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Supplement S1 - Results obtained on three other QST indicators

Description of the indicators:

i. One indicator associated to the early increase in soil mass soon after soil immersion in water: "t_{max}", which represents the time to reach the maximum mass value. A high tmax value means that the sample is filling with water gently without decomposing too quickly.
ii. One indicator related to slopes in the decreasing part of the curve: "$slope_{30\text{-}60}$", which signifies the local slope linked to weight loss between 30 and 60 seconds.

The t_{max} and $slope_{30\text{-}60}$ indicators are highly correlated with the fast-wetting of Le Bissonnais, suggesting that slaking plays an important role in the early stages of the QST (Vanwindekens and Hardy 2023).

iii. One indicator linked to threshold values of mass loss: "$dt_{50\text{-}75}$". t50 and t75 represent the time needed to achieve 50% and 75% of relative mass loss between the maximum and the final mass of soil at the end of the QST experiment. "$dt_{50\text{-}75}$" corresponds to the time between 50% and 75% of mass loss. This indicator correlates more closely to the slow-wetting test of Le Bissonnais, suggesting that clay dispersion and differential swelling play an important role in the intermediate to late stages of the QST (Vanwindekens and Hardy 2023).

Table S 1 Descriptive statistics of some QST indicators of the surveyed fields

Indicator (unit)	Minimum	1st Quartile	Median	Mean	3rd Quartile	Maximum
t_{max} (sec)	1	16	49	143	143	1124
$slope_{30\text{-}60}$ (sec^{-1})	-1.10E-02	-1.50E-03	-4.70E-04	-1.24E-03	-1.38E-04	1.60E-04
$dt_{50\text{-}75}$ (sec)	0	79	142	176	248	662

Table S 2 Descriptive statistics of some QST indicators of the surveyed fields per CA-types (mean ± standard deviation)

Indicator (unit)	**CIN**	**Ig1**	**Ig2**	**GEM**	**All CA fields**
Number of fields	*10*	*3*	*4*	*2*	*19*
Number of samples	*59*	*16*	*21*	*12*	*140*
t_{max} (sec)	53 ±67	157 ±163	370 ±375	37 ±46	143±233
$slope_{30\text{-}60}$ (sec^{-1})	-1.93E-03 ±2.33E-03	-1.09E-03 ±1.81E-03	-3.60E-04 ±6.11E-04	-4.46E-04 ±3.95E-04	-1.24E-03 ±1.93E-0.3
$dt_{50\text{-}75}$ (sec)	166 ±109	219 ±190	195 ±153	139 ±75	176 ±134

t_{max}, which represents the time required to reach the maximum sample mass, is shorter for GEM and CIN compared to Ig1 and Ig2. A higher t_{max} implies that the soil samples slowly fill with water without undergoing rapid decomposition. For the $slope_{30\text{-}60}$ indicator, a steeper slope is observed in CIN samples. No marked difference was observed for the $dt_{50\text{-}75}$ indicator. CIN samples exhibit the lowest Wend values, which represents the fraction of the sample that has not undergone disaggregation.

It should be noted that t_{max} largely exceeds the values reported by Vanwindekens and Hardy (2023), where measurements were mainly within the range of 0 to 30 seconds for plowed fields and 0 to 90 seconds for reduced tillage fields.

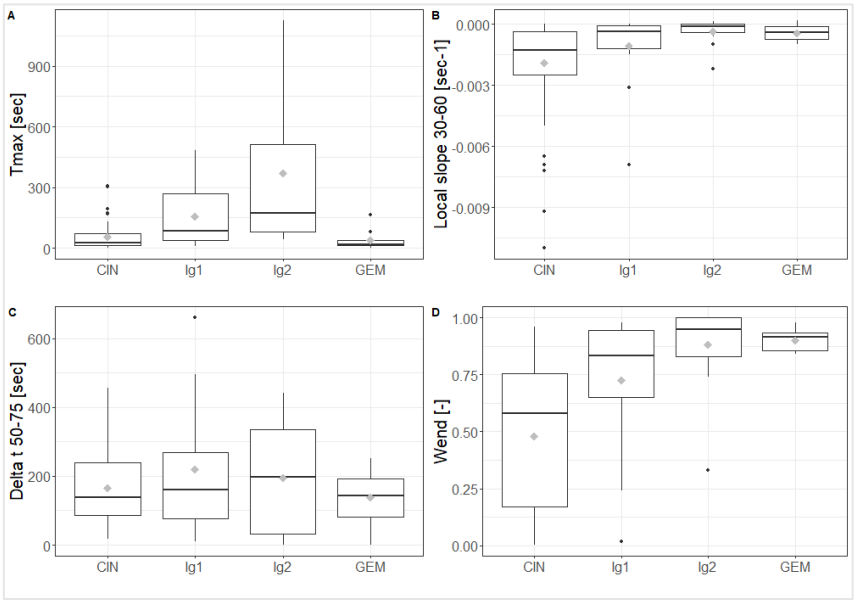

Figure S 1 Box fields of four of the QuantiSlake Test indicators across the four CA-types. Boxes show the median (thick line) and average (grey diamond).

