



Figure S1. European pedoclimatic regions and crop diversification systems addressed in the data-analysis.

Modified from: Recommendations for establishing Action Programmes under Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources Contract number N° 07 0307/2010/580551/ETU/B1. Part A. Review and further differentiation of pedo-climatic zones in Europe. Final Report. December 2011.

http://publications.europa.eu/resource/cellar/e1d06bc3-58c4-43a3-b2bc-6ad6d53d7953.0001.01/DOC_1 (accessed on 28 November 2019).

Table S1 Predictive variables considered in the stepwise multiple regression analysis

Variable	Units
<i>Climate</i>	
Humid	Yes/No (1/0; Humid 1; Other 0)
Arid/Semiarid	Yes/No (1/0; Arid/Semiarid 1; Other 0)
<i>Region/crop</i>	
Atlantic-Boreal	Yes/No (1/0; Atlantic-Boreal 1; Other 0)
Mediterranean South	Yes/No (1/0; Mediterranean South 1; Other 0)
<i>Management</i>	
Tillage 1	Yes/No (1/0; No-Tillage 1; Other 0)
Tillage 2	Yes/No (1/0; Minimum tillage 1; Other 0)
Diversification 1	Yes/No (1/0; ≥ 3 -years 1; Other 0)
Diversification 2	Yes/No (1/0; 2-years 1; Other 0)
Diversification 3	Yes/No (1/0; Intercropping 1; Other 0)
Diversification 4	Yes/No (1/0; Multiple cropping 1; Other 0)
Fertilization 1	Yes/No (1/0; Mixed 1; Other 0)
Fertilization 2	Yes/No (1/0; Organic 1; Other 0)
Residue management 1	Yes/No (1/0; Incorporated 1; Other 0)
Residue management 2	Yes/No (1/0; Mulched 1; Other 0)
<i>Soil</i>	
Texture 1	Yes/No (1/0; Fine 1; Other 0)
Texture 2	Yes/No (1/0; Medium; Other 0)

Atlantic-Boreal = Atlantic fodder grains, Atlantic fodder mixtures, Boreal fodder mixtures; Mediterranean South = Mediterranean South autumn-winter cereals.

Table S2 Results of the stepwise multiple regression analysis ($R^2=0.406$, $F_{15,450}=20.48$, $p<0.0001$) between crop production changes and predictive variables (see Table S1)

Source	Value*	Standard error	t	p-level
Organic fertilization	0.508	0.099	5.134	<0.0001
Humid	-0.644	0.079	-8.115	<0.0001
Arid-Semiarid	0.252	0.063	4.002	<0.0001
Fine texture	0.166	0.041	4.045	<0.0001
No tillage×Mediterranean South	0.118	0.052	2.284	0.023
Minimum tillage×Organic fertilization	0.217	0.041	5.250	<0.0001
Organic fertilization×Humid	0.277	0.097	2.852	0.005
Organic fertilization×Mediterranean South	0.285	0.065	4.373	<0.0001
Organic fertilization×Medium texture	0.109	0.053	2.061	0.040
Mixed Fertilization×Humid	-0.395	0.134	-2.959	0.003
Mixed Fertilization×Atlantic-Boreal	-0.536	0.125	-4.278	<0.0001
≥3-years×Mediterranean South	0.144	0.039	3.705	0.000
2-years×Mediterranean South	-0.425	0.047	-8.945	<0.0001
Multiple cropping×Arid-Semiarid	-0.207	0.052	-3.990	<0.0001
Mulched×Arid-Semiarid	0.161	0.054	2.977	0.003

* Standardized coefficients