

Supplementary material

Table S1. Results from the statistical analysis for the 1997 penetration resistance measurements.

Depth	Soil penetration resistance (KPa) - 1997							
	0.05 m	0.10 m	0.15 m	0.20 m	0.25 m	0.30 m	0.35 m	0.40 m
<i>F statistic</i>								
Field	0.283	0.852	2.268	0.420	0.658	0.631	1.241	0.122
Tillage	3.286	3.341	3.676	1.543	1.391	0.377	0.235	0.166
Field X Tillage	0.920	0.993	0.988	0.964	0.996	0.995	0.975	0.978
<i>p. value</i>								
Field	0.599	0.363	0.143	0.522	0.739	0.433	0.274	0.729
Tillage	0.024	0.022	0.015	0.215	0.261	0.823	0.916	0.954
Field X Tillage	0.920	0.993	0.988	0.964	0.996	0.995	0.975	0.978
<i>Means (Field, main effects)</i>								
Field 1	1243	1935	2079	2006	2121	2331	2585	2648
Field 2	1330	1740	1792	1863	2031	2158	2364	2578
<i>Means (Tillage, main effects) - Homogeneous subsets*</i>								
Tillage - MP	941a	1277a	1335a	1438	1595	1996	2475	2580
Tillage - CP	1121ab	1498ab	1718ab	1868	2071	2260	2376	2557
Tillage - PH	1204ab	2295 bc	2367 b	2212	2262	2382	2650	2740
Tillage - DH	1346ab	2124abc	2125ab	2114	2312	2341	2472	2669
Tillage - NT	1818 b	1991ab	2132ab	2039	2138	2243	2398	2515
<i>Means (Field X Tillage, interaction effects) - Homogeneous subsets*</i>								
Field 1 - MP	962a	1414a	1466a	1544	1686	2057	2484	2574
Field 1 - CP	949a	1500a	1830ab	2036	2141	2348	2525	2540
Field 1 - PH	1166ab	2422 b	2590 b	2259	2296	2523	2865	2902
Field 1 - DH	1267ab	2259 b	2307ab	2225	2381	2472	2567	2710
Field 1 - NT	1868 b	2075ab	2201ab	1961	2096	2254	2483	2510
Field 2 - MP	920a	1140a	1204a	1332	1505	1934	2465	2586
Field 2 - CP	1293a	1496ab	1605ab	1699	2000	2172	2227	2574
Field 2 - PH	1242ab	2167 b	2144 b	2164	2227	2241	2436	2578
Field 2 - DH	1425ab	1988 b	1942ab	2004	2244	2209	2377	2628
Field 2 - NT	1768 b	1906ab	2063ab	2116	2179	2232	2312	2519

*Based on Tuckey test

Table S2. Results from the statistical analysis for the 1999 penetration resistance measurements.

Depth	Soil penetration resistance (KPa) - 1999							
	0.05 m	0.10 m	0.15 m	0.20 m	0.25 m	0.30 m	0.35 m	0.40 m
	<i>F statistic</i>							
Field	0.738	0.071	3.902	2.914	4.721	6.665	10.594	15.835
Tillage	12.335	15.230	30.896	21.677	17.966	12.418	9.490	1.437
Field X Tillage	0.266	0.825	0.265	0.498	0.389	0.565	0.083	0.156
	<i>p-value</i>							
Field	0.397	0.792	0.057	0.098	0.038	0.015	0.003	0.000
Tillage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.246
Field X Tillage	0.266	0.825	0.265	0.498	0.389	0.565	0.083	0.156
	<i>Means (Field, main effects)</i>							
Field 1	692	1241	1493	1579	1678	1844	2023	2144
Field 2	724	1253	1561	1643	1764	1957	2176	2297
	<i>Means (Tillage, main effects) - Homogeneous subsets*</i>							
Tillage - MP	592a	1030a	1264a	1334a	1449a	1663a	1906a	2171
Tillage - CP	554a	1011a	1318a	1468a	1601a	1774a	1938a	2149
Tillage - PH	807 bc	1389 bc	1678 b	1740 b	1830 b	2043 b	2216 b	2328
Tillage - DH	688ab	1365 b	1685 b	1769 b	1846 b	1988 b	2240 b	2283
Tillage - NT	898 c	1438 bc	1687 b	1741 b	1875 b	2033 b	2195 b	2198
	<i>Means (Field X Tillage, interaction effects) - Homogeneous subsets*</i>							
Field 1 - MP	495a	967a	1166a	1264a	1361a	1541a	1722a	1942
Field 1 - CP	555ab	1023a	1340a	1474ab	1552ab	1716ab	1800a	1973
Field 1 - PH	796 bc	1399 b	1636 b	1679 bc	1756 bc	1984 bc	2182 b	2297
Field 1 - DH	684abc	1379 b	1679 b	1783 c	1817 c	1952 bc	2239 b	2213
Field 1 - NT	930 c	1434 b	1641 b	1692 bc	1903 c	2027 c	2170 b	2138
Field 2 - MP	689ab	1094ab	1363a	1405a	1538a	1785	2090	2401
Field 2 - CP	553a	999a	1295a	1462a	1650ab	1831	2077	2325
Field 2 - PH	819 b	1379 bc	1720 b	1802 b	1905 b	2102	2251	2359
Field 2 - DH	691ab	1352 bc	1692 b	1755 b	1875 b	2025	2241	2353
Field 2 - NT	866 b	1443 c	1734 b	1791 b	1847 b	2040	2221	2257

