Supplementary materials

Supp Mat 1. Approaches of the 14 selected assessment methods covering the five challenges in assessing agroecosystems undergoing an agroecological transition (evaluation criteria) and used to build the prototype.

Evaluation criteria	Approach		Method	Prototype	Reference
1) Be adaptable to local conditions	Flexible content with a non-fixed set of indicators	Series of steps with specific questions, objectives, outcomes	Dendoncker, MESMIS, Meuwissen, MMF, Tata Box	Articulated around 4 steps with specific questions, objectives, outcomes	Dendoncker et al. 2018; López-Ridaura et al. 2002; Meuwissen et al. 2019; López-Ridaura et al. 2005; Duru et al. 2015
		Hierarchical structure of principles, criteria, indicators	SAFE	Structure of the multidimensional and multiscale assessment of agroecological transition performances (step 4)	Van Cauwenbergh et al. 2007
	Contextualization phase	Flowchart	Lume, MESMIS	Characterization of the system being assessed (step 1)	Petersen et al. 2020; López-Ridaura et al. 2002
	Reference values		SAFE	Typology of reference values (step 4)	Cauwenbergh et al. 2007
			Autodiag, IDEA, SAFE, TAPE	Scoring system: different strategies, depending on the reference value available and the type of indicator (step 4)	Arango et al. 2019; Zahm et al. 2019; Van Cauwenbergh et al. 2007; Mottet et al. 2020
2) Consider social interactions	Indicators		Autodiag, Dendoncker, IDEA, Lume, Memento GTAE, MESMIS, MMF QAToCA, SAFE, SALT, SLF, TAPE	Social indicators included in the multidimensionnal and multiscale assessment of agroecological transition performances (step 4)	Arango et al. 2019; Dendoncker et al. 2018; Zahm et al. 2019; Petersen et al. 2020; Levard et al. 2019; López-Ridaura et al. 2002, 2005; Ndah et al. 2015; Van Cauwenbergh et al. 2007; Calleros-Islas 2019; DFID 2001; Mottet et al. 2020
	Stakeholder mapping		Tata Box	Characterization of the system being assessed (step 1)	Duru et al. 2015
3) Clarify the agroecological concept	Principles		Autodiag, TAPE	Characterization of the level of agroecological transition of the system being assessed (step 2)	Arango et al. 2019; Mottet et al. 2020
4) Consider the temporal dynamics	Trajectory of change		Lume	Analysis of barriers and levers in the development of the agroecological transition (step 3)	Petersen et al. 2020
5) Use a participatory bottom-up approach	Bottom-up, interactive		Dendoncker, MESMIS, MMF, SALT, SLF, Tata Box	Co-design approach mobilizing prototyping	Dendoncker et al. 2018; López-Ridaura et al. 2002, 2005; Calleros-Islas 2019; DFID 2001; Duru et al. 2015

Supp Mat 2. Initial set of 73 indicators stemming from the 14 selected assessment methods. Some of the indicators were identified in the first or second workshop with method-and-results-end-users (stages 2 or 4 of the co-design approach). Lines in grey represent indicators withdrawn following the testing and adaptation phase in the case study in Senegal. No scoring system is indicated for these indicators. Details are provided regarding the indicators' scale of assessment (V: Village; H: Household; I: Individual), sources of references values, operating mode for their normalization in the case study, and scoring system. Note: in italics are the three impact-related indicators.

Indicators (unit)	**Indicators identified in the workshops with end-users (stage 2 or 4)**	**Indicator sources**	**Scale of assessment**	**Sources of reference values**	**Operating mode***	**Scoring system**
1. Input expenditure (FCFA)	Stage 2	IDEA[1]	H	Calculations based on project PAPA, 2017 Database	2	• 0: 2,556,012-3,634,093 • 1: 1,477,931-2,556,012 • 2: 751,112-1,477,931 • 3: 375,556-751,112 • 4: 0-375,556
2. Food self-sufficiency (%)	Stage 2	Lume[2]	H	Theoretical minimum and maximum (0-100%)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
3. Degree of specialization (%)	Stage 2	IDEA	H	Theoretical minimum and maximum (0-100%)	1	• 4: 0-20 • 3: 20-40 • 2: 40-60 • 1: 60-80 • 0: 80-100
4. Number of products sold	Stage 2	IDEA	H	Expert opinion (min:1, max:3)	1	• 0: 0.8-1 • 1: 0.6-0.80 • 2: 0.4-0.6 • 3: 0.20-0.4 • 4: 0-0.20
5. Diversity of outlets	Stage 2	IDEA	H	Expert opinion (min:1, max:3)	1	• 0: 0-0.20 • 1: 0.20-0.4 • 2: 0.4-0.6 • 3: 0.6-0.80 • 4: 0.8-1
6. Share of direct sales or local sales channels (%)		IDEA	H	Theoretical minimum and maximum (0-100%)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100

7. Income (FCFA)	Stage 2	Memento GTAE[3]	H	Calculations based on project PAPA, 2017 database	2	• 0: 0-126,600 • 1: 126,600-253,333 • 2: 253,333-380,000 • 3: 380,000-760,000 • 4: > 760,000
8. Share of debt (%)		IDEA	H	Theoretical minimum and maximum (0-100%)	1	• 0: 80-100 • 1: 60-80 • 2: 40-60 • 3: 20-40 • 4: 0-20
9. Share of subsidies (%)		SAFE[4]	H	FAO STAT Rulis	2	• 0: 65-100 • 1: 30-65 • 2: 10-30 • 3: 5-10 • 4: 0-5
10. Share of off-farm income (%)		IDEA, modified	H	Expert opinion (method-and-results-end-users)	3	• 0: <5 • 1: 5-10 • 2: 10-20 • 3: 20-30 • 4: >30%
11. Reciprocal trade (qualitative rating)	Stage 2	Lume	H	Expert opinion (method-and-results-end-users)	3	• 0: Absent • 1: Little or infrequent trade • 2: Frequent and significant quantity • 3: Regular and significant quantity • 4: Very regular and significant quantity
12. Number of economic opportunities developed in the last 5 years (qualitative rating)	Stage 4	Not found in the 14 methods, identified in FAIR Sahel project.	V	FAIR Sahel Project	0	Different types of economic opportunities are distinguished: 1) Installation of industrial units in the village; 2) Arrival of new collectors/traders; 3) Development of new production/processing activities/new distribution channels/new consumer markets (local, regional, national, international)/chain; 4) Arrival of a new public project; 5) Arrival of an NGO with a new project; 6) New farmers' organizations. 4 points per opportunity, sum of all opportunities then divided by 6.

