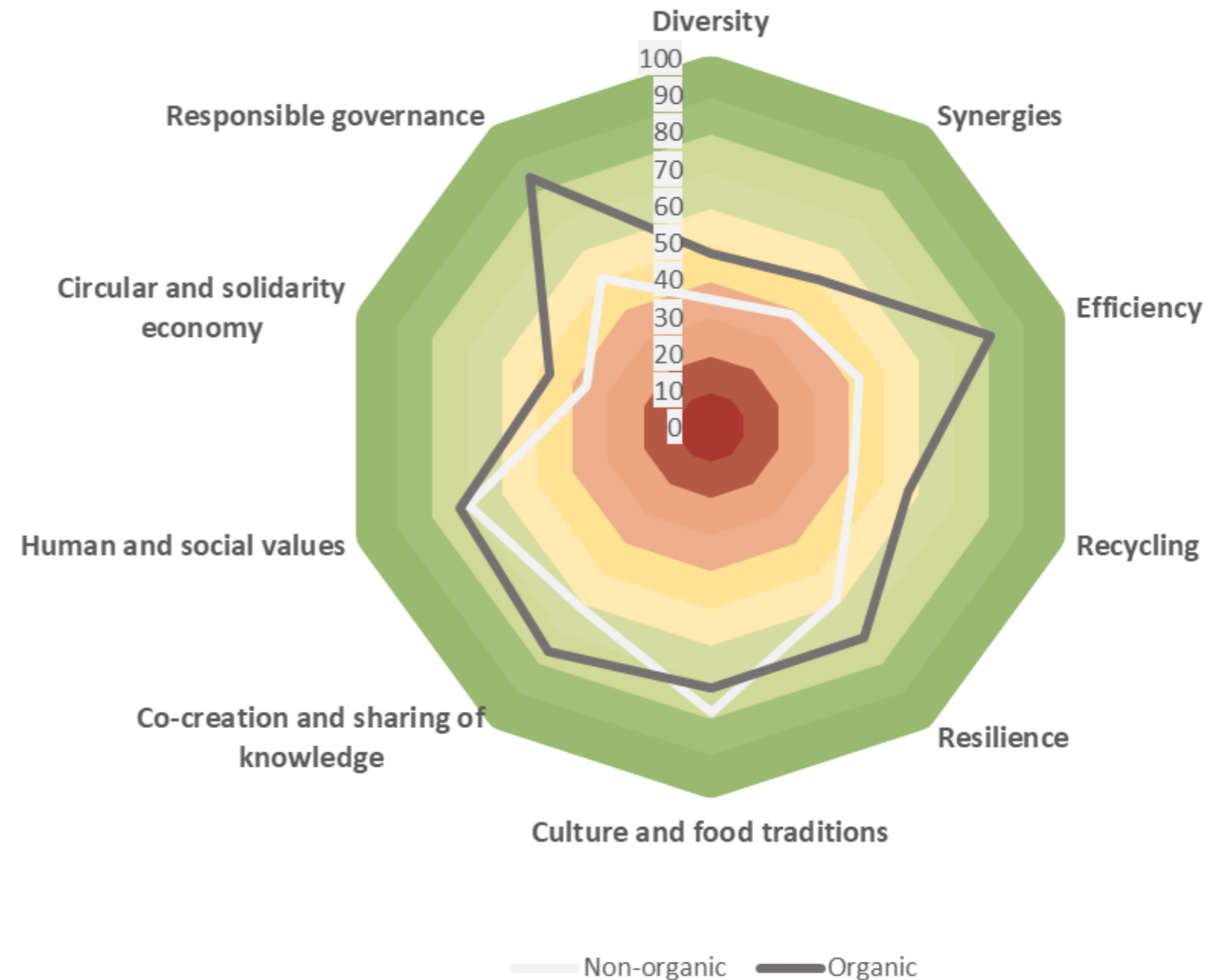


	Non-organic				In transition	Organic			
	Bedrijf 8	Bedrijf 4	Bedrijf 5	Bedrijf 6		Bedrijf 3	Bedrijf 1	Bedrijf 2	Bedrijf 7
Diversity	25,00	37,50	37,50	37,50	37,50	25,00	31,25	50,00	81,25
Synergies	50,00	33,33	33,33	33,33	25,00	33,33	41,67	41,67	81,25
Efficiency	43,75	25,00	43,75	56,25	43,75	68,75	75,00	87,50	87,50
Recycling	31,25	37,50	43,75	50,00	68,75	50,00	50,00	50,00	75,00
Resilience	56,25	56,25	62,50	56,25	62,50	81,25	56,25	75,00	68,75
Culture and food traditions	83,33	83,33	50,00	91,67	66,67	50,00	66,67	83,33	83,33
Co-creation and sharing of knowledge	58,33	50,00	66,67	66,67	91,67	75,00	75,00	75,00	75,00
Human and social values	58,33	50,00	75,00	91,67	66,67	66,67	91,67	33,33	93,75
Circular and solidarity economy	8,33	25,00	33,33	75,00	41,67	50,00	33,33	41,67	58,33
Responsible governance	16,67	75,00	66,67	41,67	91,67	91,67	83,33	75,00	83,33