*Based on Tukey test

Table S3. Results from the statistical analysis for the 2001 penetration resistance measurements (Tillage A = last tillage, Tillage B = previous tillage).

Depth	Soil penetration resistance (KPa) - 2001							
	0.05 m	0.10 m	0.15 m	0.20 m	0.25 m	0.30 m	0.35 m	0.40 m
<i>F statistic</i>								
Field	62.607	48.298	107.888	152.834	195.971	160.693	70.893	20.716
Tillage A	26.262	73.245	107.467	120.298	127.310	154.814	94.958	77.680
Field x Tillage A	1.971	2.273	2.425	1.320	1.862	0.907	2.562	1.224
Tillage B	7.190	20.433	26.411	34.132	42.924	52.513	25.313	7.525
Field x Tillage B	0.976	1.608	1.716	0.994	1.009	1.735	1.569	0.579
Tillage A x Tillage B	4.030	6.638	6.728	4.853	3.958	4.913	2.379	1.870
<i>p-value</i>								
Field	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tillage A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field x Tillage A	0.007	0.001	0.001	0.156	0.012	0.603	0.000	0.227
Tillage B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field x Tillage B	0.509	0.043	0.025	0.484	0.464	0.023	0.052	0.951
Tillage A x Tillage B	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.031
<i>Means (Field, main effects)</i>								
Field 1	841	1695	1846	1949	2027	2215	2481	2890
Field 2	1081	1999	2278	2445	2577	2677	2857	3120
<i>Means (Tillage, main effects) - Homogeneous subsets*</i>								
Tillage A - MP	692a	1342a	1465a	1502a	1557a	1651a	1863a	2154a
Tillage A - CP	1040 bc	1650 b	1775 b	1919 b	2091 b	2263 b	2576 b	2988 b
Tillage A - PH	952 b	1679 b	1964 c	2272 c	2389 c	2604 c	2854 c	3281 c
Tillage A - DH	954 b	2233 c	2579 d	2670 d	2739 d	2818 d	2995 cd	3204 bc
Tillage A - NT	1165 c	2327 c	2524 d	2621 d	2732 d	2892 d	3055 d	3394 c
Tillage B - MP	880ab	1601a	1746a	1815a	1746a	1951a	2238a	2749a
Tillage B - CP	853a	1615a	1868a	2034 b	1868a	2399 b	2660 b	3000 b
Tillage B - PH	1015 c	2001 b	2229 b	2389 c	2229 b	2633 c	2808 bc	3140 b
Tillage B - DH	987 bc	1950 b	2177 b	2330 c	2177 b	2667 c	2857 c	3116 b
Tillage B - NT	1068 c	2064 b	2285 b	2415 c	2285 b	2578 c	2778 bc	3015 b
<i>Means (Field X Tillage, interaction effects) - Homogeneous subsets*</i>								
Field 1 x Tillage A - MP	572a	1,190a	1,249a	1,254a	1,282a	1,420a	1,675a	2,039a
Field 1 x Tillage A - CP	920 bc	1,498ab	1,559ab	1,671ab	1,816 b	2,032 bc	2,388 bc	2,873 b
Field 1 x Tillage A - PH	832ab	1,527ab	1,748 bc	2,024 bcd	2,114 bc	2,373 cd	2,665 cd	3,165 bcd
Field 1 x Tillage A - DH	834ab	2,081 cd	2,363 def	2,422 de	2,464 cd	2,587 de	2,807 cdef	3,088 bc
Field 1 x Tillage A - NT	1,045 bcd	2,175 cd	2,308 de	2,373 de	2,457 cd	2,661 def	2,867 def	3,279 cd
Field 2 x Tillage A - MP	812ab	1,494ab	1,681ab	1,750 bc	1,832 b	1,882 b	2,051ab	2,269a
Field 2 x Tillage A - CP	1,160 cd	1,802 bc	1,991 bcd	2,167 cde	2,366 cd	2,494 de	2,764 cde	3,103 bc
Field 2 x Tillage A - PH	1,072 bcd	1,831 bc	2,180 cd	2,520 ef	2,664 de	2,835 efg	3,042 def	3,396 cd
Field 2 x Tillage A - DH	1,074 bcd	2,385 d	2,795 f	2,918 f	3,014 e	3,049 fg	3,183 ef	3,319 cd