13. Added value/ha		Lume	H			
14. Added value/per working unit	Stage 4	Memento GTAE	H			
15. Surface per working unit (ha/working unit)	Stage 4	IDEA	H	Calculations based on project PAPA, 2017 database	2	• 0: 0.3-0.37 • 1: 0.37-0.44 • 2: 0.44-0.68 • 3: 0.68-1.09 • 4: 1.09-1.5
16. Share of youth		TAPE[5]	H			
17. Collective work (qualitative rating)	Stage 2	IDEA	V	-	0	Different types of collective work are considered: 1) Mutual aid > 10 days/year; 2) Work exchanges (between more than 2 farmers); 3) Employers' group; 4) Agricultural equipment pool. 1 point per opportunity.
18. Yield (kg/ha)	Stage 2	Memento GTAE	H	Calculations based on project PAPA, 2017 database	2	Millet • 0: 25-171 • 1: 171-371 • 2: 371-770 • 3: 770-969 • 4: 969- 2,000 Groundnut • 0: 27-279 • 1: 279-454 • 2: 454-804 • 3: 804-979 • 4: 979 – 1,848 Sorghum • 0: 50-159 • 1: 159-330 • 2: 330-672 • 3: 672-843 • 4: 843 -1,500
19. Fertility rate (%)	Stage 2	Memento GTAE	H	Meyer, J.F, 1981	2	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100

20. Quantity of milk collected (L/day)	Stage 2	Memento GTAE	H	Calculations based on ANSD 2018-2019 database	2	• 0: 0.5-0.8 • 1: 0.8-1.1 • 2: 1.1-2 • 3: 2-3.5 • 4: 3.5-5
21. Quantity of manure collected	Stage 2	Memento GTAE	H			
22. Local procurement of agricultural inputs (qualitative rating)		IDEA, modified	H		3	1) Animal feed • 0: All feed is produced outside the village • 1: Less than half of the feed is produced at the village level, the rest comes from outside the village • 2: Half of the feed is produced locally, the other half comes from outside the village • 3: Between 50 and 70% of the feed consumed is produced locally • 4: More than 70% of the feed consumed is produced locally 2) Organic fertiliser • 0: All organic fertiliser is produced outside the territory • 1: Less than half of the organic fertiliser is produced outside the village • 2: Half of the organic fertiliser is produced locally, the other half comes from outside the village • 3: Between 50 and 70% of the organic fertiliser used is produced locally • 4: More than 70% of the organic fertiliser used is produced locally 3) Genetic resources 3a) Purchase of animals • 0: No animals are produced in the village • 1: Less than half of the animals purchased are produced locally • 2: Half of the animals purchased are produced in the territory • 3: Between 50 and 70% are produced in the area • 4: All the animals purchased are produced in the area, priority given to breeding animals in the village

						3b) Varietal selection, reproduction and/or seed exchange • 0: All seeds are purchased and come from outside the territory • 1: Less than half of the seed is bought outside the territory, the other half comes from local supplies • 2: Half of the seed is purchased from outside the area, the other half from local supplies • 3: More than 50% of the seed is purchased via local supplies and at least 10% is self-sufficient (via reproduction, varietal selection and exchanges) • 4: Seed autonomy via exchanges, varietal selection and/or reproduction
23. Satisfaction with life scale (qualitative rating)	Stage 2	Not found in 14 methods, identified in Diener et al. 1985[6]	I	-	0	0: Not at all satisfied 1: Okay 2: Moderately satisfied 3: Well satisfied 4: Very satisfied
24. Non-monetary economic wealth indicator (qualitative rating)		SLF[7] modified, building on Nourou-Dine et al, 2021[8]	H	Building on Nourou-Dine et al. 2021, adaptation to the context of the village of Sare Boubou (choice of variables)	3	Possession of radio; possession of bicycle; possession of moped; TV; possession of telephone (not smart phone = 0.5, smartphone = 1); car; refrigerator; gas; possession of solar panel or generator; possession of mosquito net; lamp; bulb; tap; electricity in the hut; possession of draught animal (horse); possession of draught animal (donkey)
25. Agricultural wealth indicator (qualitative rating)		SLF modified, building on Nourou-Dine et al. 2021	H	Building on Nourou-Dine et al. 2021, adaptation to the context of the village of Sare Boubou (choice of variables)	3	1) Feeding practice; 2) Hoe ownership; 3) Charcoal production; 4) Seed drill ownership; 5) Horse ownership; 6) Donkey ownership; 7) Millet cultivation; 8) Cowpea cultivation; 9) maize cultivation. 10) Sorghum cultivation; 11) Cowpea-maize combination;. 12) Market gardening for income; 13) Groundnuts for income; 14) Cotton for income; 15) Poultry; 16) Cattle rearing; 17) Sheep; 18) Goat; 19) Oil mill position; 20) Hulling machine; 21) Millet mill; 22) Size of herd; 23)

						Land surface area; 24) possession of a mower; 25) Possession of cart
26. Participation in knowledge and know-how sharing networks (qualitative rating)	Stage 2	Lume, modified	I	Expert opinion (method-and results-end-users)	3	• 0: None • 1: One network very rarely • 2: One network regularly • 3: Several from time to time • 4: More than two networks regularly
27. Involvement in professional structures (qualitative rating)	Stage 2	IDEA, modified	I	Expert opinion (method and results end-users)	3	• 0: None • 1: One network very rarely • 2: One network regularly • 3: Several from time to time • 4: More than two networks regularly
28. Participation in community spaces dedicated to the governance of the commons (qualitative rating)	Stage 2	Lume	H	Expert opinion (method-and - results-end-users)	0	0: No participation 4: Participation
29. Decent work (qualitative rating)	Stage 4	TAPE	I; H	TAPE	0	Sum of all points. • Basic standards and principles, rights at work ("Is work legal and healthy?"): yes = 1 / no = 0 • Employment ("Does the job provide a livelihood?"): yes = 1 / no = 0 • Social protection ("Does the job provide benefits not included in the wage - such as insurance, pension, etc. - that are essential for workers?"): yes = 1 / no = 0 • Social dialogue ("Do workers have the opportunity to express their views, through trade unions, legal procedures, etc.?"): yes = 1 / no = 0

