

List of the identified criteria and indicators to evaluate crop diversification sustainability and performance

Expected Impacts*	SAFA Theme/Sub-Themes	N.	Criteria	ID	Indicators	Spatial Scale
Economic dimension						
E1	Investment / Profitability	1	Productivity	1.1	Energetic yield (EY)	CS
				1.2	Land Equivalent Ratio (LER)	F
E2	Vulnerability /Stability of Production	2	Stability of production	2.1	Yield Coefficient of Variation (YCV)	F/CS
E2	Investment / Profitability	3	Profitability	3.1	Average gross or semi net margin at rotation level (RGM or RSNM)	CS
E2	Vulnerability / Risk Management	4	Dependency on external inputs	4.1	Total input/turnover (DEI)	CS
E6	Investment / Profitability; Product Quality and Information /Food Quality	5	Product quality	5.1	Product standard quality required by the sector/market (PSQ)	CS
E2	Investment / Profitability	6	Local valorisation	6.1	Short food supply chain and local distribution (PSC)	FM
				6.2	Supplier/customer contribution to profitability (SCCP)	SC
Environmental dimension						
E4/E8	Biodiversity/ Ecosystem Diversity	7	Ecosystem/landsc ape Diversity	7.1 (8.1)	Crop Diversity Index (CDI)	FM
				7.2	% Semi Natural Habitat (%SNH)	T/FM
E4/E8	Biodiversity / Species Diversity	8	Crop diversification	8.1 (7.1)	Crop Diversity Index (CDI)	CS/FM
				8.2	% Legume in rotation (LEG)	CS
E4/E8	Biodiversity / Genetic Diversity	9	Genetic diversification	9.1	Crop-cultivar diversity (CCD)	CS/FM
				9.2	Number of crop in the rotation with cultivar mixture (CCM)	CS
E4	Land/ Land Degradation	10	Soil degradation (compaction, erosion)	10.1	Proportion of crops harvested in wet conditions (NWHC)	CS/FM
				10.2 (13.2)	Bare soil during erosion risk or drainage periods (BSO)	CS/FM
E4	Land / Soil Quality	11	Soil quality	11.1 (16.4)	C input during the rotation (ACI)	CS/FM

E3	Fresh water / Water withdrawal	12	Water withdrawal	12.1	Relative available water remaining (RWAR)	CS
E4	Fresh water/Water Quality	13	Water quality (nutrient)	13.1	Surface nutrient balances (NBAL and PBAL)	CS/FM
				13.2 (10.2)	Bare soil during erosion risk or drainage periods (BSO)	FM
E4	Fresh water/Water Quality	14	Water quality (pesticide)	14.1	Amount of leachable active ingredient (LeachAI)	F/CS
				14.2 (15.2)	Amount of active ingredients (QAI)	F/CS
E4	Atmosphere/Air Quality	15	Air quality	15.1	Amount of volatile active ingredients (VolAI)	F/CS
				15.2 (14.2)	Amount of active ingredients (QAI)	F/CS
E3	Atmosphere / Greenhouse gases	16	GHG balance	16.1	Mineral Nitrogen Use for GHG balance calculation (MNUGHG)	CS
				16.2	Nitrogen Use (NU)	CS
				16.3	Total fuel consumption at farm level for global warming potential calculation (FCFGHG)	CS
				16.4 (11.1)	C input during the rotation (ACI)	CS
E3/E5	Materials and Energy /Energy use and Material use	17	Non-renewable resources (Fossil energy and mineral P)	17.1	Total fuel consumption at farm level for fossil energy use calculation (FCFNRJ)	CS
				17.2	Mineral Nitrogen Use for fossil energy use calculation (MNUNRJ)	CS
				17.3	Mineral Phosphorus use (MPU)	FM
Social dimension						
E7	Human Safety and Health/ Public Health	18	Famer and public health	18.1	Treatment frequency index (TFI)	CS/FM/ T
E7	Decent Livelihood / Quality of Life	19	Farmers' quality of life	19.1	Work overload (WOL)	CS/FM

Expected Impacts: E1 - Higher arable land productivity, and land-equivalent ratio (LER) for intercropping systems; E2 - Diversification and increased farmers' revenues through access to new markets and reduced economic risk; E3 - Lower environmental impact of diversified cropping systems with reduced use of pesticides, chemical fertilisers, energy and water; E4 - Improved delivery of ecosystem services, including biodiversity, soil fertility, pest and disease control, groundwater and surface water quality and carbon sequestration; E5 - Organisation of resource-efficient downstream value chains with the involvement of relevant actors and decreased use of energy along the chains; E6 - Market provision of food, feed and industrial products from harvested crops and residues/co-products to contribute to the sustainable development of the bio-economy; E7- Increased awareness and knowledge/data exchanges among actors on the benefits of diversified cropping systems (covering different pedoclimatic conditions, using different crops) and on downstream value chain organisation across Europe; E8 - Increase crop diversification and biodiversity in Europe, which is an objective of the common agricultural policy; **Spatial scale:** T = Territory, SC = Supply chain; FM = Farm; CS = Cropping system; F = Field