Field 2 x Tillage A - NT	1,285 d	2,479 d	2,740 ef	2,869 f	3,007 e	3,123 g	3,243 f	3,509 d
Field 1 x Tillage B - MP	760a	1,449a	1,530a	1,567a	1,555a	1,720a	2,050a	2,634a
Field 1 x Tillage B - CP	734a	1,463a	1,652a	1,786ab	1,951ab	2,168ab	2,472abc	2,885ab
Field 1 x Tillage B - PH	895abc	1,849ab	2,013ab	2,141abcd	2,164 bc	2,402 bc	2,620abc	3,025ab
Field 1 x Tillage B - DH	867ab	1,798ab	1,962ab	2,082abcd	2,203 bcd	2,436 bc	2,669 bc	3,001ab
Field 1 x Tillage B - NT	948abc	1,912ab	2,069ab	2,167 bcd	2,257 bcde	2,347 bc	2,590abc	2,900ab
Field 2 x Tillage B - MP	1,000abc	1,753ab	1,962ab	2,063abc	2,105ab	2,182ab	2,426ab	2,864ab
Field 2 x Tillage B - CP	973abc	1,767ab	2,084ab	2,282 bcd	2,501 bcde	2,630 bc	2,848 bc	3,115ab
Field 2 x Tillage B - PH	1,135 bc	2,153 b	2,446 b	2,637 cd	2,714 cde	2,864 c	2,996 bc	3,255 b
Field 2 x Tillage B - DH	1,107 bc	2,102 b	2,393 b	2,578 cd	2,753 de	2,898 c	3,045 c	3,231ab
Field 2 x Tillage B - NT	1,188 c	2,216 b	2,501 b	2,663 d	2,807 e	2,809 c	2,966 bc	3,130ab
<i>Means - (Tillage A x Tillage B, interaction effects, simple comparisons) - Homogeneous subsets*</i>								
MP x <MP	677ab	1338a	1459a	1554ab	1559ab	1659ab	1810abc	2287abc
MP x <CP	624a	1267a	1427a	1344a	1412a	1493a	1765a	2085a
MP x <PH	702abc	1405a	1436a	1475a	1552ab	1681ab	1792ab	2108a
MP x <DH	775abcd	1435a	1549a	1549ab	1616ab	1794abc	2065abcde	2179ab
MP x <NT	680ab	1266a	1454a	1589abc	1645abc	1626ab	1884abcd	2110a
CP x <MP	1151 bcdef	1556a	1627a	1739abcd	1774abcd	1894abc	2279abcdef	2786abcd
CP x <CP	991abcdef	1513a	1737a	1918abcde	2062abcde	2293 bcdefg	2590 cdefghij	3004 de
CP x <PH	1129abcdef	1863abc	1899a	2083abcdef	2244 bcdefg	2418 cdefgh	2648 cdefghij	3109 de
CP x <DH	1016abcdef	1708ab	1758a	1906abcde	2213abcdef	2454 cdefgh	2802 cdefghij	3091 de
CP x <NT	915abcde	1608a	1853a	1951abcde	2160abcdef	2256 bcdefg	2561 bcdefghij	2950 cde
PH x <MP	916abcde	1754ab	1941a	1897abcde	1836abcd	1961abcd	2286abcdefg	2868 bcde
PH x <CP	963abcde	1703ab	1909a	2114abcdef	2342 bcdefg	2617 defghi	2837 cdefghij	3404 def
PH x <PH	968abcde	1584a	1905a	2358 cdefg	2434 cdefgh	2682 efghi	2946 fghij	3334 def
PH x <DH	946abcde	1624a	1988ab	2532 defg	2678 efgh	2889 ghi	3137 ij	3460 def
PH x <NT	968abcde	1732ab	2077abc	2459 defg	2655 efgh	2871 fghi	3061 fghij	3337 def
MP x <MP	862abcde	1650a	1929a	2001abcde	2032abcde	2168abcdef	2471abcdefghi	2977 cde
DH x <CP	704abc	1715ab	2192abcd	2473 defg	2751 efgh	2816 fghi	3069 ghij	3179 def
DH x <PH	960abcde	2545 cd	2986 de	3039 g	2941 fgh	3089 hi	3191 ij	3286 def
DH x <DH	978abcde	2441 bcd	2817 cde	2841 fg	2926 fgh	3094 hi	3128 hij	3328 def
DH x <NT	1264 def	2813 d	2970 de	2994 g	3044 gh	2925 ghi	3114 hij	3248 def
NT x <MP	796abcde	1707ab	1775a	1886abcde	1952abcde	2072abcde	2345abcdefgh	2828 bcde
NT x <CP	985abcde	1879abc	2076abc	2320 bcdefg	2562 defgh	2775 efghi	3040 fghij	3328 def
NT x <PH	1314 ef	2605 cd	2922 de	2993 g	3027 gh	3294 i	3465 j	3865 f
NT x <DH	1220 cdef	2541 cd	2776 bcde	2821 fg	2959 fgh	3104 hi	3155 ij	3521 ef
NT x <NT	1513 f	2902 d	3072 e	3083 g	3158 h	3213 i	3270 jj	3430 def