30. Treatment frequency index		IDEA	H	Calculations based on ANSD 2018-2019 database	2	• 0: 7.70-12.0 • 1: 3.41-7.70; • 2: 1.00-3.41; • 3: 0.50-1.00; • 4: 0-0.50;
31. Percentage of unsprayed area (%)		SAFE	H	Calculations based on ANSD 2018-2019 database	2	• 0: 0-37; • 1: 37-75; • 2: 75-95; • 3: 95-97; • 4: 97-100
32. Level of protection of individuals when spraying pesticides (qualitative rating)	Stage 4	Not found in 14 methods, built on workshop proposals	I; H	Expert opinion (method-and results-end-users)	3	• 0: Application without any protection • 1: Application with very low protection • 2: Application with medium protection • 3: Application with good protection • 4: No application
33. Dietary diversity score (qualitative rating)		TAPE	H	-	0	Ten food groups: 1) Grains, white roots and tubers, 2) Pulses, 3) Nuts and seeds, 4) Dairy products, 5) Meat, poultry, fish, 6) Eggs, 7) Dark green leafy vegetables, 8) Dark yellow or orange fruits and vegetables, 9) Other vegetables, 10) Other fruits. 4 points per food group eaten regularly (every day), 3 points if eaten fairly regularly (several times a week), 1 point if eaten rarely or occasionally (once a month or less). Sum of all points and division by 10 to obtain the total score.
34. Share of land used for food production (%)		IDEA	H	Theoretical minimum and maximum (0-100%)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100

35. General level of empowerment (qualitative rating)	Stage 2	TAPE	I	-	0	1) Contribution to production decisions: 1a) Crop and seed owner 1b) Decisions are made about crop production 1c) Ownership of animals 1d) Decisions are made about livestock 1e) Other economic activities owned by the person 1f) Ownership of household goods For each item 1a to 1f the following score is applied: • 4: If it is the person him/herself • 3: If it is together with those who work on the farm • 2: If it is both the person and a superior person or the husband • 1: If it is another person but not the respondent • 0: If it is the husband or a superior 2) Access to and decision-making power over productive resources 2a) Crop production 2b) Livestock 2c) Other economic activities 2d) Main household expenses For each item 2a to 2d the following score is applied: • 4: Total decision-making power • 3: Most decisions • 2: Some decisions • 1: Only small decisions • 0: No opportunity to make decisions 3) Control over use of income • 4: Full decision-making power • 3: A large part of the decisions • 2: Some decisions • 1: Only small decisions • 0: No possibility to make decisions
36. General perceived autonomy (qualitative rating)	Stage 2	Memento GTAE	I			0: Not at all autonomous 1: A little autonomous 2: Moderately autonomous 3: Autonomous 4: Very autonomous

37. Crop diversity index	Stage 2	IDEA (originally in BIOTEX[9], 2014)	H	Calculations based on ANSD 2018-2019 database	2	• 0: 0-0.52 • 1: 0.52-0.76 • 2: 0.76-1.23 • 3: 1.23-1.47 • 4: 1.47-2.23
38. Equitability index		IDEA (originally in BIOTEX, 2014)	H	Calculations based on ANSD 2018-2019 database	2	• 0: 0-0.43 • 1: 0.43-0.61 • 2: 0.61-0.96 • 3: 0.96-1.14 • 4: 1.14-1.52
39. Number of botanical families grown on the farm		IDEA	H			
40. Production of all three vegetable categories (stem/leaf/inflorescence, root/tuber/bulb and fruit/seed)		IDEA	H			
41. Share of grassland (%)		IDEA	F		0	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
42. Number of animal species (qualitative rating)		Autodiag[10]; IDEA; Memento GTAE; SAFE; SALT[11]	H	Expert Opinion	3	• 0: 0 • 1: 1 • 2: 2 • 3: 3 or 4 • 4: >4
43. Participation in the maintenance of genetic resources (qualitative rating)		IDEA	H		0	0: No participation 4: Participation
44. Number of varieties calculated for the main crop (qualitative rating)		IDEA	H	Expert opinion (method-and-results-end-users)	3	2: One variety only 4: Two varieties

45. Number of cultivated botanical species that include at least 3 varieties	IDEA	H			
46. Cross-motherhood rate (%)	IDEA	H	Theoretical minimum and maximum (0-100%)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
47. Weight of crop successions with short return periods in the crop rotation (%)	IDEA	H	-	0	• 0: 80-100 • 1: 60-80 • 2: 40-60 • 3: 20-40 • 4: 0-20
48. Duration of intercrop (year)	IDEA	H	-	0	• 0: 0-1 • 1: 1-2 • 2: 2-3 • 3: 3 • 4: >3
49. Number of different botanical families in the rotation cycle with the largest surface area	IDEA	H			
50. Integration of intermediate cover for agronomic purposes in rotations	IDEA	H			
51. Share of developed biodiversity by agroecological infrastructure (%)	IDEA (originally in BIOTEX, 2014)	H	Theoretical minimum and maximum (0-100%)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100

52. Diversity of agroecological infrastructure		IDEA (originally in BIOTEX, 2014)	H	Expert opinion (method-and-results-end-users)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
53. Management of ecological regulation areas (qualitative rating)		IDEA	H	IDEA	0	The way in which the ecological regulation areas are managed on the whole farm is noted. • 0: With pesticides • 2: Without pesticides and with intensive maintenance • 4: Without pesticides and with ecological maintenance
54. Practices favouring melliferous species for pollinating insects and allowing flowering to be staggered throughout the year		IDEA	H			
55. Share of legumes (% of cultivated land)	Stage 2	IDEA	H	Calculations based on ANSD 2018-2019 database	2	• 0: 0-19 • 1: 19-31 • 2: 31-55 • 3: 55-67 • 4: 67-100
56. Use of organic fertilizers (% of organic fertilizers used on total fertilizers used)	Stage 2	SAFE	H	Theoretical minimum and maximum (0-100%)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
57. Share of area covered (% of cultivated land)	Stage 2	SAFE; SALT	H	Expert opinion (method-and-results-end-users)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100

58. Soil carbon stock (Tonnes/ha, 0-30 cm)	Stage 2	Dendoncker[12]; SAFE	H	Malou et al, 2020	2	• 0: 2.3-7.22 • 1: 7.22-12.14 • 2: 12.14-23.64 • 3: 23.64-41.72 • 4: 41.72-59.8
59. Infiltration rate		Memento GTAE	H			
60. Stability of aggregates		Memento GTAE	H			
61. Animal welfare index (qualitative rating)		TAPE	H	TAPE	0	• 0: Animals live a miserable life, suffer stress and are slaughtered with unnecessary pain • 1: Animals suffer from stress and may be prone to disease • 2: The health of the animals is generally good, but they may suffer from stress • 3: The health of the animals is generally good • 4: Animals lead a healthy life without stress, are treated with dignity and are slaughtered without unnecessary pain
62. Volume of water withdrawn	Stage 2	IDEA	H			
63. Percentage of area irrigated (% of cultivated land)	Stage 2	SAFE	H	Expert opinion (method-and-results-end-users)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
64. Implementation of water use reduction practices (qualitative rating)	Stage 2	IDEA, modified	H	Expert opinion (method-and-results-end-users)	3	• 0: No practice implemented • 1: Sometimes one practice implemented • 2: Some practices implemented sometimes • 3: Some practices implemented quite often • 4: Various practices implemented regularly
65. Significant water recovery (qualitative rating)		IDEA	H	Expert opinion (method-and-results-end-users)	3	• 0: No • 1: Yes but rarely • 2: Sometimes • 3: Yes always but for domestic activities, not for agricultural production • 4: Always and significantly also for agricultural production