Supplement S2 – Raw values of soil properties

Table S 3 Raw values of soil properties

Field code	Placement	CA type	Region	Soil type	tmax	Wend	slope 30-60	dt 50-75	SOC	C:N	pH KCl	CEC	Base saturation	pH	Clay (< 2 µm)	Silt (2 – 50 µm)	Sand (50-200 µm)	POXC	SOC:Clay	POXC : SOC
					sec	[-]	sec^{-1}	sec	%	[-]	[-]	$cmol_c\ kg^{-1}$	%	[-]	%	%	%	mg/kg	[-]	[-]
1	A	unclassified	Lo	AbB	250.92	0.99	0.000052	107.4	1.231055	9.24219				7.94	15.7281	79.79131	4.480589	405.1393	0.078529	3.280201
1	B	unclassified	Lo																	
1	C	unclassified	Lo	Aba1	19.32	0.74	-0.0017	122.04	0.963957	8.610039	7.04	9.493952	100	7.89	14.73782	80.67018	4.591995	336.085	0.065407	3.486516
1	D	unclassified	Lo	AbB	4.69	0.91	-0.00084	133.99	1.038995	8.908303				7.97	14.98847	81.47578	3.535742	360.4082	0.06932	3.468815
1	E	unclassified	Lo		15.57	0.76	-0.0011	120.35												
1	F	unclassified	Lo	Aba1	3.84	0.85	-0.00044	92.11	1.069728	9.204506	6.89	16.18693	91.866837	8.01	14.99539	81.12888	3.875731	347.012	0.071337	3.243927
2	A	CIN	SLo	Aba(b)1	10.03	0.004	-0.0019	431.04	1.004716	8.445518	6.31	12.1154	97.98989	7.51	11.77764	80.87312	7.349246	334.1786	0.085307	3.326099
2	B	CIN	SLo		14.73	0.032	-0.0016	227.12												
2	C	CIN	SLo	Aba(b)1	9.64	0.0021	-0.0024	120.15	0.932411	8.765462				7.45	16.2037	76.00308	7.79321	329.2892	0.057543	3.531589

2	D	CIN	SLo	Aba(b)1	11.85	0.022	-0.0012	304.49	1.012916	8.191067				7.53	13.73836	80.14044	6.121202	347.558	0.073729	3.431263
2	E	CIN	SLo		15.78	0.018	-0.0026	142.46												
2	F	CIN	SLo	Aba(b)1	9.77	0.0039	-0.0017	152.89	0.888545	8.528817	6.62	9.048732	100	7.7	10.90226	80.07519	9.022556	333.2565	0.081501	3.750588
3	A	CIN	Lo	Aba1	23.41	0.69	-0.00057	262.75	0.910531	8.594862	5.76	10.66088	100	7.16	13.44499	81.05409	5.500922	362.4764	0.067723	3.980932
3	B	CIN	Lo		63.37	0.3	-0.00021	278.48												
3	C	CIN	Lo	Aba1	57.17	0.82	-0.00047	109.2	1.016855	9.054019				7.18	16.62543	77.7142	5.660377	424.3718	0.061163	4.173374
3	D	CIN	Lo	Aba1	172.86	0.81	-0.00025	65.61	1.133876	9.321143	6.14	10.86998	88.67283	7.29	12.36667	78.83753	8.795795	443.18	0.091688	3.90854
3	E	CIN	Lo		56.14	0.58	-0.00038	87.61												
3	F	CIN	Lo	Aba1	194.87	0.91	-3.1E-05	62	0.943881	8.699767				7.44	16.38577	77.63733	5.976904	356.7553	0.057604	3.779664
5	A	Ig1	Lo	Ldc	80.04	0.76	-0.00042	76.41	1.26761	10.69794				8.07	12.29445	45.71999	41.98556	365.1672	0.103104	2.880754
5	B	Ig1	Lo		111.05	0.82	-0.00038	659.61												
5	C	Ig1	Lo	Ldc	117.44	0.77	-0.00028	333.19	1.165891	9.57884	7.74	10.3949	100	8.23	12.09614	48.77478	39.12908	371.9863	0.096385	3.190574
5	D	Ig1	Lo	Ldc					1.400302	10.77948				7.85	10.45377	60.39957	29.14666	476.5534	0.133952	3.403219