*based on Tukey test

Table S4. Results from the statistical analysis for the 2002 penetration resistance measurements (Tillage A = last tillage, Tillage B = previous tillage).

Depth	Soil penetration resistance (kPa) - 2002							
	0.05 m	0.10 m	0.15 m	0.20 m	0.25 m	0.30 m	0.35 m	0.40 m
	<i>F statistic</i>							
Field	202.725	40.352	56.214	76.517	96.089	91.808	69.605	71.198
Tillage A	296.767	76.242	117.383	128.309	155.262	103.687	69.902	45.032
Field x Tillage A	2.836	0.875	1.614	1.788	1.023	1.054	0.924	1.177
Tillage B	550.529	53.090	49.776	68.238	59.257	43.412	29.181	18.023
Field x Tillage B	1.913	0.785	1.004	1.610	0.764	1.169	0.770	0.407
Tillage A x Tillage B	32.859	9.037	9.231	9.291	6.815	3.806	2.592	2.526
	<i>p-value</i>							
Field	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tillage A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field x Tillage A	0.000	0.647	0.042	0.018	0.446	0.406	0.580	0.270
Tillage B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field x Tillage B	0.009	0.766	0.471	0.043	0.791	0.278	0.785	0.996
Tillage A x Tillage B	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002
	<i>Means (Field, main effects) - Homogeneous subsets*</i>							
Field 1	589	1361	1691	1892	1945	2019	2225	2411
Field 2	812	1625	2003	2224	2341	2471	2671	2897
	<i>Means (Tillage, main effects) - Homogeneous subsets*</i>							
Tillage A - MP	452a	1022a	1294a	1404a	1356a	1435a	1697a	2013a
Tillage A - CP	549 b	1203a	1432a	1762 b	1859 b	2047 b	2260 b	2416 b
Tillage A - PH	555 b	1422 b	1781 b	2119 c	2153 c	2299 c	2503 c	2844 c
Tillage A - DH	736 c	1876 c	2398 c	2580 d	2718 d	2736 d	2948 d	3062 c
Tillage A - NT	1207 d	1942 c	2328 c	2422 c	2629 d	2708 d	2831 d	2931 c
Tillage B - MP	458a	1162a	1456a	1554a	1597a	1662a	1922a	2210a
Tillage B - CP	476a	1237a	1631ab	1881 b	2012 b	2186 b	2352 b	2566 b
Tillage B - PH	517a	1438 b	1811 b	2159 c	2273 c	2416 c	2617 c	2856 c
Tillage B - DH	621 b	1622 c	2061 c	2223 c	2383 c	2468 c	2647 c	2826 c
Tillage B - NT	1425 c	2006 d	2276 d	2469 d	2449 c	2492 c	2700 c	2809 bc
	<i>Means (Field X Tillage A, interaction effects) - Homogeneous subsets*</i>							
Field 1 x Tillage A - MP	339a	891a	1138a	1238a	1158a	1209a	1474a	1770a
Field 1 x Tillage A - CP	438a	1071a	1276ab	1596ab	1661 b	1821 b	2037 b	2173 b
Field 1 x Tillage A - PH	444a	1290a	1625 b	1953 bc	1955 b	2073 bc	2280 bc	2601 c
Field 1 x Tillage A - DH	625a	1744 b	2242 c	2414 d	2520 c	2510 d	2725 d	2819 c
Field 1 x Tillage A - NT	1,096 b	1810 b	2172 c	2256 cd	2431 c	2482 cd	2608 cd	2688 c
Field 2 x Tillage A - MP	565a	1154a	1450a	1570a	1554a	1661a	1920a	2256a
Field 2 x Tillage A - CP	660a	1335a	1588ab	1928ab	2057 b	2273 b	2483 b	2659ab
Field 2 x Tillage A - PH	666a	1554a	1937 b	2285 bc	2351 b	2525 bc	2726 bc	3087 bc
Field 2 x Tillage A - DH	847a	2008 b	2554 c	2746 d	2916 c	2962 c	3171 c	3305 c
Field 2 x Tillage A - NT	1,318 b	2074 b	2484 c	2588 cd	2827 c	2934 c	3054 c	3174 c
	<i>Means (Field X Tillage B, interaction effects) - Homogeneous subsets*</i>							
