

Supplementary materials

Table S1. Predictive variables considered in the Spearman rank correlation analysis.

Variable	Tillage management	Crop diversification	Fertilization management
<i>Climate</i>			
Humid	Yes/No (1/0; Humid 1; Other 0)		
Semiarid	Yes/No (1/0; Semiarid 1; Other 0)	Yes/No (1/0; Semiarid 1; Other 0)	
Subhumid	Yes/No (1/0; Subhumid 1; Other 0)	Yes/No (1/0; Subhumid 1; Other 0)	Yes/No (1/0; Subhumid 1; Other 0)
<i>Region/crop</i>			
AtFodG	Yes/No (1/0; AtFodG 1; Other 0)		Yes/No (1/0; AtFodG 1; Other 0)
AtFodMix	Yes/No (1/0; AtFodMix 1; Other 0)		Yes/No (1/0; AtFodMix 1; Other 0)
BorFodMix	Yes/No (1/0; BorFodMix 1; Other 0)	Yes/No (1/0; BorFodMix 1; Other 0)	Yes/No (1/0; BorFodMix 1; Other 0)
MedNCerAW	Yes/No (1/0; MedNCerAW 1; Other 0)	Yes/No (1/0; MedNCerAW 1; Other 0)	Yes/No (1/0; MedNCerAW 1; Other 0)
MedSCerAW	Yes/No (1/0; MedSCerAW 1; Other 0)	Yes/No (1/0; MedSCerAW 1; Other 0)	Yes/No (1/0; MedSCerAW 1; Other 0)
<i>Management</i>			
Tillage 1	Yes/No (1/0; No-Tillage 1; Other 0)	Yes/No (1/0; No-Tillage 1; Other 0)	Yes/No (1/0; No-Tillage 1; Other 0)
Tillage 2	Yes/No (1/0; Minimum tillage 1; Other 0)	Yes/No (1/0; Conventional Tillage 1; Other 0)	Yes/No (1/0; Conventional Tillage 1; Other 0)
Rotation 1	Yes/No (1/0; Rotation 1; Other 0)	Yes/No (1/0; Rotation 3 years 1; Other 0)	Yes/No (1/0; Rotation 3 years 1; Other 0)
Rotation 2			Yes/No (1/0; Rotation 2 years 1; Other 0)
Rotation 3			Yes/No (1/0; Multiple cropping 1; Other 0)
Legumes	Yes/No (1/0; Legumes 1; Other 0)	Yes/No (1/0; Legumes 1; Other 0)	Yes/No (1/0; Legumes 1; Other 0)
Cover crop	Yes/No (1/0; Cover crop 1; Other 0)	Yes/No (1/0; Cover crop 1; Other 0)	Yes/No (1/0; Cover crop 1; Other 0)
Fertilization 1	Yes/No (1/0; Mineral 1; Other 0)	Yes/No (1/0; Mineral 1; Other 0)	
Fertilization 2	Yes/No (1/0; Mixed 1; Other 0)	Yes/No (1/0; Mixed 1; Other 0)	Yes/No (1/0; Mixed 1; Other 0)
Fertilization 3	Yes/No (1/0; Organic 1; Other 0)	Yes/No (1/0; Organic 1; Other 0)	Yes/No (1/0; Organic 1; Other 0)
Residue 1	Yes/No (1/0; Incorporated 1; Other 0)	Yes/No (1/0; Incorporated 1; Other 0)	Yes/No (1/0; Incorporated 1; Other 0)
Residue 2	Yes/No (1/0; Mulched 1; Other 0)	Yes/No (1/0; Mulched 1; Other 0)	Yes/No (1/0; Mulched 1; Other 0)
Residue 3	Yes/No (1/0; Removed 1; Other 0)	Yes/No (1/0; Removed 1; Other 0)	
Duration	Years	Years	Years

<i>Soil</i>			
Texture 1	Yes/No (1/0; clay loam 1; Other 0)		
Texture 2	Yes/No (1/0; loam; Other 0)	Yes/No (1/0; loam; Other 0)	Yes/No (1/0; loam; Other 0)
Texture 3	Yes/No (1/0; clay 1; Other 0)	Yes/No (1/0; clay 1; Other 0)	
Texture 4	Yes/No (1/0; silty loam 1; Other 0)		
Texture 5		Yes/No (1/0; sandy clay loam 1; Other 0)	Yes/No (1/0; sandy loam+sandy clay loam 1; Other 0)
Texture 6			Yes/No (1/0; sand; Other 0)
SOC content control	SOC _C %	SOC _C %	SOC _C %
SOC content change	$100 \times (\text{SOC}_D - \text{SOC}_C) / \text{SOC}_C$	$100 \times (\text{SOC}_D - \text{SOC}_C) / \text{SOC}_C$	$100 \times (\text{SOC}_D - \text{SOC}_C) / \text{SOC}_C$
AtFodG, Atlantic fodder grains; AtFodMix, Atlantic fodder mixtures; BorFodMix, Boreal fodder mixtures; MedNCerAW, Mediterranean North autumn-winter cereals; MedSCerAW, Mediterranean South autumn-winter cereals.			
SOC _C , SOC content in control treatment; SOC _D , SOC content in diversified treatment.			

Table S2. SOC content changes (%) analysis by age groups (duration of the experiment in years and number of data).

Age group	Tillage management	Crop diversification	Fertilization management
2-10	3 (42)	28 (5)	11 (23)
11-20	8 (38)	6 (43)	14 (13)
>20	2 (5)	-6 (10)	29 (19)