5	E	Ig1	Lo		293.81	0.85	-0.00141	131.17											
5	F	Ig1	Lo	Ldc	260.23	0.93	0.000022	169.2	1.094971	9.687551	7.43	10.21245	100	8.09	11.59375	54.87711	33.52914	384.8398	0.094445	3.514611
6	A	Ig2	Con	A-Gbp1	57.17	0.77	-0.00035	196.6	1.116381	9.588468				7.46	14.43959	81.1739	4.386513	445.0883	0.077314	3.986883
6	B	Ig2	Con																	
6	C	Ig2	Con	A-Gbp1	42.35	0.83	-0.001	314.99	1.445675	10.09808	7.18	9.033004	100	7.93	15.37786	79.8184	4.803749	441.5276	0.094001	3.054127
6	D	Ig2	Con	A-Gbp1	78.4	0.74	-0.00063	354.79	1.176865	9.010703	6.37	9.794587	100	7.57	15.1751	79.76654	5.058366	476.163	0.077552	4.04603
6	E	Ig2	Con		56.26	0.33	-0.0022	440.89												
6	F	Ig2	Con	Aba1	43.68	0.74	-0.00031	240.88	1.209333	8.561977				7.37	22.09645	74.04249	3.861064	455.4465	0.05473	3.766096
8	A	GEM	Fag	Aba0	51.35	0.94	0.00016	166.78	1.882711	9.379094				7.35	20.33156	71.16046	8.507977	634.0936	0.0926	3.367982
8	B	GEM	Fag		81.39	0.84	-0.00011	76.67												
8	C	GEM	Fag	Aba0	15.9	0.86	-0.00047	225.35	1.417032	9.054696	5.79	12.33154	65.25602	6.82	13.17217	75.93368	10.89416	469.5918	0.107578	3.313912
8	D	GEM	Fag	kuAba2	26.35	0.87	-0.001	251.9	1.701265	8.992612				7.09	16.22624	76.49513	7.278628	559.029	0.104847	3.285961
8	E	GEM	Fag		14.61	0.95	-0.00013	221.81												

8	F	GEM	Fag	Aba 0	32.13	0.93	-0.00043	152.94	1.645653	8.989035	6.04	15.39419	68.45293	7.12	16.67701	74.46478	8.858207	553.5535	0.098678	3.363731
10	A	CIN	Con	Aba 1	20.59	0.085	-0.0072	22.74	1.342155	10.44199	7.23	11.3218	100	8.06	13.51978	75.71075	10.76947	335.3486	0.099273	2.498583
10	B	CIN	Con		7.59	0.16	-0.0043	147.85												
10	C	CIN	Con	Aba 1	25.8	0.33	-0.0028	185.31	1.089526	8.825626	7.25	12.08809	100	8.18	17.14998	74.05675	8.793264	342.8884	0.063529	3.147135
10	D	CIN	Con	Aba 1	34.57	0.48	-0.0021	120.11	1.035157	8.859796				8.09	16.3822	74.29137	9.326425	327.9876	0.063188	3.168483
10	E	CIN	Con		47.32	0.057	-0.0017	43.79												
10	F	CIN	Con	Aba 1	33.73	0.13	-0.00048	402.12	1.040401	8.662086				8.21	16.98579	74.11983	8.89438	344.8637	0.061251	3.314718
11	A	CIN	Con	(x)Aba	27.52	0.41	-0.0015	98.69	2.38165	13.40016				8.07	22.84343	66.59439	10.56218	522.793	0.10426	2.195087
11	B	CIN	Con		30.66	0.71	-0.00048	98.38												
11	C	CIN	Con	Aba 1	21.7	0.68	-0.0007	262.88	1.450945	8.532095	7.18	19.34114	85.63259	8.1	21.87749	59.2681	18.85442	503.785	0.066321	3.472116
11	D	CIN	Con	Aba 1	4.81	0.63	-0.003	138.52	1.297858	9.202547				8.19	18.51292	73.29606	8.191023	477.6896	0.070106	3.680599
11	E	CIN	Con		25.34	0.65	-0.0022	302.7												
11	F	CIN	Con	Aba 1	22.71	0.69	-0.00048	247.26	1.345468	8.898916	7.46	15.64402	100	8.23	18.18035	70.29735	11.5223	489.974	0.074007	3.641663