Field 1 x Tillage B - MP	347a	1030a	1300a	1388a	1399a	1436a	1699a	1967a
Field 1 x Tillage B - CP	363a	1105ab	1475ab	1715ab	1814ab	1960ab	2129ab	2323ab
Field 1 x Tillage B - PH	406a	1306ab	1655abc	1993 bc	2075 b	2190 b	2394 b	2613 b
Field 1 x Tillage B - DH	510a	1490 bc	1905 bc	2058 bc	2185 b	2242 b	2424 b	2583 b
Field 1 x Tillage B - NT	1,314 b	1874 c	2120 c	2303 c	2251 b	2266 b	2477 b	2566 b
Field 2 x Tillage B - MP	569a	1162a	1456a	1554a	1597a	1662a	1922a	2210a
Field 2 x Tillage B - CP	589a	1237a	1631a	1881ab	2012 b	2186 b	2352 b	2566ab
Field 2 x Tillage B - PH	628a	1438ab	1811ab	2159 bc	2273 bc	2416 b	2617 b	2856 b
Field 2 x Tillage B - DH	732a	1622 b	2061 bc	2223 bc	2383 bc	2468 b	2647 b	2826 b
Field 2 x Tillage B - NT	1,536 b	2006 c	2276 c	2469 c	2449 c	2492 b	2700 b	2809 b
	<i>Means - (Tillage A x Tillage B, simple comparisons) - Homogeneous subsets*</i>							
MP x <MP	223a	686a	992a	996a	968a	1097a	1444a	1995ab
MP x <CP	233a	880abc	1118abc	1502abc	1497abcd	1601abc	1806abcd	1992ab
MP x <PH	279a	1187abcdefg	1462abcdef	1710 bcdef	1709 bcde	1825abcd	1969abcde	2223abcde
MP x <DH	514a	1536 defgh	1928 efghi	1930 cdefgh	2011 defg	1963 bcde	2149abcdef	2282abcde
MP x <NT	1028 b	1518 defgh	1777 cdefgh	1634 bcde	1800 bcdef	1826abcd	2245abcdefg	2559abcdef
CP x <MP	260a	776ab	1080ab	1294ab	1231abc	1315ab	1610abc	2003ab
CP x <CP	303a	991abcd	1177abc	1604abcd	1790 bcdef	2051 bcdef	2242abcdefg	2385abcdef
CP x <PH	292a	1334 bcdefg	1773 cdefgh	2026 cdefghij	2064 defgh	2372 cdefgh	2490 defg	2848 bcdefg
CP x <DH	485a	1673 fghij	2256 ghij	2249 efghij	2422 fghi	2595 defghij	2794 efgh	2898 cdefg
CP x <NT	1052 b	1410 cdefg	1869 defgh	2233 efghij	2553 ghij	2599 defghij	2626 defgh	2696abcdefg
PH x <MP	256a	1076abcde	1437abcdef	1504abc	1502abcd	1630abc	1853abcd	2046abc
PH x <CP	348a	1101abcdef	1225abcde	1796 bcdefg	1956 defg	2191 cdefg	2362 bcdefg	2573abcdef
PH x <PH	351a	1219abcdefg	1510abcdef	1958 cdefghi	2014 defg	2195 cdefg	2388 bcdefg	3039 efg
PH x <DH	430a	1340 bcdefg	1926 efghi	2414 ghij	2665 hijj	2754 efghij	3046 gh	3157 fg
PH x <NT	1203 bc	2455 kl	2956 j	3126 jk	3229 j	3311 j	3435 h	3464 g
MP x <MP	512a	1008abcd	1247abcde	1197ab	1209ab	1325ab	1573ab	1905a
DH x <CP	261a	898abc	1335abcdef	1706 bcde	1878 cdef	2157 cdef	2425 cdefg	2545abcdef
DH x <PH	419a	1766 ghijj	2210 ghi	2567 ijj	2723 ijj	2692 efghij	2903 fgh	3228 fg
DH x <DH	507a	2173 ijkl	2913 ji	3052 jk	3292 j	3164 hij	3386 h	3496 g
DH x <NT	1409 cde	2267 jkl	2598 ijj	2595 ji	2812 ijj	3001 ghij	2949 fgh	2955 defg
NT x <MP	1021 b	1566 defghi	1716 bcdefg	2030 cdefghij	1870 cdef	1808abcd	2007abcde	2116abcd
NT x <CP	1584 de	2144 ijkl	2307 ghijj	2203 defghij	2173 efghi	2234 cdefg	2464 defg	2587abcdef
NT x <PH	1436 cde	1605 efghij	1952 fghi	2333 fghij	2254 efghi	2412 cdefghi	2763 efgh	2884 cdefg
NT x <DH	1743 e	2656 l	2966 j	3256 k	3199 j	3205 ij	3364 h	3477 g
NT x <NT	1342 bcd	2058 hijjk	#N/A	2522 hijj	2751 ijj	2803 fghij	2903 fgh	2981 efg

*based on Tukey test

Table S5. Volumetric, average soil water content during the penetration resistance measurements.