66. Net GHG emissions (teq. CO2/ha)		IDEA	H	IDEA	0	• 0: >1,000 • 1: Between 600 and 800 • 2: Between 400 and 600 • 3: Between 200 and 400 • 4: <200
67. Number and types of energy sources used (qualitative rating)	Stage 4	Not found in 14 methods, identified in SHARP[13]	H	Calculations based on project PAPA, 2017 database	3	• 1: 1 • 2: 2 • 4: >2
68. Number of water sources used (qualitative rating)	Stage 4	Not found in 14 methods, identified in SHARP	H	Calculations based on project PAPA, 2017 database	3	• 1: 1 • 2: 2 • 4: >2
69. Integration of the criterion of tolerance/resistance/rusticity in the choice of varieties of cultivated crops (qualitative rating)		IDEA	H	Expert opinion (method-and-results-end-users)	3	• 0: No • 1: Sometimes • 2: Yes but rarely/follows what is done by neighbours, what is usually done • 3: Very often • 4: Always and thoughtfully seeks access to more resistant varieties
70. Integration of the criterion of hardiness in breeding criteria for livestock (qualitative rating)		IDEA	H	Expert opinion (method-and-results-end-users)	3	• 0: No • 1: Sometimes • 2: Yes but rarely/follows what is done by neighbours, what is usually done • 3: Very often • 4: Always and thoughtfully seeks access to more hardy livestock
71. Connectivity between elements of the agroecosystem and the landscape (qualitative rating)		TAPE	H	TAPE	0	• 0: No contribution to connectivity: high uniformity of the farm's agroecosystem, no semi-natural areas or ecological compensation • 1: Low contribution to connectivity: presence of a few isolated elements contributing to connectivity, such as trees, shrubs, hedges, ponds, small semi-natural or ecological compensation areas • 2: Medium contribution to connectivity: presence of several contributing elements (trees, shrubs, hedges and ponds) and integrated or contiguous with crops and grassland; or significant presence of semi-natural or

					ecological compensation areas • 3: Good contribution to connectivity: the agroecosystem has a mosaic of diverse landscapes; or many elements such as trees, shrubs, hedges or ponds are integrated or contiguous with crops and grasslands; or presence of many semi-natural or ecological compensation areas • 4: High contribution to connectivity: the agroecosystem has a mosaic of diverse landscapes; or many elements such as trees, bushes, hedges or ponds are integrated or adjacent to crops and grasslands; or many semi-natural or ecological compensation areas are present
72. Use of local varieties (% of local varieties used on total varieties used)	IDEA, modified	H	Theoretical minimum and maximum (0-100%)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
73. Existence of platforms for the horizontal creation and transfer of knowledge and good practice (qualitative rating)	TAPE	V	TAPE	0	• 0: No platform for knowledge creation/transfer is available for producers • 1: At least one platform for knowledge co-creation and transfer exists but does not function well and/or is not useful to support the agroecological transition • 2: Platforms for co-creation and knowledge transfer exist, function acceptably and support the agroecological transition in some way • 3: Platforms for co-creation and knowledge transfer are safe spaces available within the community and support the agroecological transition • 4: Well-established and functioning platforms for co-creation and knowledge transfer are available and widespread within the community, they provide safe spaces for sharing traditional knowledge, and actively support the agroecological transition with equal representation of men and women

*Operating modes**:** 0: follows the same scoring system as the method of origin; 1: uses relative reference values such as minima and maxima following equation 1 below; 2: uses relative reference values such as minima, maxima and averages following equation 2 below; 3: uses absolute reference values for which a qualitative rating is determined.

Equation 1: Normalized indicator score = (x-xmin)/(xmax-xmin), where xmin and xmax are respectively the minimum and maximum values of the indicator.
Equation 2: Two options depending on the average value considering the extreme values (distribution law).
Option 1: If average is included in between +/- 20% of (xmax-xmin)/2 then classes of equal amplitude are established. To determine this amplitude (A), we calculate: A = xmax-xmin/five classes.
Option 2 : If average has values close to the extreme values (xmin or xmax) the amplitudes of the five classes are not equal but reflect the hypothetical distribution of the values by centring on the average. The amplitudes are determined as follows:

- Amplitudes of classes below the average: (average-xmin)/number of classes below the mean (i.e. 2.5 as it is half of the five total classes)
- Amplitudes of the classes above the average: (xmax - average)/2.5

Method sources: [1] Zahm et al. 2019 ; [2] Petersen et al. 2020 ; [3] Levard et al. 2019 ; [4] Van Cauwenbergh et al. 2007 ; [5] Mottet et al. 2020 ; [6] Diener et al. 1985; [7] DFID 2001; [8] Nourou-Dine et al, 2021; [9] Manneville et al. 2014; [10] Arango et al. 2019; [11] Calleros-Islas 2019; [12] Dendoncker et al. 2018; [13] Choptiany et al. 2017

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Supp Mat 3. Elements of agroecology and related criteria affected in step 2 by changes during the testing and adaptation phase. Types of changes and details of the changes made.

Element of agroecology	Criteria	Type of change	Detail of the change made (thresholds used)	Scoring system (changes in bold)
Diversity	Crops	Additions in the descriptive scales	Number of crops cultivated (from 3 to >5); share of the main crop (from <30% to >50%)	• 0: Monoculture • 1: **A single** crop or crop combination occupies **more than 50%** of the cultivated area • 2: The main crop or crop combination occupies **between 33% and 50%** of the cultivated area • 3: No single crop or crop combination covers **more than 33%** of the cultivated area AND in total there are **between 3 and 4 crops or crop combinations** • 4: No crop or crop combination covers **more than 33%** of the cultivated area AND in total **at least 5 crops or crop combinations**
	Animals		Number of animal species (from 1 to >4)	• 0: No livestock • 1: **One single species** covering more than 80% of the animals on the farm (or many species but few or poorly adapted to local conditions) • 2: A good number of animals, **two or three species** • 3 A good number of animals with **four species** • 4: High number of animals with **more than 4 species**
Synergies	Integration of crops and livestock		Share of land where night grazing takes place (0-100%); share of external purchases for animal feed in total expenses (from <10% to 100%)	• 0: No livestock or no integration of agriculture and livestock; **100% externally purchased feed** • 1: Low integration of agriculture and livestock: **0-25% share of land under grazing** • 2: Average agriculture-livestock integration **25-50%** share of land under grazing • 3: Good agriculture-livestock integration **(50-75%)** • 4: High integration of agriculture and livestock **(75-100%)** **In addition to the previous scoring, we consider adding or withdrawing scores considering the following**: • **-3: Expenditure on livestock feed as a proportion of total household expenditure is over 50%** • **-2: The share of expenditure on livestock feed in total household expenditure is between 30 and 50%** • **-1: The share of expenditure on livestock feed in total household expenditure is between 10 and 30%** • **0: The share of expenditure on livestock feed in total household expenditure is less than 10%**