13	A	CIN	Lo	Aba1	170.4	0.89	-0.00027	123.47	1.113242	9.844429	6.35	7.451477	100	7.37	9.161886	86.04207	4.796048	397.0009	0.121508	3.566167
13	B	CIN	Lo		80.16	0.9	-0.00074	153.32												
13	C	CIN	Lo	Aba0	8.59	0.39	-0.0029	137.98	1.188972	8.854754				6.93	18.11	76.465	5.425	374.3168	0.065653	3.148238
13	D	CIN	Lo	Aba0	38.92	0.76	-0.00055	229.99	1.206361	10.41134				6.97	11.56484	82.94784	5.487319	392.5256	0.104313	3.253798
13	E	CIN	Lo		93.15	0.75	-0.00066	390.37												
13	F	CIN	Lo	Aba1					1.297328	10.24313	6.41	8.098983	100	7.28	12.02308	83.36005	4.616864	406.7078	0.107903	3.134966
19	A	GEM	Her	Gbbfi2	0.92	0.92	-0.00039	181.17	2.857314	8.972631	5.6	15.38336	56.62653	6.69	8.79397	71.18928	20.01675	583.8331	0.324917	2.043293
19	B	GEM	Her		22.22	0.92	-0.00035	82.12												
19	C	GEM	Her	fGbb2	6.66	0.84	-0.00098	110.24	3.212441	9.355352				6.5	11.96363	66.59754	21.43883	639.16	0.268517	1.989664
19	D	GEM	Her	Gbb0_1	15.31	0.91	-0.001	133.31	3.035943	9.269612				6.39	9.109632	71.68884	19.20152	634.0467	0.333267	2.088467
19	E	GEM	Her		10.71	0.85	-0.00064	64.71												
19	F	GEM	Her	Gbbfi2	166.45	0.98	-1.5E-05	0	2.765586	9.067622	5.88	14.8136	68.70642	6.78	12.33997	69.41231	18.24772	618.8364	0.224116	2.237632

20	A	Ig1	Her	Gbb0_1	394.87	0.97	-0.00001	10.96	2.080685	9.216445				6.6	25.44125	51.28001	23.27874	500.9128	0.081902	2.403975
20	B	Ig1	Her		91.83	0.94	-9.6E-05	76.51												
20	C	Ig1	Her	Gbb0_1	481.7	0.97	-1.6E-05	247.43	2.300939	9.323904				6.42	20.99111	59.26901	19.73988	537.9052	0.109615	2.337764
20	D	Ig1	Her	Gbb0_1	76.64	0.96	-0.00033	123.32	3.109768	10.99639	5.12	17.59452	62.17041	6.29	21.71775	55.3188	22.96345	567.8957	0.14319	1.826167
20	E	Ig1	Her		55.41	0.81	-0.0015	494.59												
20	F	Ig1	Her	Gbb0_1	447.58	0.98	-9.2E-06	247.58	2.133402	9.727254	5.46	14.18525	75.3564	6.61	15.06722	52.54211	32.39067	562.3211	0.141592	2.635796
21	A	Ig2	Jur	j-wLba2	456.56	1	-8.3E-06	0	1.232964	8.568056				6.7	13.50934	22.77289	63.71777	380.9756	0.091268	3.089916
21	B	Ig2	Jur		1123.92	1														
21	C	Ig2	Jur	j-wLba2					1.265616	8.436733	5.19	10.34872	70.50109	6.62	17.81113	28.04305	54.14582	367.2721	0.071058	2.901923
21	D	Ig2	Jur	j-wLba2	272.76	1	-4E-06	0	1.34943	8.385344	4.99	11.54317	74.09535	6.42	19.70676	25.61879	54.67444	366.7998	0.068475	2.718184
21	E	Ig2	Jur		512.82	1		0												
21	F	Ig2	Jur	j-wLba2	170.51	1	-3.2E-05	0	1.339405	8.743512				6.75	16.03281	22.74422	61.22297	368.7711	0.083541	2.753247
22	A	CIN	Lo	Aba1	6.36	0.1	-0.0014	417.21	0.969021	8.663964	6.53	11.57276	100	7.41	27.57353	68.3344	4.092072	315.6301	0.035143	3.257208
22	B	CIN	Lo		8.63	0.64	-0.0017	112.66												