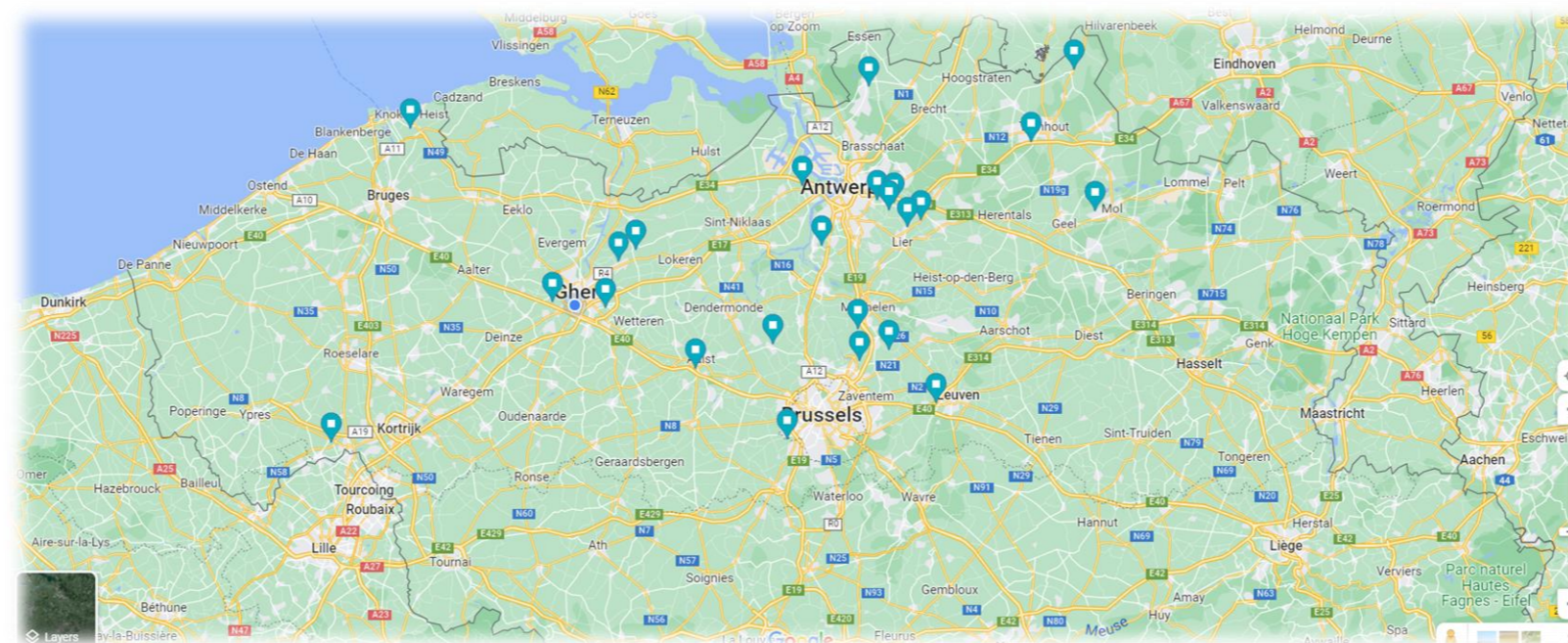
FRUITTEELT IN VLAANDEREN

— Verkennende bachelorproef

	n = 4	n = 4
	Non-organic	Organic
Diversity	34,38	46,88
Synergies	37,50	49,48
Efficiency	42,19	79,69
Recycling	40,63	56,25
Resilience	57,81	70,31
Culture and food traditions	77,08	70,83
Co-creation and sharing of knowledge	60,42	75,00
Human and social values	68,75	71,35
Circular and solidarity economy	35,42	45,83
Responsible governance	50,00	83,33