	Soil water content (% v/v)			
	1997	1999	2001	2002
Mean (Field 1)				
0-0.15 m	21.96	28.99	18.5	23.05
0.15-0.30 m	24.11	29.38	21.12	25.66
0.30-0.45 m	23.62	29.61	21.52	24.75
Mean (Field 2)				
0-0.15 m	20.52	27.31	17.74	21.71
0.15-0.30 m	22.71	27.9	20	24.1
0.30-0.45 m	22.12	28.11	20.58	23.67

Table S6. Results from the statistical analysis for the 2000 soil dry bulk density measurements.

Depth	Dry bulk density (Mg m ⁻³) - 2000		
	0 - 0.10 m	0.10- 0.20 m	0.20- 0.30 m
<i>F statistic</i>			
Field	0.583	0.246	2.081
Tillage	38.137	41.706	13.709
Field X Tillage	0.834	0.198	0.722
<i>p-value</i>			
Field	0.451	0.624	0.160
Tillage	0.000	0.000	0.000
Field X Tillage	0.514	0.937	0.584
<i>Means (Field, main effects)</i>			
Field 1	1.31	1.43	1.51
Field 2	1.33	1.44	1.53
<i>Means (Tillage, main effects) - Homogeneous subsets*</i>			
Tillage - MP	1.13a	1.29a	1.43a
Tillage - CP	1.18a	1.30a	1.47a
Tillage - PH	1.30 b	1.42 b	1.51ab
Tillage - DH	1.42 c	1.57 c	1.56 bc
Tillage - NT	1.56 d	1.58 c	1.61 c
<i>Means (Field X Tillage, interaction effects) - Homogeneous subsets*</i>			
Field 1 x MP	1.10a	1.30a	1.40a
Field 1 x CP	1.15a	1.28a	1.44ab
Field 1 x PH	1.29 b	1.42ab	1.51 bc
Field 1 x DH	1.42 b	1.57 b	1.55 cd
Field 1 x NT	1.59 c	1.56 b	1.62 d
Field 2 x MP	1.17a	1.29a	1.46a
Field 2 x CP	1.21a	1.32a	1.50ab
Field 2 x PH	1.31ab	1.42 b	1.51ab
Field 2 x DH	1.43 bc	1.57 c	1.57ab
Field 2 x NT	1.53 c	1.59 c	1.61 b

*Based on Tukey test

Table S7. Results from the statistical analysis for 2001 and 2002 soil dry bulk density measurements (Tillage A = last tillage, Tillage B = previous tillage).