22	C	CIN	Lo	Aba 1	17.38	0.41	-0.002	120.88	1.130013	8.892889	6.71	12.39306	100	7.45	17.0834	78.81659	4.100016	439.2073	0.066147	3.886746
22	D	CIN	Lo	Aba 1	76.68	0.95	-0.00049	277.93	0.98671	8.979673				7.61	16.36126	79.2612	4.377545	330.4536	0.060308	3.349044
22	E	CIN	Lo		9.62	0.6	-0.0014	273.38												
22	F	CIN	Lo	Abp(c)	17.27	0.77	-0.0013	455.36	1.019002	8.790131				7.46	9.340906	86.68361	3.97549	385.9392	0.10909	3.787424
25	A	unclassified	Lo	Aba 1					1.345914	10.01683				7.09	19.65718	66.04812	14.2947	477.1294	0.068469	3.54502
25	B	unclassified	Lo		23.57	0.63	-0.00071	93.67												
25	C	unclassified	Lo	Aba 1					1.248244	9.059593	6.13	10.96771	99.71736	7.07	13.2893	74.09794	12.61276	493.3051	0.093928	3.951993
25	D	unclassified	Lo	Aba 1	44.38	0.93	-0.00032	87.87	1.417572	8.898129				6.9	19.93122	66.8282	13.24058	497.2515	0.071123	3.50777
25	E	unclassified	Lo		17.27	0.9	-0.0002	230.11												
25	F	unclassified	Lo	Aba 1	18.15	0.74	-0.00072	153.32	1.176176	9.194221	5.84	12.47295	86.18938	6.85	16.13647	69.9247	13.93884	447.424	0.072889	3.804056
26	A	unclassified	Lo	Aca0	65.96	0.56	-0.00028	202.35	1.444602	8.582315	7.47	18.51756	100	8.06	19.0898	60.70556	20.20464	537.0183	0.075674	3.717413
26	B	unclassified	Lo		28.68	0.057	-0.0011	280.9												
26	C	unclassified	Lo	Aca0	9.55	0.065	-0.0072	56.52	1.17389	9.217921				7.13	14.49065	56.87582	28.63353	400.328	0.08101	3.410269

26	D	unclassified	Lo	Aca0	87.72	0.5	-0.00014	247.53	1.173828	8.505329	6.4	15.10992	97.86931	7.26	17.36898	61.54659	21.08443	404.7327	0.067582	3.447973
26	E	unclassified	Lo																	
26	F	unclassified	Lo	Aca0	79.94	0.92	0.0001	318.37	1.393311	8.521236				8.15	29.16795	48.74117	22.09088	498.6767	0.047769	3.579076
28	A	CIN	Lo	OE	44.05	0.28	-0.00018	154.62	1.354246	9.695745				7.84	15.19757	72.38841	12.41401	478.6468	0.089109	3.534415
28	B	CIN	Lo		17.07	0.24	-0.0045	81.6												
28	C	CIN	Lo	Aba(b)1	305.34	0.81	-0.00019	92.87	1.508837	11.27148	6.54	12.73847	98.40797	7.48	19.96986	73.474	6.556142	472.5906	0.075556	3.132152
28	D	CIN	Lo	Aba(b)1	103.3	0.7	-0.00021	109.17	1.60262	11.2837	6.37	12.10817	100	7.31	20.69019	74.17239	5.137414	432.2738	0.077458	2.697294
28	E	CIN	Lo		125.43	0.73	-6.5E-05	169.43												
28	F	CIN	Lo	Aba(b)1	90.35	0.72	-0.00011	153.79	1.313288	9.335478				7.65	16.18762	78.56918	5.243209	444.5854	0.081129	3.385285
30	A	unclassified	Con	ADa0	196.52	0.91	-0.00003	340.23	2.315845	11.10992	6.34	12.79289	100	7.31	18.49811	72.02456	9.47733	549.526	0.125194	2.372896
30	B	unclassified	Con		282.68	0.96	-0.00011	21.75												
30	C	unclassified	Con	Afp	87.19	0.83	-0.00001	87.53	2.799964	13.52787				7	17.47419	73.86815	8.657665	537.0183	0.160234	1.917947
30	D	unclassified	Con	ADa0	273.52	0.96	-4.8E-06	154.75	1.350905	9.516566	6.86	10.38318	100	7.7	17.88553	76.31161	5.802862	405.0938	0.075531	2.998684