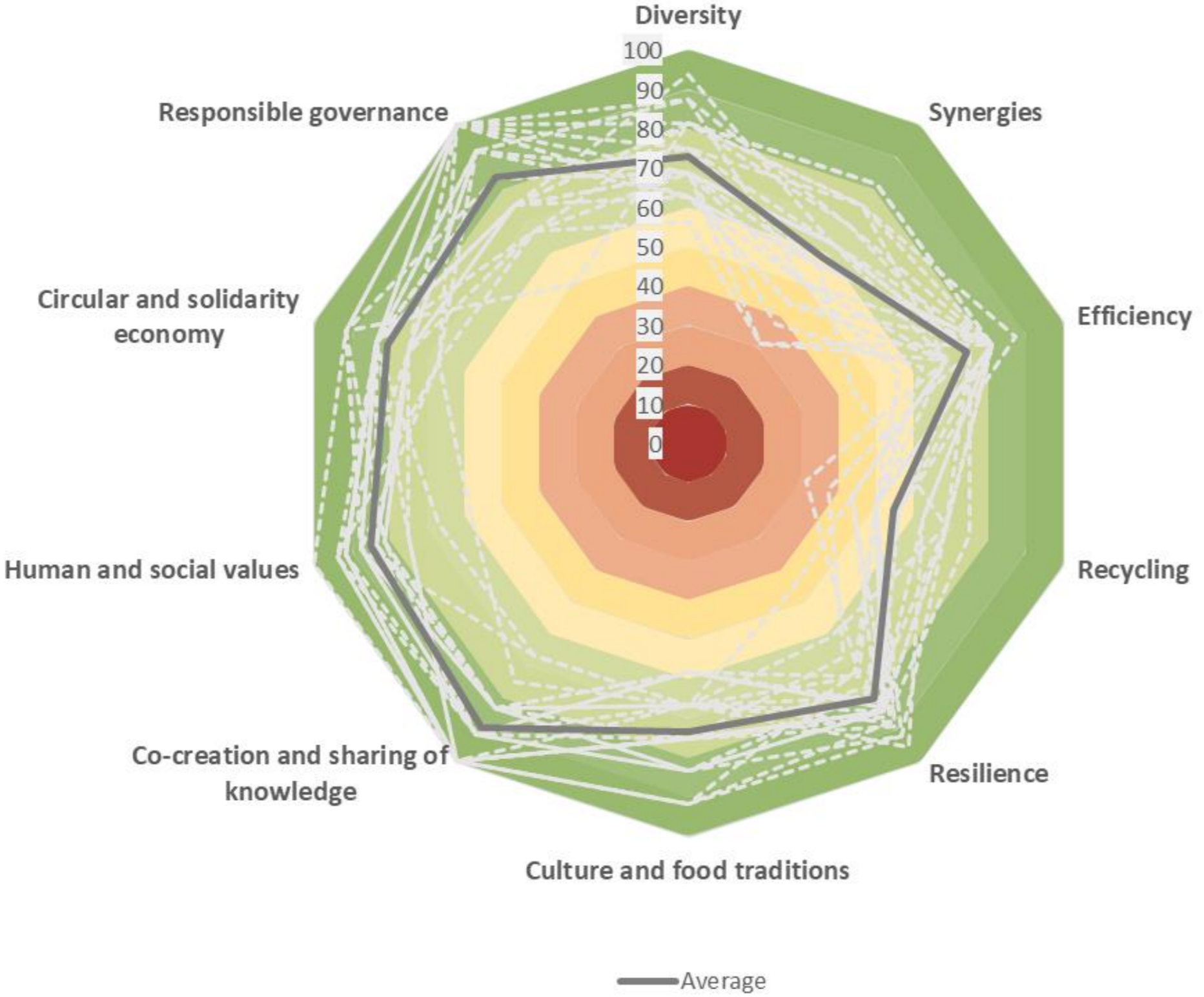
COMMUNITY SUPPORTED AGRICULTURE (CSA) IN VLAANDEREN



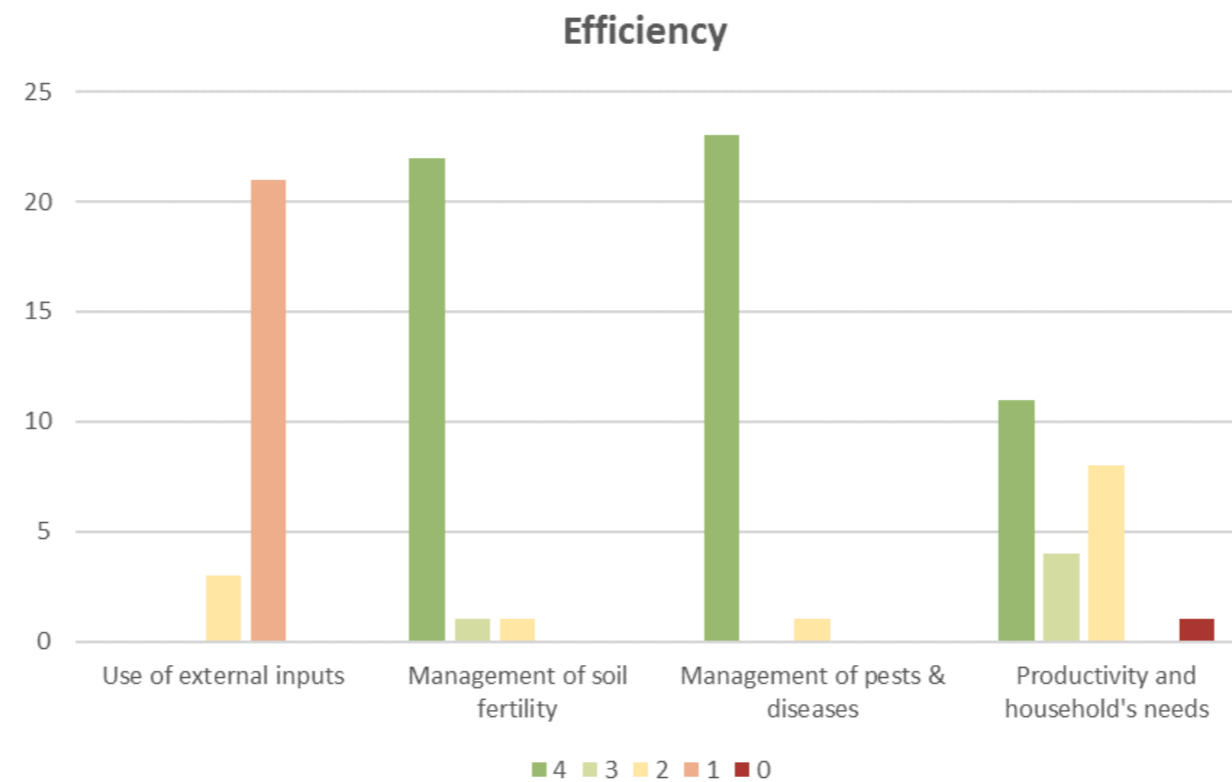
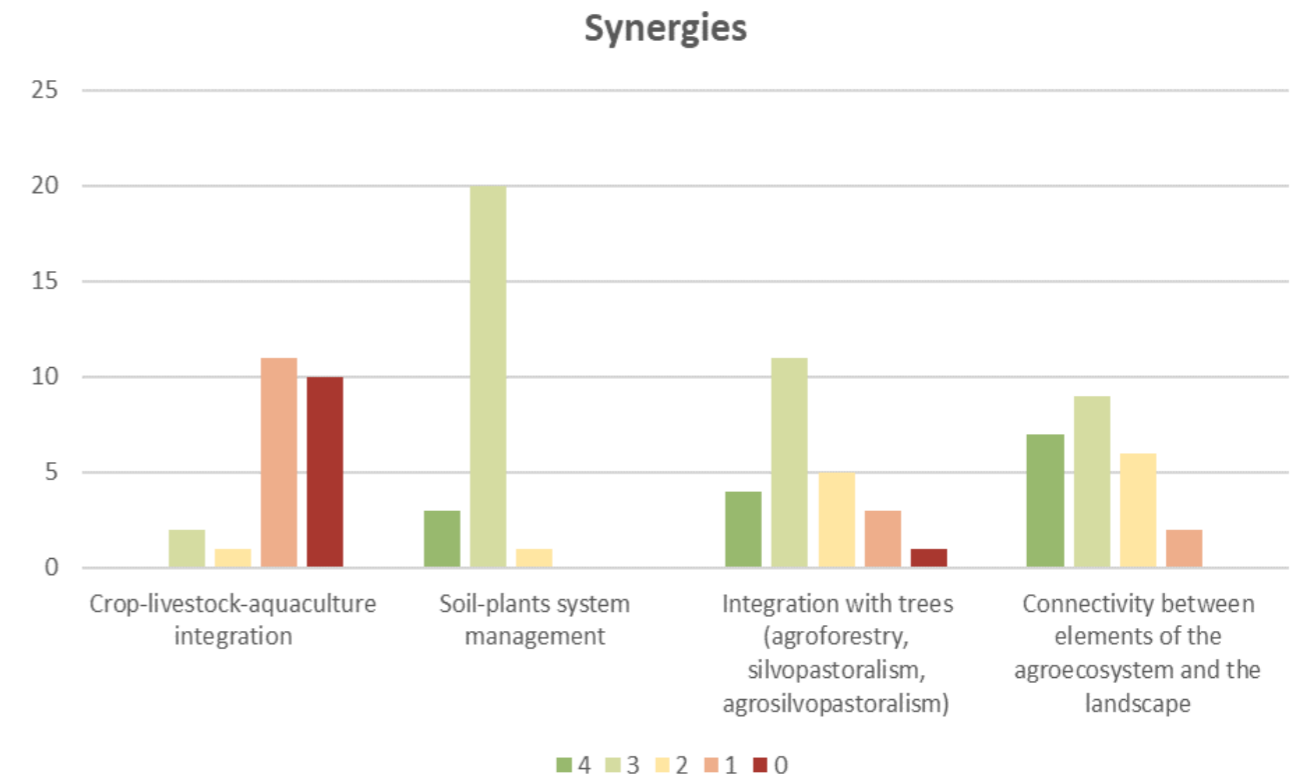
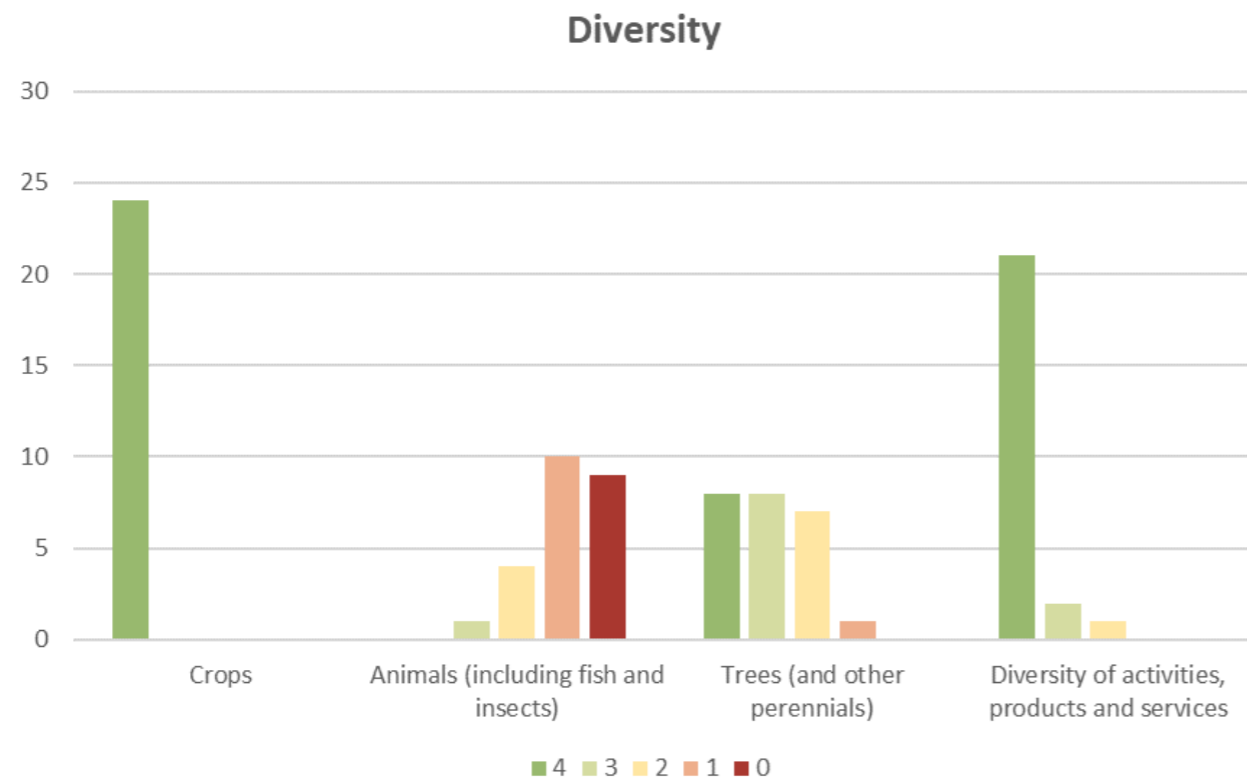
COMMUNITY SUPPORTED AGRICULTURE (CSA) IN VLAANDEREN