	Management of the soil-plant system		Share of land where there is crop rotation and/or crop combinations (from <50% to 100%)	• 0: Bare soil, no functional intercropping, no crop rotation (or rotational grazing systems), no irrigation, significant soil disturbance, soil loss • 1: A small part of the soil is covered with residues or living cover. **Less than 50% of the cultivated area is in crop rotation or in crop combinations**. Soil disturbance • 2: Some soils are covered with residues or living cover. **50%** of the cultivated area is in crop rotation or in crop combinations. Little soil disturbance • 3: The vast majority of the soil is covered with residues or living cover, and **more than 50%** of the cultivated area is in crop rotation or in crop combinations • 4: The **entire cultivated area** is in crop rotation or in crop combinations, irrigation is functional and does not disturb the soil. Continuous improvement of soil properties
Efficiency	Use of external inputs		Share of expenditure related to agricultural production (seed, animal feed and plant protection products) in the total external input budget (from <10% to >50%)	• 0: Expenses related to agricultural production (seeds, inputs and animal feed) represent **more than 50% of the total input expenses of the farm** • 1: Most of the inputs are acquired off the farm (from neighbouring farms). Expenditure related to agricultural production (seeds, inputs and animal feed) represents **between 30 and 50%** of the total input expenditure of the farm • 2: Expenses related to agricultural production (seeds, inputs and animal feed) represent **between 20 and 30%** or less of the total input expenses of the farm. • 3: Expenses related to agricultural production (seeds, inputs and animal feed) represent **between 10 and 20%** or less of the total input expenses of the farm • 4: Expenses related to agricultural production (seeds, inputs and animal feed) represent **less than 10%** of the total input expenses of the farm
Recycling	Renewable energies	Change of the descriptive scales		• 0: **No energy** • 1: **One energy source, coal** • 2: **2 energy sources (including coal)** • 3: **Several energy sources, most of which are from the farm's own renewable energy sources (animal traction, wind, water, wood, biogas and solar)** • 4: **All the energy used comes from renewable energy sources on the farm (animal traction, wind, hydraulic, wood, biogas and solar)**

Supp Mat 4. Changes during the testing and adaptation of the prototype in the case study in Senegal. Specified are time of change (Ta to Td), reason (R: relevance; D: data; E: end-user inputs), type of change (addition: A; withdrawal: W; Specification: S) and justification for change.

Indicator number	Indicators affected by changes	Type of change	Reason for change	Justification for change/verbatim	Time of change
11	Reciprocal trade	S (scoring system)	D	Data unavailable - results-end-users	Tb
13	Added value per unit area (AV/ha)	W	D	No reference value found	Tb
14	Added value per worker (AV/UTH)	W	D	No reference value found	Tb
16	Percentage of young people working in agricultural production in the system being evaluated	W	D	No reference value found	Tb
21	Quantifiable amount of manure collected	W	D	No reference value found	Tb
24	Non-monetary economic wealth indicator	S (indicator content)	R	Household specificities	Tb
25	Agricultural wealth indicator	S (indicator content)	R	Household specificities	Tb
33	Dietary diversity score over the year	S (indicator content)	E	Way in which results-end-users refer to their dietary habits. Instead of being calculated according to the last 24 hours, the indicator is calculated based on general dietary habits.	Tb
36	General perceived autonomy (qualitative rating)	S (indicator content)	E	Not a criterion for judging performance used by the results-end-users. They refer to the levels of constraints. Changed into 'General perceived level of constraints. "We face many constraints hindering our capacity of producing", "Many things make work difficult, we face many obstacles"	Tb
39	Number of botanical families grown	W	R	Vegetable gardening non-existent	Ta

40	Production of all three vegetable categories (stem/leaf/inflorescence, root/tuber/bulb and fruit/seed)	W	R	Vegetable gardening non-existent	Ta
41	Share of grassland	S (indicator content)	R	Not relevant to the context. Grassland is managed collectively, not at the household level	Ta
41	Share of grassland	W	D	No reference value found	Tb
45	Number of botanical species grown that include at least 3 varieties	W	R	Vegetable gardening non-existent	Ta
49	Number of different botanical families in the rotation cycle with the largest surface area	W	R	Vegetable gardening non-existent	Ta
50	Integration of intermediate cover with agronomic objectives in rotations	W	R	Vegetable gardening non-existent	Ta
51	Share of developed biodiversity by agroecological infrastructure	S (scoring system)	R	Not relevant to the context	Tb
52	Diversity of agroecological infrastructure	S (scoring system)	R	Not relevant to the context	Tb
54	Practices favouring melliferous species for pollinating insects and allowing flowering to be staggered throughout the year	W	R	Not relevant to the context	Ta
59	Infiltration rate	W	D	Resources unavailable	Tb
60	Aggregate stability	W	D	Resources unavailable	Tb
62	Volumes of water withdrawn (in m3) for agricultural production per year	W	D	Data unavailable - results-end-users	Tb
66	Net GHG emissions	S (indicator content)	D	Data unavailable - results-end-users	Tb

74	Share of land receiving organic matter	A	E	"Thanks to the training provided by Enda, we have developed the grazing of animals at night, which allows us to fertilise our soils well." "Yields have increased thanks to this practice."	Tb
75	Quantity of organic matter amended/ha/year	A	E	"I make sure to add manure to improve the fertility of my soils." "I add manure and let the animals graze at night, it all depends on the fields."	Tb
76	Share of area in rotation	A	E	Practices implemented more frequently following the agroecological transition and training provided by Enda Pronat. Accounts for the variability of practices between results-end-users (farmers).	Tb
77	Share of the area under fallow	A	E	The share of land is very limited in this area. However, some farmers practice fallowing. This is a practice that distinguishes agricultural practices between different results-end-users.	Tb
78	Duration of lactation (L/day)	A	E	"We appreciate very much the rainy season which allows us to have milk for several months." "Some have milk for more months."	Tb
79	Share of agricultural income/total income	A	E	"It is important to live from farming." "Diversification is good, but in this context it is also important to be able to live from agricultural production and not to depend too much on external inputs."	Td
80	Perception of the difficulty of the work performed	A	E	"I only have night-time to rest." "I am very tired." "The work is exhausting."	Tb
81	Level of education (qualitative rating)	A	E	"It's different for him because he can read and write."	Tb
82	Commitment to territorial environmental initiatives (qualitative rating)	A	E	Recurrent elements in the exchanges with results-end-users. Lack was highlighted during the presentation of the preliminary results	Tc