Depth	Dry bulk density (Mg m ³) - 2001			Dry bulk density (Mg m ³) - 2002		
	0 - 0.10 m	0.10- 0.20 m	0.20- 0.30 m	0 - 0.10 m	0.10- 0.20 m	0.20- 0.30 m
<i>F statistic</i>						
Field	160.226	350.338	184.824	184.471	415.384	99.208
Tillage A	41.005	28.042	19.775	40.687	35.109	10.821
Field x Tillage A	0.383	0.911	1.781	0.703	1.041	0.388
Tillage B	7.436	9.741	10.749	9.922	9.946	4.451
Field x Tillage B	1.552	2.363	1.841	1.750	1.734	0.566
Tillage A x Tillage B	1.317	0.976	1.061	0.768	1.909	1.036
<i>p-value</i>						
Field	0.000	0.000	0.000	0.000	0.000	0.000
Tillage A	0.000	0.000	0.000	0.000	0.000	0.000
Field x Tillage A	0.998	0.597	0.018	0.858	0.424	0.997
Tillage B	0.000	0.000	0.000	0.000	0.000	0.002
Field x Tillage B	0.056	0.001	0.013	0.021	0.023	0.958
Tillage A x Tillage B	0.199	0.487	0.400	0.718	0.026	0.425
Means (Field, main effects)						
Field 1	1.17	1.32	1.47	1.18	1.30	1.48
Field 2	1.41	1.63	1.64	1.42	1.60	1.65
<i>Means (Tillage A, main effects) - Homogeneous subsets*</i>						
Tillage A - MP	1.13a	1.35a	1.46a	1.14a	1.34a	1.48a
Tillage A - CP	1.20ab	1.40a	1.52 b	1.22 b	1.39ab	1.52a
Tillage A - PH	1.27 b	1.50 b	1.56 b	1.27 b	1.41 b	1.55ab
Tillage A - DH	1.38 c	1.58 c	1.63 c	1.38 c	1.51 c	1.63 c
Tillage A - NT	1.47 d	1.54 bc	1.58 bc	1.45 c	1.58 d	1.61 bc
<i>Means (Tillage B, main effects) - Homogeneous subsets*</i>						
Tillage B - MP	1.22a	1.39a	1.48a	1.21a	1.38a	1.50a
Tillage B - CP	1.26a	1.44ab	1.54ab	1.28ab	1.41ab	1.54ab
Tillage B - PH	1.30ab	1.51 bc	1.56 bc	1.28ab	1.45 bc	1.59 b
Tillage B - DH	1.30ab	1.49 bc	1.56 bc	1.31 bc	1.49 c	1.56ab
Tillage B - NT	1.37 b	1.53 c	1.61 c	1.38 c	1.50 c	1.60 b
<i>Means (Field x Tillage A, interaction effects) - Homogeneous subsets*</i>						
Field 1 x Tillage A - MP	1.01a	1.20a	1.37a	1.02a	1.19a	1.39a
Field 1 x Tillage A - CP	1.08ab	1.24a	1.44ab	1.10ab	1.23a	1.43ab
Field 1 x Tillage A - PH	1.15 bc	1.35 b	1.48 bc	1.15 b	1.26a	1.47 bc
Field 1 x Tillage A - DH	1.26 cd	1.42 b	1.54 c	1.26 c	1.36 b	1.54 d
Field 1 x Tillage A - NT	1.35 d	1.38 b	1.49 bc	1.33 c	1.43 b	1.52 cd
Field 2 x Tillage A - MP	1.25a	1.50a	1.55a	1.26a	1.49a	1.56a
Field 2 x Tillage A - CP	1.32ab	1.55ab	1.61ab	1.34a	1.54ab	1.60ab
Field 2 x Tillage A - PH	1.39 bc	1.65 bc	1.65abc	1.39ab	1.57ab	1.64ab
Field 2 x Tillage A - DH	1.50 cd	1.73 c	1.71 bc	1.50 bc	1.66 bc	1.71 b
Field 2 x Tillage A - NT	1.59 d	1.69 bc	1.66 bc	1.57 c	1.73 c	1.69ab
<i>Means (Field X Tillage B, interaction effects) - Homogeneous subsets*</i>						
Field 1 x Tillage B - MP	1.10a	1.24a	1.40a	1.09a	1.23a	1.41a
Field 1 x Tillage B - CP	1.14ab	1.29ab	1.45ab	1.16ab	1.26ab	1.45ab
Field 1 x Tillage B - PH	1.18ab	1.35 b	1.47ab	1.16ab	1.30ab	1.50 b
Field 1 x Tillage B - DH	1.18ab	1.34ab	1.47ab	1.19ab	1.34ab	1.47ab
Field 1 x Tillage B - NT	1.25 b	1.38 b	1.53 b	1.26 b	1.35 b	1.52 b
Field 2 x Tillage B - MP	1.34	1.54	1.57a	1.33a	1.53a	1.58a
Field 2 x Tillage B - CP	1.38	1.59	1.62ab	1.40ab	1.56a	1.63a
Field 2 x Tillage B - PH	1.42	1.66	1.65ab	1.40ab	1.60a	1.67a
Field 2 x Tillage B - DH	1.42	1.64	1.64ab	1.43ab	1.64a	1.64a
Field 2 x Tillage B - NT	1.49	1.68	1.70 b	1.50 b	1.65a	1.69a
<i>Means - (Tillage A x Tillage B, simple comparisons) - Homogeneous subsets*</i>						
MP x <MP	1.11a	1.33	1.42a	1.10a	1.34	1.38a
MP x <CP	1.14a	1.36	1.47ab	1.18abc	1.34	1.44ab
MP x <PH	1.14a	1.37	1.43ab	1.15ab	1.35	1.48ab
MP x <DH	1.12a	1.33	1.45ab	1.24abcde	1.35	1.62ab
MP x <NT	1.12a	1.35	1.53ab	1.38abcde	1.50	1.58ab
CP x <MP	1.18ab	1.29	1.43ab	1.12ab	1.37	1.47ab
CP x <CP	1.21abc	1.41	1.53ab	1.21abcd	1.40	1.49ab
CP x <PH	1.13a	1.40	1.49ab	1.27abcde	1.34	1.50ab
CP x <DH	1.20abc	1.40	1.54ab	1.34abcde	1.45	1.61ab
CP x <NT	1.29abcd	1.48	1.63ab	1.43 bcde	1.51	1.63ab
PH x <MP	1.16ab	1.40	1.48ab	1.15ab	1.30	1.47ab
PH x <CP	1.24abc	1.48	1.52ab	1.22abcd	1.37	1.53ab
PH x <PH	1.34abcd	1.56	1.63ab	1.25abcde	1.41	1.61ab
PH x <DH	1.30abcd	1.52	1.61ab	1.40abcde	1.56	1.68 b
PH x <NT	1.35abcd	1.54	1.59ab	1.38abcde	1.59	1.65ab
MP x <MP	1.25abc	1.46	1.57ab	1.14ab	1.30	1.47ab
DH x <CP	1.30abcd	1.50	1.62ab	1.21abcd	1.40	1.57ab
DH x <PH	1.42abcd	1.63	1.65ab	1.31abcde	1.49	1.62ab
DH x <DH	1.41abcd	1.64	1.62ab	1.41abcde	1.62	1.57ab
DH x <NT	1.53 cd	1.65	1.68 b	1.50 cde	1.64	1.55ab
NT x <MP	1.40abcd	1.46	1.52ab	1.18abc	1.37	1.59ab
NT x <CP	1.40abcd	1.46	1.55ab	1.27abcde	1.42	1.57ab
NT x <PH	1.49 bcd	1.57	1.61ab	1.37abcde	1.48	1.55ab
NT x <DH	1.45abcd	1.56	1.56ab	1.51 de	1.58	1.66ab
NT x <NT	1.60 d	1.63	1.64ab	1.57 e	1.66	1.64ab