	Diversity	Synergies	Efficiency	Recycling	Resilience	Culture and food traditions	Co-creation and sharing of knowledge	Human and social values	Circular and solidarity economy	Responsible governance	AVERAGE
1	87,50	50,00	81,25	50,00	83,33	75,00	100,00	93,75	66,67	91,67	77,92
2	62,50	56,25	81,25	68,75	91,67	66,67	100,00	75,00	75,00	100,00	77,71
3	62,50	56,25	81,25	50,00	91,67	75,00	100,00	91,67	83,33	91,67	78,33
4	68,75	50,00	68,75	31,25	75,00	58,33	83,33	83,33	83,33	91,67	69,38
5	81,25	81,25	81,25	62,50	100,00	66,67	83,33	87,50	91,67	50,00	78,54
6	68,75	62,50	75,00	68,75	100,00	83,33	83,33	83,33	75,00	91,67	79,17
7	68,75	62,50	75,00	75,00	91,67	75,00	83,33	81,25	91,67	83,33	78,75
8	68,75	37,50	62,50	50,00	75,00	66,67	83,33	81,25	75,00	75,00	67,50
9	75,00	62,50	68,75	43,75	83,33	58,33	83,33	87,50	83,33	83,33	72,92
10	62,50	43,75	81,25	68,75	91,67	83,33	91,67	91,67	83,33	75,00	77,29
11	81,25	75,00	87,50	56,25	83,33	58,33	91,67	91,67	83,33	75,00	78,33
12	93,75	62,50	75,00	37,50	58,33	75,00	100,00	75,00	83,33	75,00	73,54
13	81,25	68,75	81,25	56,25	75,00	75,00	100,00	91,67	83,33	75,00	78,75
14	75,00	75,00	68,75	43,75	91,67	66,67	66,67	83,33	83,33	83,33	73,75
15	75,00	56,25	81,25	50,00	91,67	91,67	100,00	100,00	91,67	100,00	83,75
16	68,75	31,25	81,25	68,75	58,33	66,67	66,67	66,67	83,33	66,67	65,83
17	81,25	81,25	81,25	50,00	91,67	75,00	91,67	87,50	91,67	100,00	83,13
18	62,50	50,00	56,25	50,00	91,67	83,33	91,67	83,33	75,00	91,67	73,54
19	56,25	31,25	68,75	43,75	41,67	66,67	75,00	58,33	66,67	66,67	57,50
20	68,75	56,25	43,75	68,75	83,33	66,67	91,67	75,00	75,00	75,00	70,42
21	81,25	75,00	81,25	62,50	83,33	58,33	91,67	93,75	75,00	66,67	76,88
22	68,75	62,50	81,25	50,00	100,00	91,67	100,00	91,67	83,33	100,00	82,92
23	87,50	68,75	75,00	56,25	75,00	83,33	83,33	87,50	66,67	100,00	78,33
24	62,50	43,75	68,75	50,00	75,00	91,67	100,00	91,67	83,33	100,00	76,67
AVERAGE	72,92	58,33	74,48	54,69	82,64	73,26	89,24	84,72	80,56	83,68	