Supp Mat 5. Set of indicators added to the initial indicator set following the testing and adaptation to the case study. All these indicators stem from end-user inputs. Details are provided regarding the indicators' scale of assessment (V: Village; H: Household; I: Individual), operating mode for their normalization in the case study, sources of references values and scoring system.

Indicators (unit)	**Indicators identified during the testing and adaptation**	**Indicator sources**	**Scale of assessment**	**Sources of reference values**	**Operating mode**	**Scoring system**
74. Share of land receiving organic matter (% of cultivated land)	Results-end-user inputs	Not found in 14 methods, built on results-end-user proposals	H	DAPSA, 2017-2019	2	• 0: 0-12 • 1: 12-24 • 2: 24-44 • 3: 44-72 • 4: 72-100
75. Quantity of organic matter added/ha/year (kg/ha/year)	Results-end-user inputs	Not found in 14 methods, built on results-end-user proposals	H	Expert opinion (method-and - results-end-users)	1 (min: 0; max: quantity of the most fertilized field)	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100
76. Share of area in rotation (% of cultivated land)	Results-end-users inputs	Not found in 14 methods, built on results-end-user proposals	H	DAPSA, 2017-2019	2	• 0: 0-26 • 1: 26-52 • 2: 52-72 • 3: 72-86 • 4: 86-100
77. Share of the area under fallow (% of cultivated land)	Results-end-user inputs	Not found in 14 methods, built on results-end-user proposals	H	Calculations based on ANSD 2018-2019 database	3	• 0: 0-1 • 1: 1-3 • 2: 3-54 • 3: 54-77 • 4: 77-100
78. Duration of lactation (days)	Results-end-user inputs	Memento GTAE	H	Calculations based on ANSD 2018-2019 database	3	• 0: 90-106 • 1: 106-121 • 2: 121-154 • 3: 154-205 • 4: 205-256
79. Share of agricultural income (% of total income)	Method-and-results-end-user inputs	Not found in 14 methods, built on method-and-results-end-user proposals	H	Expert opinion (method-and-results-end-users)	1	• 0: 0-20 • 1: 20-40 • 2: 40-60 • 3: 60-80 • 4: 80-100

80. Perception of the drudgery of the work performed (qualitative rating)	Results-end-user inputs	Memento GTAE	I; H	-	0	• 0: Very difficult • 1: Quite difficult • 2: Moderately difficult • 3: A little difficult but is still good and remains motivated • 4: Not at all difficult, feels satisfaction in the work
81. Level of education (qualitative rating)	Results-end-user inputs	Not found in 14 methods, built on results-end-user proposals	I	Same scales in rating system as ANSD 2018-2019 database	4	• 0: None or kindergarten level • 1: Elementary level • 2: Middle level • 3: Secondary level • 4: Higher level
82. Commitment to territorial environmental initiatives (qualitative rating)	Results-end-user inputs	IDEA	V	-	0	• 0: No commitment • Compliance with a commitment on: • 2: Less than 50% of the total UAA of the production units • 4: More than 50% of the UAA

Sources:

ANSD 2018-2019. Agence Nationale de la Statistique et de la Démographie. Base de données enquête auprès des ménages 2018-2019.

DAPSA, 2017-2019. Direction de l'Analyse, de la Prévision et des Statistiques agricoles. Portail des données.

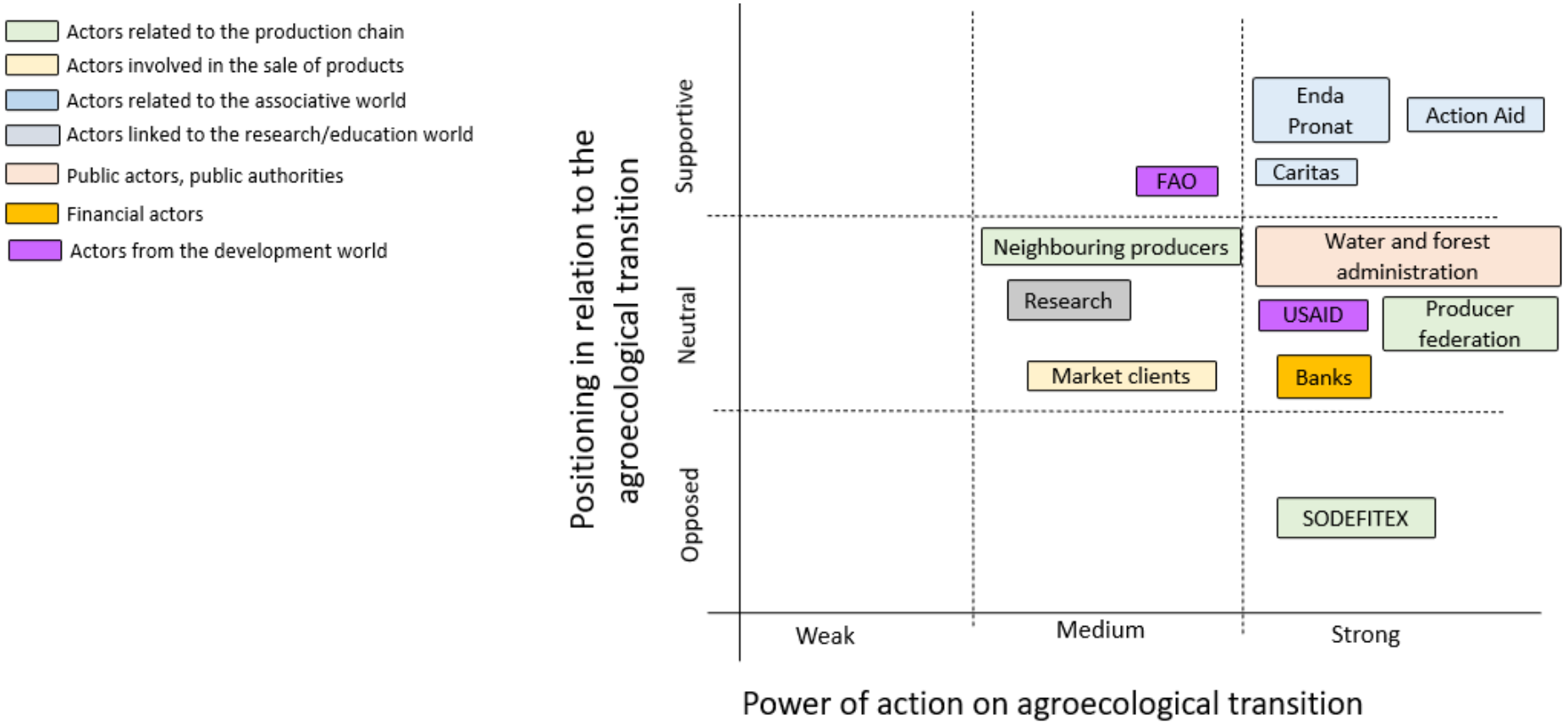
Supp Mat 6. Key features of the nine households of the village of Sare Boubou