30	E	unclassified	Con		630.3	0.98		62.13												
30	F	unclassified	Con	ADa1	756.65	1		0	2.156326	11.21174				8.13	19.47344	73.99907	6.527496	505.3369	0.110732	2.343508
31	A	Ig2	SLo	Abp	171.18	0.83	0.000018	145.15	1.000999	8.932096	6.39	7.993959	100	7.31	14.26369	67.46338	18.27294	363.447	0.070178	3.630842
31	B	Ig2	SLo		479.66	0.95		123.8												
31	C	Ig2	SLo	Abp					1.126612	8.898545	6.34	8.831002	100	7.18	15.3737	75.2917	9.334595	452.793	0.073282	4.019067
31	D	Ig2	SLo	Abp	116.69	0.88	0.00013	272.98	1.062605	8.964921				7.1	14.93946	72.73156	12.32898	432.2358	0.071127	4.067699
31	E	Ig2	SLo		173.8	0.75	-0.00012	335.5												
31	F	Ig2	SLo	AbB	135.41	0.86	-0.00041	376.98	1.026902	8.621615				7.34	20.85586	64.88491	14.25923	394.3903	0.049238	3.840584
32	A	unclassified	Con	Gbbk4	207.49	0.95	0.000033	228.91	1.353243	8.693763	5.96	8.600403	96.46408	6.72	17.75461	64.2188	18.02659	481.6528	0.076219	3.559249
32	B	unclassified	Con		271.97	0.98	-1.4E-05	22.02												
32	C	unclassified	Con	Gbax4	207.47	0.94	-0.00012	151.71	1.533513	9.048584				6.86	24.91567	62.86415	12.22018	551.6074	0.061548	3.597018
32	D	unclassified	Con	Gbax4	115.32	0.81	-0.00039	72.8	1.066352	9.604205				6.79	15.36159	61.44635	23.19206	379.6109	0.069417	3.559902
32	E	unclassified	Con		502.11	0.97	-1.6E-05	186.11												

32	F	unclassified	Con	Gbbk4	1095.9	1			1.294285	9.279461	5.72	15.12485	79.65769	6.96	28.8291	60.61502	10.55588	481.4634	0.044895	3.719919
33	A	CIN	SLo	Aba1	119.89	0.83	-0.00041	120.09	0.9922	9.27972				6.85	14.43988	78.27937	7.280742	326.8969	0.068712	3.294668
33	B	CIN	SLo		82.55	0.83	-0.00035	98.52												
33	C	CIN	SLo	Aba1	130.35	0.86	-4.8E-06	152.99	1.050711	10.13481	5.64	9.632162	85.33642	6.66	14.10061	78.125	7.77439	316.0502	0.074515	3.007966
33	D	CIN	SLo	Aba1	125.24	0.94	-0.00033	207.85	1.008653	9.133296	5.75	9.018319	100	6.76	14.92423	77.68253	7.393234	364.35	0.067585	3.612244
33	E	CIN	SLo		63.05	0.9	-4.8E-06	54.83												
33	F	CIN	SLo	Abp0_1	304.56	0.96	9.6E-06	116.22	1.002815	8.682655				6.84	17.22248	75.93549	6.842023	374.6341	0.058227	3.735824
35	A	CIN	Lo	Aba(b)0	12.8	0.0074	-0.0065	16.86	1.03658	8.910383	6.2	9.406589	94.39304	7.04	15.32097	78.13697	6.542056	336.7269	0.067658	3.248444
35	B	CIN	Lo		15.05	0.014	-0.011	64.11												
35	C	CIN	Lo	Aba(b)0	13.43	0.18	-0.0032	64.26	1.098612	9.097764				7.73	14.14157	79.11634	6.742088	428.0286	0.077687	3.896085
35	D	CIN	Lo	Aba(b)0	14.09	0.24	-0.005	64.37	1.201638	9.095361	6.52	9.586712	100	7.38	14.81597	78.75858	6.425452	485.9236	0.081104	4.043845
35	E	CIN	Lo		26.8	0.31	-0.0023	87.2												
35	F	CIN	Lo	Aba(b)0	14.69	0.073	-0.0029	65.68	1.149792	9.046691				7.13	14.17064	76.4469	9.382458	441.5463	0.081139	3.840226