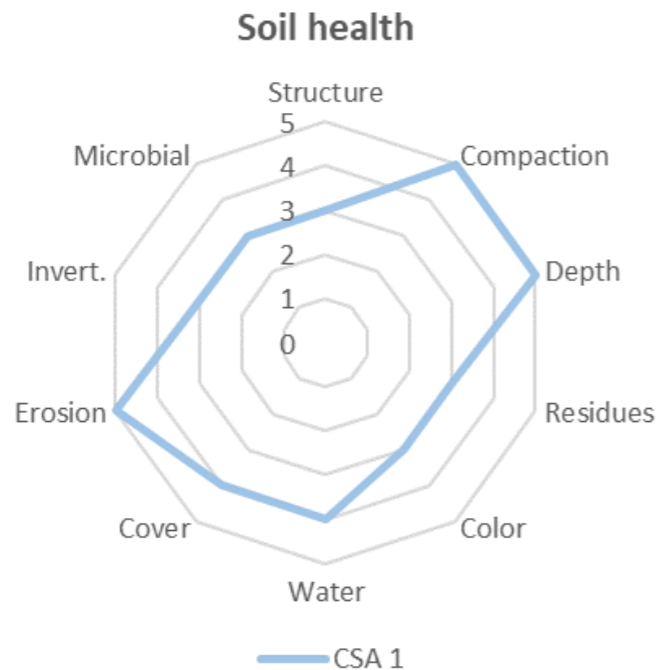
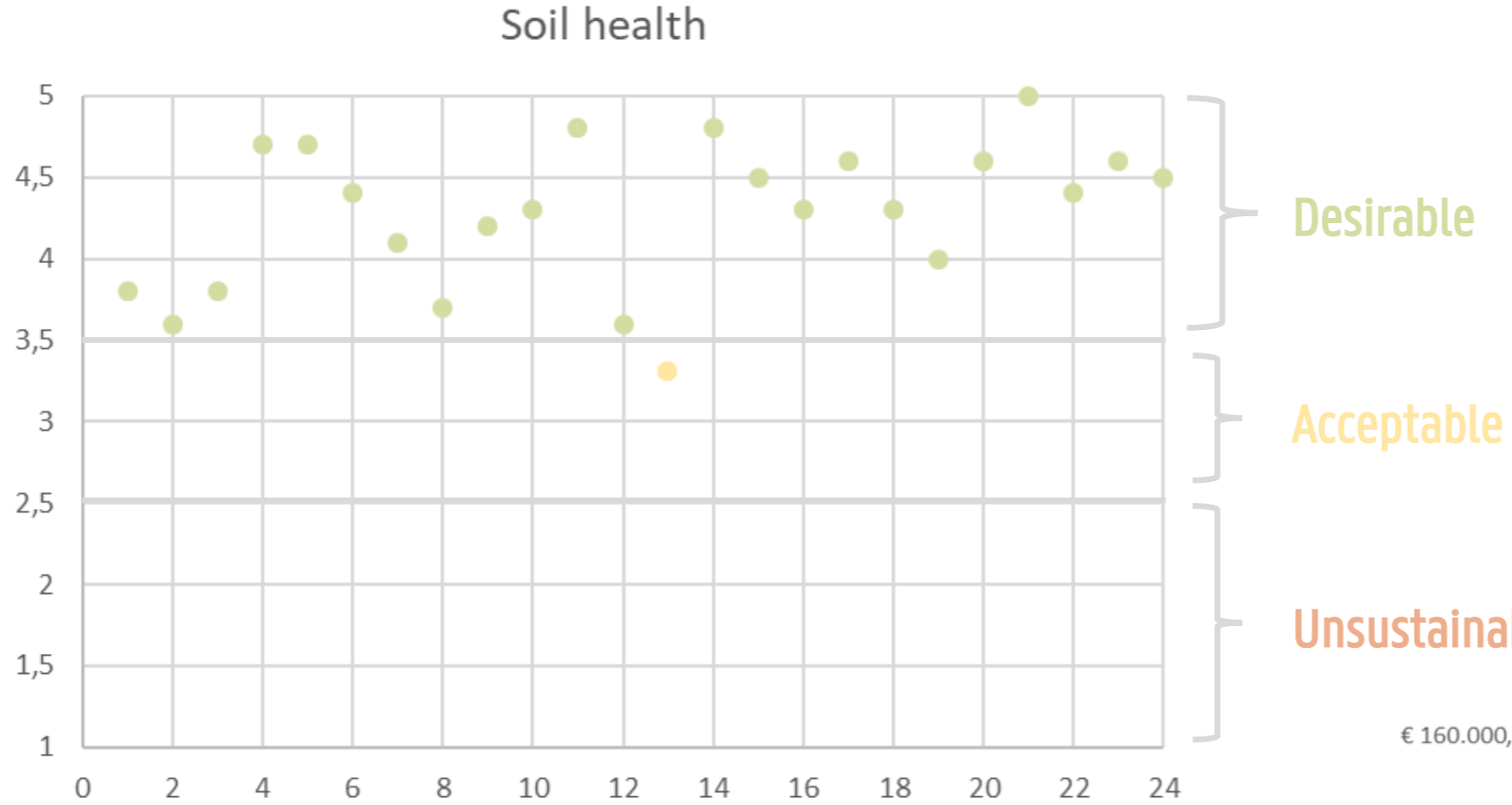
COMMUNITY SUPPORTED AGRICULTURE (CSA) IN VLAANDEREN



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€ 160.000,
 € 140.000,
 € 120.000,
 € 100.000,
 € 80.000,
 € 60.000,
 € 40.000,
 € 20.000,
 € 0,00