Household features	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Average**	**Median**	**Standard deviation**
Household size (number)	16	8	20	26	12	14	24	16	18	17	16	5.67
Workers[1]	6	4	4	10	5	7	11	5	9	7	6	2.64
Most important activity[2]	food crops	food crops	milk	fattening	milk	fattening	cash crops	milk	fattening	-	-	-
Production for sale	29%	40%	18%	50%	48%	56%	55%	35%	57%	43%	48%	0.13
Production for self-consumption	71%	60%	82%	50%	52%	44%	45%	65%	43%	57%	52%	0.13
External income[3] (FCFA)	0	0	700000 (ep)	0	0	150000 (na)	285163 (ep)	212500 (na)	600000 (na)	216407	150000	268674
Agricultural land (ha)	4.5	7.0	4.6	7.5	7.5	5.1	10.0	7.3	8.3	6.87	7.33	1.83
Main crop[4]	M&G	M	M&G	G	S	M	G	G	G	-	-	-

groundnut (ha)	*1.4*	*0.93*	*1.6*	*3.66*	*1.97*	*1*	*2.37*	*4.85*	*3.71*	*2.39*	*1.97*	*1.38*
cotton (ha)	*0*	*0.98*	*0*	*0*	*1*	*1.08*	*1.6*	*0*	*1.1*	*0.64*	*0.98*	*0.63*
fallow (ha)	*0.35*	*1.27*	*0*	*1.81*	*0*	*0*	*0*	*0*	*0*	*0.38*	*0*	*0.68*
corn (ha)	*0*	*0*	*0.32*	*0*	*0*	*0*	*0.66*	*0.58*	*0.14*	*0.19*	*0*	*0.27*
millet (ha)	*1.39*	*2.98*	*1.6*	*1.24*	*1.54*	*1.4*	*2.10*	*0.8*	*2.01*	*1.67*	*1.54*	*0.63*
cowpea (ha)	*0*	*0*	*0*	*0*	*1*	*0.2*	*0.55*	*0*	*0.2*	*0.22*	*0*	*0.35*
sorghum (ha)	*0.84*	*0*	*1.06*	*0.78*	*2.02*	*1.4*	*1.53*	*0.85*	*1.12*	*1.07*	*1.06*	*0.57*
cowpea-corn association (ha)	*0*	*0.88*	*0*	*0*	*0*	*0*	*1.16*	*0.25*	*0*	*0.25*	*0*	*0.45*
not cultivated (ha)	*0.52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.06*	*0*	*0.17*
Total number of fields	7	6	5	9	9	5	6	9	12	7.56	7	2.35
Herd size[5]	87	30	93	135	95	106	164	145	84	104.33	95	39.71
Tropical cattle unit/ha	9.20	1.99	8.08	7.34	6.24	10.94	5.22	8.87	4.35	6.91	7.3	2.76
Agricultural equipment[6]	2 (sd;h)	3 (sd; h; c)	3 (sd;h;c)	3 (sd;h;c)	3 (sd;h;s)	3 (sd;h;s)	4 (sd; 2h;c)	4 (sd; 2h;c)	3 (sd;h;c)	3.00	3	0.50

[1]: Number of workers in agricultural activities; [2]: in terms of gross production; [3]: external income may originate from non-agricultural activities (na) or from external payments (ep); [4]: M: millet; G: groundnut; S: sorghum; [5]: Number of heads, all animals; [6]: Number of equipment and detailed list of equipment in parenthesis as follows seed drill (sd); hoe (h); stripper (s); cart (c)

Supp Mat 7. Stakeholder mapping reflecting results-end-user views (result of step 1 of the prototype)


Actors related to the production chain
Actors involved in the sale of products
Actors related to the associative world
Actors linked to the research/education world
Public actors, public authorities
Financial actors
Actors from the development world
Positioning in relation to the agroecological transition
Supportive
Neutral
Opposed
Enda Pronat
Action Aid
Caritas
FAO
Neighbouring producers
Water and forest administration
Research
USAID
Producer federation
Market clients
Banks
SODEFITEX
Weak
Medium
Strong
Power of action on agroecological transition

Supp Mat 8. Data for village (V) and household (H) level indicators (in grey: indicators withdrawn following the testing and adaptation phase in the case study in Senegal). Village level indicators present the same data for all nine households. In grey, indicators withdrawn. In bold, indicators that have been specified.

		Households								
Indicator number	**Indicators**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	Input expenditure (FCFA)	593,000	219,150	262,550	634,000	214,725	380,250	384,650	462,000	1,010,170
2	Food self-sufficiency	42%	58%	82%	61%	93%	85%	92%	92%	75%
3	Degree of specialisation	71%	60%	70%	29%	34%	27%	39%	33%	58%
4	Number of products sold	1	3	1	2	2	2	2	2	3
5	Diversity of outlets	100%	81%	100%	100%	84%	78%	74%	100%	94%
6	Share of direct sales or local sales channels	100%	81%	100%	100%	84%	78%	74%	100%	94%
7	Income (FCFA)	11,800	193,800	192,600	353,050	944,000	1,047,900	1,101,450	1,349,250	4,017,880
8	Share of debt	0	0	0	0	0	0	0	0	0
9	Share of subsidies	90%	35%	21%	23%	13%	11%	9%	6%	4%
10	Share of off-farm income	0%	0%	70%	0%	0%	11%	19%	13%	12%
11	**Reciprocal trade (qualitative rating)**	2	1	1	2	1	2	1	1	1
12	Number of economic opportunities developed in the last 5 years (qualitative rating)	1	1	1	1	1	1	1	1	1
13	Added value/ha (FCFA/ha)	2,579	2,7431	41,598	46,630	124,538	201,326	109,217	180,986	473,527
14	Added value/per working units (FCFA/working units)	1,967	48,450	48,150	35,305	188,800	149,700	100,132	269,850	446,431
15	ha/working units	1	1	1	1	1	1	0	1	1
16	Share of youth									
17	Collective work (qualitative rating)	3	3	3	3	3	3	3	3	3
18	Yield (kg/ha)	432	403	438	586	422	607	420	718	875
19	Fertility rate	0%	0%	38%	100%	100%	100%	100%	100%	36%
20	Quantity of milk collected (L/day)	0	0	3	6	3	2	2	6	2.5
21	Quantity of manure collected									
22	Local procurement	92%	92%	92%	92%	92%	92%	92%	92%	92%
23	Satisfaction with life scale	*Individual level*								
24	**Non-monetary economic wealth indicator (qualitative rating)**	0	1	1	1	1	1	1	2	2
25	**Agricultural wealth indicator (qualitative rating)**	2	2	2	2	2	2	3	3	3
26	Participation in knowledge and know-how sharing networks	*Individual level*								
27	Involvement in professional structures	*Individual level*								