36	A	CIN	Lo	Aca1	12.71	0.73	-0.0019	75.15	1.113339	8.667098	6.88	11.75352	100	7.74	19.81103	75.8153	4.373666	417.6715	0.056198	3.751521
36	B	CIN	Lo		7.05	0.58	-0.00053	251.88												
36	C	CIN	Lo	Adp(c)	7.74	0.21	-0.0092	146.57	0.813349	7.855022	6.73	12.02263	100	7.67	21.54177	75.39621	3.06201	309.5121	0.037757	3.805402
36	D	CIN	Lo	ADa1	31.79	0.53	-0.00036	76.63	0.963274	8.353615	7.43	12.44362	100	8.12	19.9819	76.15744	3.860654	412.7758	0.048207	4.285135
36	E	CIN	Lo		0.95	0.21	-0.0038	321.23												
36	F	CIN	Lo	ADp0_1	9.43	0.05	-0.0069	44.63	1.11088	8.035631	7.68	10.16618	100	8.1	16.05505	78.74618	5.198777	407.6105	0.069192	3.669258
38	A	unclassified	Con	sAba2_3	8.81	0.8	-0.0006	433.42	1.696379	9.644942				7.9	20.27448	73.30006	6.425452	529.8476	0.083671	3.123404
38	B	unclassified	Con		755.75	0.99		0												
38	C	unclassified	Con	sAba2_3	24.21	0.84	-0.0003	461.93	1.662248	10.26615				7.97	23.64812	64.63818	11.7137	470.4297	0.070291	2.830082
38	D	unclassified	Con	Aba1	35.99	0.94	-0.00015	662.3	1.390965	9.415428	7.34	13.84499	100	7.96	21.18318	74.71884	4.097982	466.1123	0.065664	3.351001
38	E	unclassified	Con		50.56	0.91	-0.00026	32.82												
38	F	unclassified	Con	Aba1	6.4	0.59	-0.0014	307	1.687414	10.5698	7.09	16.92011	93.03223	7.79	22.46321	72.03719	5.499613	528.0836	0.075119	3.129543
39	A	Ig1	Lo	Aba(b)1	7.63	0.018	-0.0069	53.73	1.472428	10.29243	6.26	13.24981	85.41837	7.2	16.44222	77.12183	6.435954	448.3023	0.089552	3.044646

39	B	Ig1	Lo		9.06	0.32	-0.0031	149.29											
39	C	Ig1	Lo	Aba(b)0					1.737956	10.25123				7.15	18.03639	74.89021	7.0734	515.9245	0.096358	2.968571
39	D	Ig1	Lo	Abp(c)	22.13	0.93		10.77	1.918575	10.88963				7.23	20.02198	72.23618	7.741835	565.3891	0.095823	2.946922
39	E	Ig1	Lo		23.98	0.32	-0.00097	230.37											
39	F	Ig1	Lo	Aba(b)1	41.61	0.24	-0.001	496.49	1.222700 2	9.786086	6.14	16.18445	85.27042	7.11	20.1145	74.65573	5.229769	417.6715	0.061001	3.404
40	A	Ig2	Con	GbBK2	122.83	0.91	0.000012	131.56	2.141752	11.35244				7.38	23.94411	70.26221	5.793688	559.5339	0.089448	2.612505
40	B	Ig2	Con		1006.04	1													
40	C	Ig2	Con	A-Gbp1	1002.82	1			1.656592	9.54154				7.22	23.14452	72.57178	4.283697	483.1097	0.071576	2.916287
40	D	Ig2	Con	A-Gbp1	73.82	0.96	-0.00014	349.71	1.657306	9.335957	5.36	10.62263	89.89323	6.44	18.25385	75.73404	6.012117	368.2185	0.090792	2.221789
40	E	Ig2	Con		1036.12	1													
40	F	Ig2	Con	A-Gbp1	633.41	0.98		30.94	3.077877	15.35685	7.29	15.90911	100	7.79	20.64803	52.81131	26.54066	550.1483	0.149064	1.787428
30	G	unclassified	Con																

Supplement S3 – Correlation matrix of soil properties

It should be noted that samples for QST were taken at depths ranging from 2 to 7 cm, distinct from those collected for chemical properties (0-30 cm).

