Table 2. Table showing the resilience framework. Colours in the criteria of dynamics indicate the desired direction for a resilient system: green indicates a desired higher level or increasing tendency, while red indicates a desired lower level or decreasing tendency.

Dim	Functions to preserve	Performance attributes	Indicator	Citeria of dynamics	Metrics
Economic	Food provision	Energy Yield (EY)	Energy contained in crop yields	Level x Trend x Variability x Resistance	Mean x Slope of linear regression x RSD x number of disruptions (25% below mean)
		Protein Yield (PY)	Protein contained in crop yield	Level x Trend x Variability x Resistance	**Metrics**
	Economic viability	Gross Margin (GM)	Overall gross margins (including European subsidies)	Level x Trend x Variability x Resistance	Mean x Slope of linear regression x RSD x number of disruptions (25% below mean)
		Economic Dependency (ED)	Ratio of gross margin to total revenue	Level x Trend x Resistance	Mean x Slope of linear regression x RSD x number of disruptions (25% below mean)
Environmental	Ecosystem services to production	Mineral N supplied by the ecosystem (Nsupp)	Amount of mineral N supplied by the ecosystem during the cropping cycle (i.e. N mineralized from humus and residues, and N from fixation)	Level x Trend x Variability	Mean x Slope of linear regression x RSD x number of disruptions (25% below mean)
		Soil structure (SS)	Soil structure quality according to Johannes et al. (2017)	Level x Trend	Mean x RSD x number of disruptions (25% above mean)
	Ecosystem services to society	Carbon storage in the soil (Csto)	Relative annual change (%) in soil organic carbon (SOC) stock (in the 0–0.3 m horizon)	Level x Trend	Mean x Slope of linear regression x RSD
		Water quality regulation (WQR)	The proportion of N not leached	Level x Trend	Mean x Slope of linear regression
	Environmental integrity	Pesticide active ingredient (PAI)	Intensity of the pesticide application	Level x Trend x Variability	Mean x Slope of linear regression
		Blue water (BW)	Cumulative amount of water drained at the base of the soil profile during the simulation period	Level x Trend x Variability	Mean x Slope of linear regression
		Green House Gases (GHG)	Equivalent CO2 of greenhouse gases emissions	Level x Trend x Variability	Mean x Slope of linear regression x RSD
Social	Social acceptability	Workload (WL)	Sum of hours per year spent on arable field activity for one worker	Level x Trend x Variability x Resistance	Mean x Slope of linear regression x RSD

Table 3. Criteria of dynamics and respective metrics (adapted from Dardonville et al., (2021)

Criteria	Metrics	Details
Level	Overall mean over the study period	
Trend	Slope of linear regression	The tendency of the performance over the study period
Variability	Relative Standard Deviation	the inverse of stability of a performance attribute
Resistance	number of disruptions (REF) when the PA surpasses a threshold of 25% below/above the mean	capacity to resist to general or a precise event