28	Participation in community spaces dedicated to the governance of the commons (qualitative rating)	4	4	4	4	4	4	4	4	4
29	Decent work (qualitative rating)	1.83	1.5	1.66	1.16	2	1.37	1.16	1.83	1.16
30	Treatment frequency index	0	4	1	0	1	6	4	0	2
31	Percentage of unsprayed areas	100%	86%	61%	100%	56%	79%	82%	100%	50%
32	Level of protection of individuals when spraying pesticides					*Individual level*				
33	**Dietary diversity score (qualitative rating)**	1.40	1.50	1.20	1.50	1.30	1.30	1.70	1.30	1.80
34	Share of land used for food production	100%	86%	100%	100%	89%	79%	84%	100%	58%
35	General level of empowerment					*Individual level*				
36	**General perceived autonomy**	1.67	1.67	2.00	1.67	2.00	1.67	1.67	2.00	0.67
37	Crop diversity index	1.79	2.13	1.82	1.75	1.86	1.68	2.68	1.56	2.02
38	Equitability index	0.90	0.92	0.91	0.88	0.93	0.84	0.95	0.67	0.78
39	Number of botanical families grown on the farm									
40	Production of all three vegetable categories									
41	**Share of grassland**									
42	Number of animal species	3	4	4	5	4	5	4	5	4
43	Participation in the maintenance of genetic resources (qualitative rating)	3	3	3	3	3	3	3	3	3
44	Number of varieties calculated for the main crop	1	1	1	1	1	1	1	1	1
45	Number of cultivated botanical species that include at least 3 varieties									
46	Cross-motherhood rate	0%	0%	0%	0%	0%	0%	0%	0%	0%
47	Weight of crop successions with short return periods in the crop rotation	70%	75%	100%	99%	83%	100%	100%	76%	95%
48	Duration of intercrop (years)	4	4	4	4	4	4	4	4	4
49	Number of different botanical families in the most important rotation cycle by area									
50	Integration of intermediate cover for agronomic purposes in rotations									
51	**Share of developed biodiversity by agroecological infrastructure**	14%	27%	8%	55%	7%	5%	8%	5%	10%
52	**Diversity of agroecological infrastructure (number)**	3	3	2	2	2	2	2	2	3
53	Management of ecological regulation areas (qualitative rating)	4	4	4	4	4	4	4	4	4
54	Practices favouring melliferous species for pollinating insects and allowing flowering to be staggered throughout the year									
55	Share of legumes	25%	19%	31%	36%	22%	24%	35%	41%	47%
56	Use of organic fertilizers	99%	95%	100%	98%	99%	100%	95%	98%	92%
57	Share of area covered	50%	42%	65%	27%	47%	55%	43%	30%	39%
58	Carbon stock (tonnes/ha)	14.8	10.3	10.6	17.1	7.3	18.4	14.3	6.0	7.9

59	Infiltration rate									
60	Stability of aggregates									
61	Animal welfare index	2	2	2	2	2	2	2	2	2
62	Volumes of water withdrawn									
63	Percentage of area irrigated	0%	0%	0%	0%	0%	0%	0%	0%	0%
64	Implementation of water use reduction practices (qualitative rating)	2	2	2	1	2	2	2	2	1
65	Significant water recovery (qualitative rating)	2	2	2	2	2	2	2	2	2
66	**Net GHG emissions**	14	22	87	135	114	135	121	166	86
67	Number and types of energy sources used	1	2	1	2	2	2	2	2	2
68	Number of water sources used	2	2	2	2	2	2	2	2	2
69	Integration of the criterion of tolerance/resistance/rusticity in the choice of varieties (qualitative rating)	3	1	1	3	1	1	3	1	3
70	Integration of the criterion of hardiness in breeding criteria for livestock (qualitative rating)	0	0	0	0	0	0	0	0	0
71	Connectivity between elements of the agroecosystem and the landscape (qualitative rating)	2	1	1	1	1	1	1	1	2
72	Use of local varieties	75%	75%	75%	75%	75%	75%	75%	75%	67%
73	Existence of platforms for the horizontal creation and transfer of knowledge and good practices (qualitative rating)	3	3	3	3	3	3	3	3	3
	9 added indicators in the testing and adaptation to the case study in Senegal									
74	Share of land receiving organic matter	14%	50%	80%	22%	56%	83%	83%	44%	33%
75	Quantity of organic matter added (kg/ha/year)	9,321	988	2,612	3,750	3,448	2,191	1,212	2,928	2,744
76	Share of area in rotation	59%	49%	58%	76%	23%	49%	67%	27%	69%
77	Share of the area under fallow	8%	18%	0%	24%	0%	0%	0%	0%	0%
78	Duration of lactation (days/year)	0	0	150	90	105	90	75	90	90
79	Share of agricultural income	10%	66%	19%	77%	87%	78%	75%	81%	84%
80	Perception of the difficulty of the work performed (qualitative rating)	0.33	1.75	1.66	1	1.4	1.25	1.33	1.75	2
81	Level of education (qualitative rating)	1	0	0	0	0	1	1	1	1
82	Commitment to territorial environmental initiatives (qualitative rating)	2	2	2	2	2	2	2	2	2

Supp Mat 9. Heat map comparing individual level indicators regarding the quality of life dimension. The colours on the heat map represent the average values of scores for each indicator for each individual of the corresponding gender group (men, women and youth). Shades of green denote the highest scores (best possible value), amber are medium scores and are red the lowest scores (worst possible value).