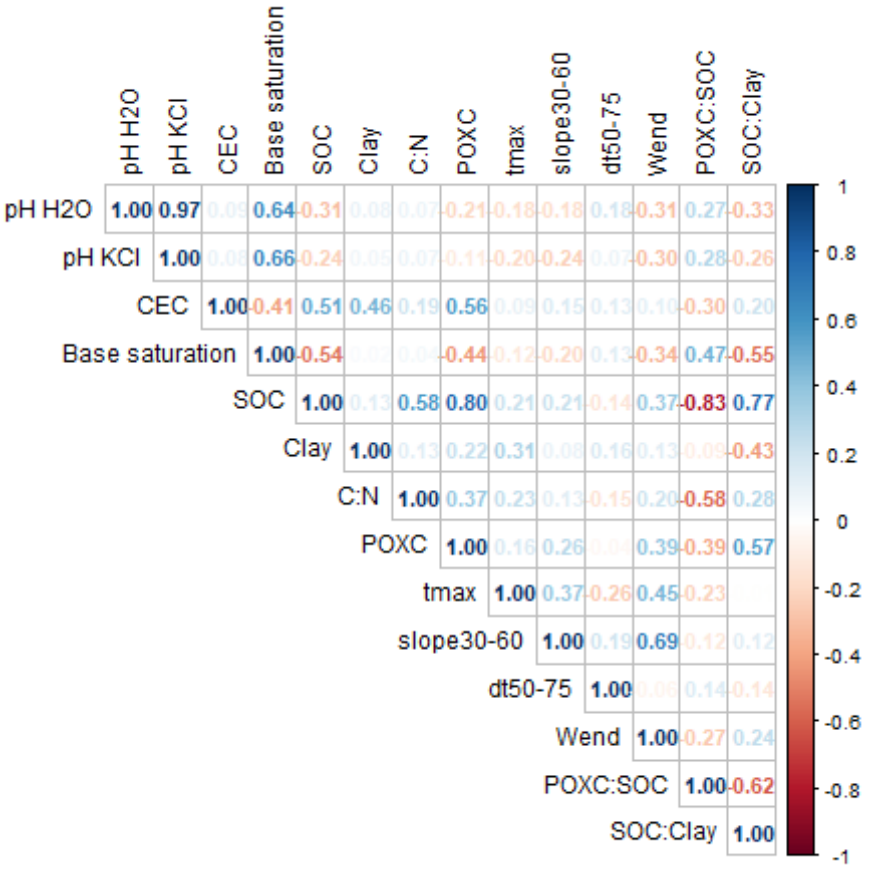

Figure S 2 Correlation matrix of soil properties

Supplement S4 – QST curves of four CA fields, representative of their respective CA-type.

Curves are designed by Vanwindekens and Hardy (2023). Figure S 3 shows the QST curves of four different fields. Some soil samples were completely degraded (e.g. field 2), while others have practically remained intact after immersion (e.g. field 40).

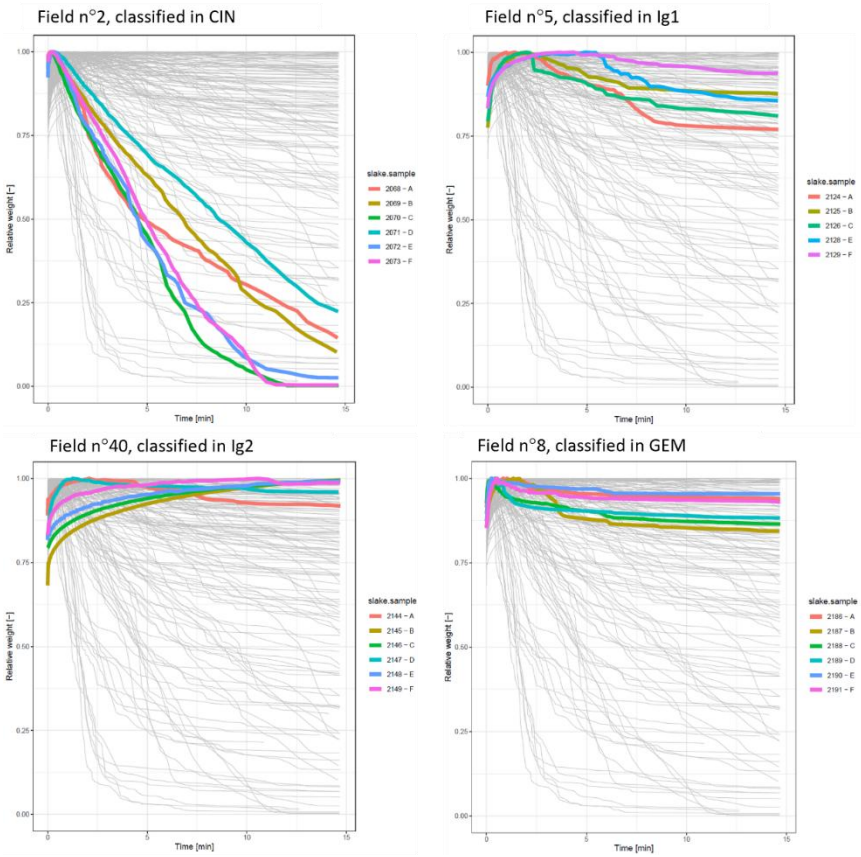

Figure S 3 QST curves of four Conservation Agriculture fields, representative of their respective CA-type