MAIN DIMENSION	#	CORE CRITERIA OF PERFORMANCE	PROPOSED METHOD OF ASSESSMENT IN SURVEY	SDG	SDG INDICATORS
Governance	1	Secure land tenure (or mobility for pastoralists)	Type of tenure over land: property, lease + duration, verbal, not explicit (SDG 1.4.2, 5.a.1 and 2.4.1 sub-indicator 11)	1 2 5	1.4.2 2.4.1 5.a.1
			Existence and use of pastoral agreements and mobility corridors		
Economy	2	Productivity	Farm output value per hectare (SDG 2.4.1 sub-indicator 1)	2	2.3.1 2.4.1
			Farm output value per person		
			Income		
Health & nutrition	3	Added value	Outputs - inputs - operating expenses - depreciation + other income (SDG 2.4.1 sub-indicator 2)	1 2 10	1.1.1, 1.2.1 and 1.2.2 2.3.2 2.4.1 10.2.1
			Net income +rents +taxes +interests - subsidies		
Society & Culture	4	Exposure to pesticides	Quantity applied, area, toxicity and existence of risk mitigation equipment and practices	10	10.1.1 10.2.1
			Minimum Dietary Diversity for Women (FAO and FHI 360, 2016)		
Environment	5	Dietary diversity	Quantity applied, area, toxicity and existence of risk mitigation equipment and practices	3	3.9.1 3.9.2 3.9.3
			Abbreviated Women's Empowerment in Agriculture Index, A-WEAI (IFPRI, 2012)		
Environment	6	Women's empowerment	Access to jobs, training, education or migration (SDG 8.6.1)	2	2.1.1 2.1.2 2.2.1 2.2.2 2.4.1
			Relative importance of crops varieties, livestock breeds, trees and semi-natural environments on farm (SDG 2.4.1 sub-indicator 8.1, 8.6 and 8.7)		
Environment	7	Youth employment opportunity	Adapted SOCLA rapid and farmer friendly agroecological method to assess soil health (Nicholls <i>et al.</i> , 2004)	2 5	2.4.1 5.a.1 5.a.2
			Access to jobs, training, education or migration (SDG 8.6.1)		
Environment	8	Agricultural biodiversity	Adapted SOCLA rapid and farmer friendly agroecological method to assess soil health (Nicholls <i>et al.</i> , 2004)	8	8.6.1
			Relative importance of crops varieties, livestock breeds, trees and semi-natural environments on farm (SDG 2.4.1 sub-indicator 8.1, 8.6 and 8.7)		
Environment	9	Soil health	Adapted SOCLA rapid and farmer friendly agroecological method to assess soil health (Nicholls <i>et al.</i> , 2004)	2 15	2.4.1 15.3.1
			Relative importance of crops varieties, livestock breeds, trees and semi-natural environments on farm (SDG 2.4.1 sub-indicator 8.1, 8.6 and 8.7)		
Environment	10	Soil health	Adapted SOCLA rapid and farmer friendly agroecological method to assess soil health (Nicholls <i>et al.</i> , 2004)	2 15	2.4.1 15.3.1
			Relative importance of crops varieties, livestock breeds, trees and semi-natural environments on farm (SDG 2.4.1 sub-indicator 8.1, 8.6 and 8.7)		

COMMUNITY SUPPORTED AGRICULTURE (CSA) IN VLAANDEREN



ERVARINGEN EN AANBEVELINGEN

ERVARINGEN EN AANBEVELINGEN

- Relevantie
 - Vragen en criteria werden als relevant voor agro-ecologie beschouwd
 - Sommige vragen waren echter niet zo relevant voor de Vlaamse context
 - Sommige vragen laten veel ruimte voor interpretatie (bv. wat is 'veel', wat is een 'hoog' aantal) en sommige vragen situeren zich op een ruimer niveau (bv. landschap, gemeente)
 - Moeite met capteren van agro-ecologie bij complexe non-conventionele bedrijven, integratie en synergiën op ruimere schaalniveaus
 - Nieuwe, aangepaste versie op komst vanuit FAO, beter aangepast voor Globale Noorden
- Implementatie
 - Contact opnemen met FAO voor laatste richtlijnen
 - Minstens twee-drie uur per bezoek
 - Participatieve interpretatie en dus het samenbrengen van landbouwers blijft een uitdaging
 - Vergoeding van landbouwers voor hun deelname

ERVARINGEN EN AANBEVELINGEN

- Volgende stappen
 - Baseline-meting nodig bij verschillende types bedrijven om te kunnen vergelijken
 - Herhalen van meting om de zoveel jaar (evt. online) om voortgang op te volgen
 - Vergelijken en ijken met andere tools en databases
- Discussiepunten
 - Een agro-ecologisch label?
 - Hoe kunnen boerderijen deze resultaten gebruiken: communicatie met klanten, ketenactoren, beleid, ...?
 - Vergoeding voor deelnemende landbouwers?
 - Integratie met bestaande dataverzameling door onderzoek en overheid?

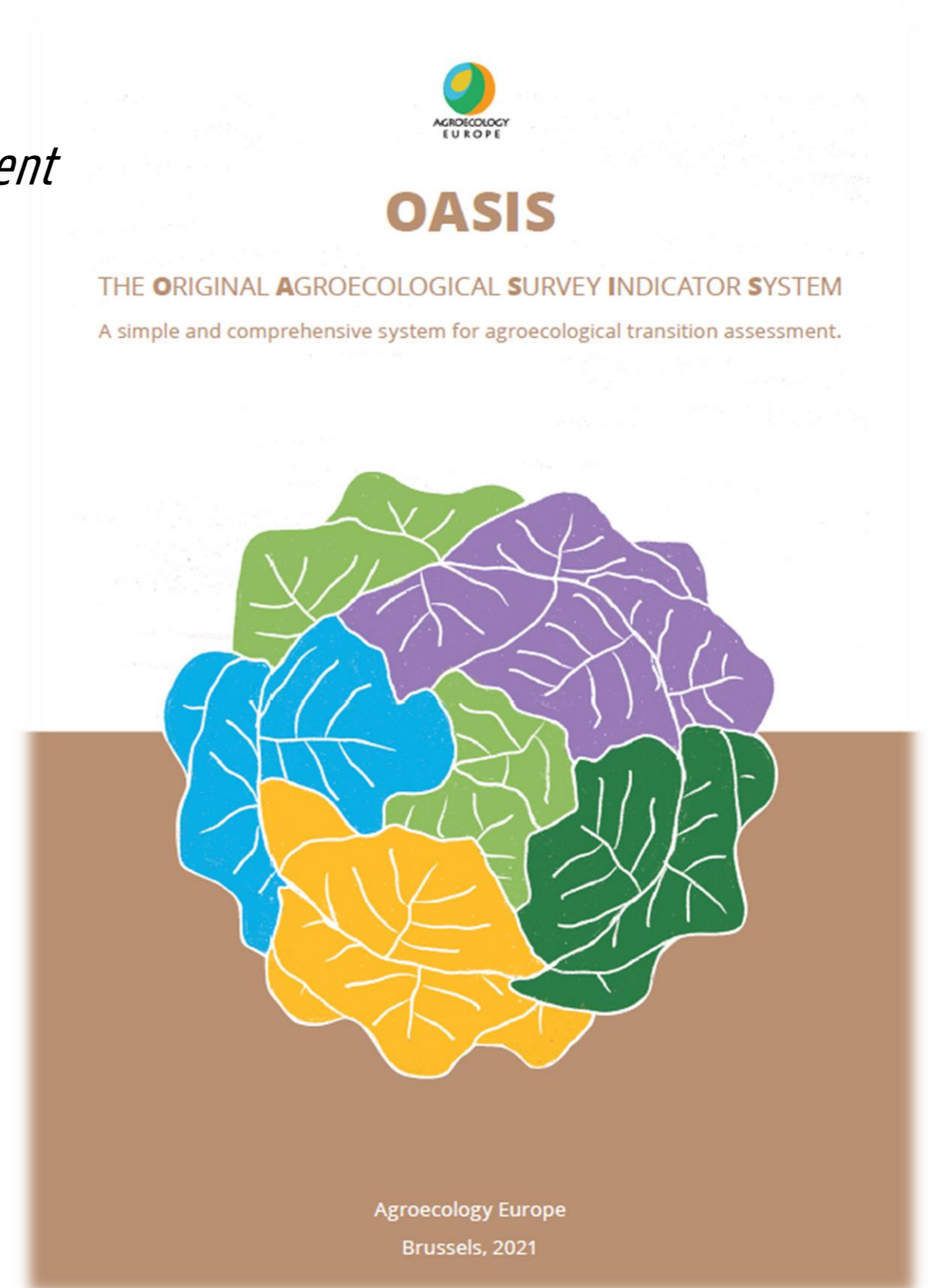
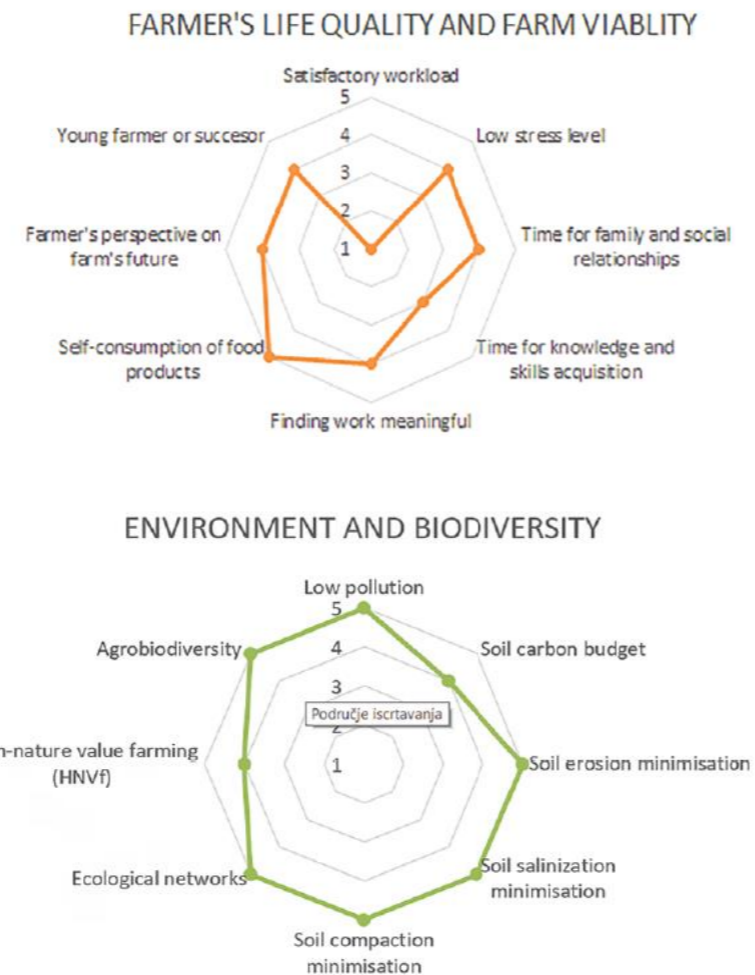
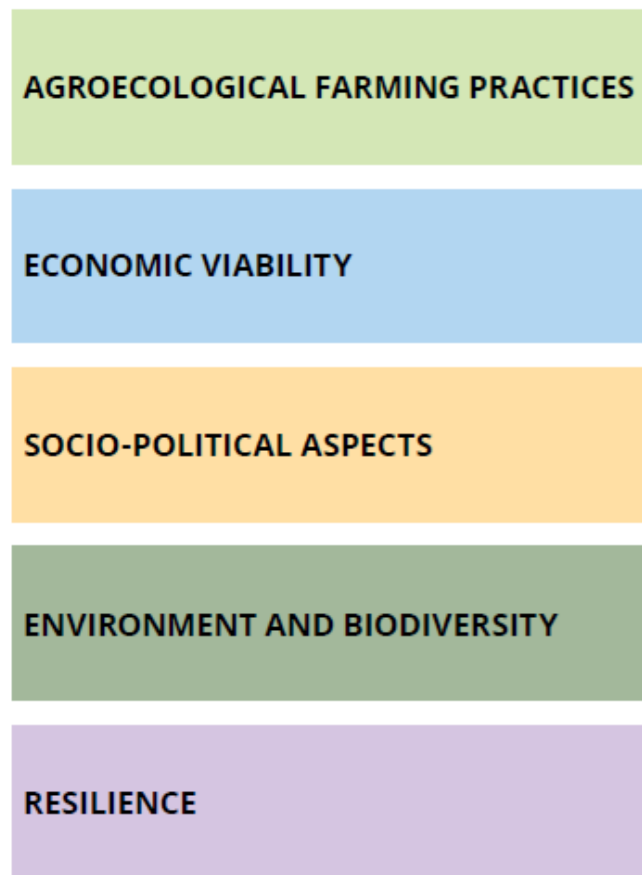
ALTERNATIEVE FRAMEWORKS

ALTERNATIEVE FRAMEWORKS

- Op boerderij-niveau
 - OASIS
 - Global Farm Metric
- Op niveau van projecten, programma's en beleid
 - Agroecology Criteria Tool (ACT)

AGROECOLOGY EUROPE: OASIS

- The **Original Agroecological Survey Indicator System**
 - *A simple and comprehensive system for agroecological transition assessment*



GLOBAL FARM METRIC

- Het 'Global Farm Metric' framework werd ontwikkeld met als doel om één overkoepelende en allesomvattende meting te kunnen doen van de duurzaamheid van landbouwbedrijven, gelet op de verscheidenheid en overlap van bestaande frameworks, de bestaande rapporteringen die landbouwers reeds moeten doen en de inefficiencies die hiermee gepaard gaan.

Category	Sub-category	Indicators
Climate	Average conditions	Stability in climatic conditions
	Extreme events	Climate risks to crop yields & quality & livestock health
	Growing season	Limitations of growing season
Community	Local services	Access to key amenities
	Farming services	Access to key services for farming
	Farmer network	Support from community of practice
Nature	Farm biodiversity	Health of farm biodiversity
	Farm habitats	Quality of land for farming
		Farm habitat health
	Environmental hazards	Level of air pollution
Level of soil pollution		
Level of water pollution		
Soil & water	Soil health	Structural health of soil
		Health of soil biology
	Soil fertility	Level and availability of soil nutrients to plants
	Water	Availability of water for plants
Level of water reserves on farm		



AGROECOLOGY CRITERIA TOOL (ACT)

- De Agroecology Criteria Tool (ACT) laat gebruikers toe om te analyseren in welke mate landbouwprogramma's, -beleid, -projecten een agro-ecologische transitie ondersteunen. Deze tool werd reeds gebruikt om donor portfolio's, landbouwbeleid en -strategieën, onderzoeks- en opleidingsprogramma's en ontwikkelingsprogramma's.



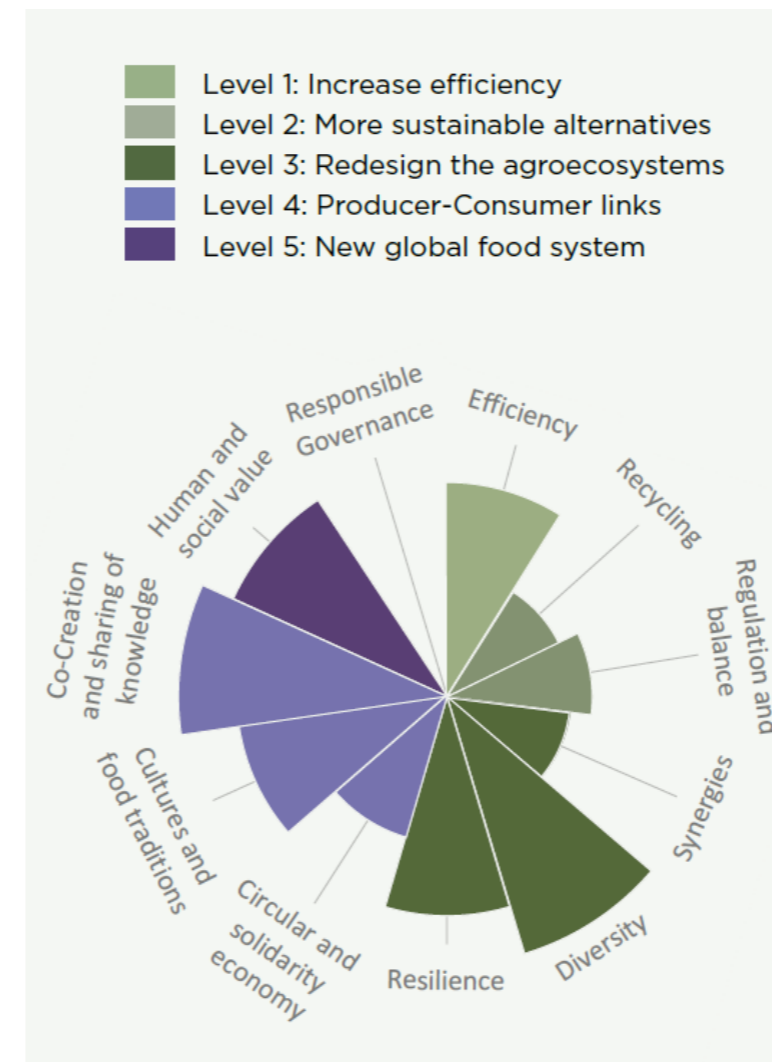
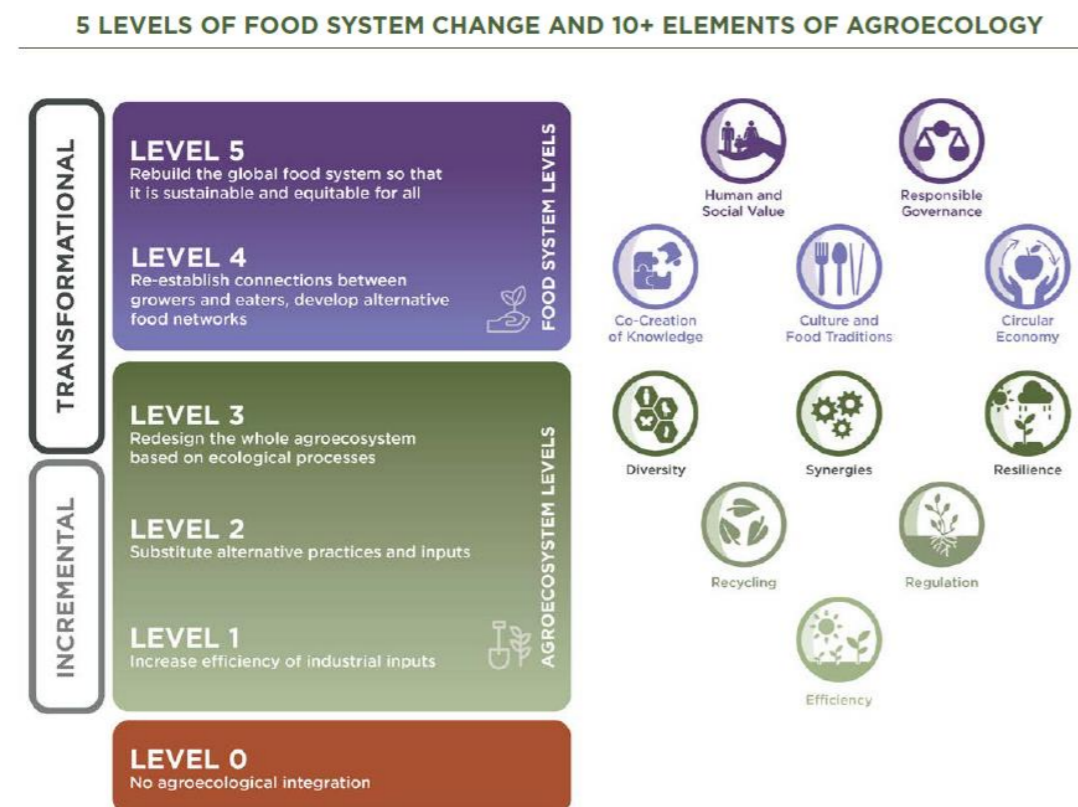
Academic year 2022-2023

POLICIES SUPPORTING AGROECOLOGICAL TRANSITIONS: EXPERIENCES OF THREE PUBLIC PROGRAMS IN MEXICO

Cadena Jaramillo, Andrea Elizabeth

Promoter: Prof. Stijn Speelman
Co-promoter: Isabel Madrid
Tutor: Ruben Savels

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ir. Ruben Savels

Academic assistant

DEPARTMENT OF AGRICULTURAL ECONOMICS

Email: Ruben.Savels@UGent.be