*based on Tuckey test

Table S8. Results from the statistical analysis for the preliminary (1997) soil organic matter measurements (prior the tillage establishment)

Depth	Soil Organic Matter (%) - 1997		
	0 - 0.10 m	0.10- 0.20 m	0.20- 0.30 m
<i>F statistic</i>			
Field	15.219	37.379	30.219
Tillage plot	0.446	0.480	0.648
Field X Tillage plot	0.000	0.001	0.001
<i>p-value</i>			
Field	0.001	0.000	0.000
Tillage plot	0.775	0.750	0.632
Field X Tillage plot	0.992	0.986	0.918
<i>Means (Field, main effects)</i>			
Field 1	2.40	2.23	2.31
Field 2	2.14	1.91	2.03
<i>Means (Tillage plots, main effects)</i>			
Plot - MP	2.24	2.10	2.14
Plot - CP	2.35	2.07	2.23
Plot - PH	2.26	2.02	2.14
Plot - DH	2.28	2.12	2.20
Plot - NT	2.21	2.04	2.13

**Based on Tuckey test*

Table S9. Results from the statistical analysis for 2001 and 2002 soil organic matter measurements (Tillage A = last tillage, Tillage B = previous tillage).

Depth	Soil organic matter (%) - 2001			Soil organic matter (%) - 2002		
	0 - 0.10 m	0.10- 0.20 m	0.20- 0.30 m	0 - 0.10 m	0.10- 0.20 m	0.20- 0.30 m
	<i>F statistic</i>					
Field	46.759	200.988	98.572	45.226	131.925	105.031
Tillage A	63.819	43.937	17.867	46.478	23.519	25.708
Field x Tillage A	1.485	1.999	1.619	0.457	1.018	0.435
Tillage B	38.177	0.548	23.218	36.280	0.800	8.624
Field x Tillage B	0.797	1.094	1.030	1.084	1.312	1.294
Tillage A x Tillage B	2.765	1.827	1.382	1.455	2.450	0.603
	<i>p-value</i>					
Field	0.000	0.000	0.000	0.000	0.000	0.000
Tillage A	0.000	0.000	0.000	0.000	0.000	0.000
Field x Tillage A	0.077	0.006	0.041	0.991	0.453	0.994
Tillage B	0.000	0.701	0.000	0.000	0.000	0.000
Field x Tillage B	0.751	0.359	0.436	0.371	0.161	0.173
Tillage A x Tillage B	0.001	0.036	0.163	0.130	0.003	0.875
	<i>Means (Field, main effects) - Homogeneous subsets*</i>					
Field 1	2.21	1.74	1.95	2.23	1.74	1.98
Field 2	1.95	1.42	1.71	1.95	1.44	1.70
	<i>Means (Tillage A, main effects) - Homogeneous subsets*</i>					
Tillage A - MP	1.54a	1.85 d	1.70a	1.58a	1.82 c	1.58a
Tillage A - CP	2.16 c	1.58 c	1.87 b	2.06 b	1.61 b	1.84 b
Tillage A - PH	1.98 b	1.45ab	1.72a	2.13 b	1.52ab	1.88 b
Tillage A - DH	2.35 d	1.42a	1.89 b	2.22 b	1.45a	1.89 bc
Tillage A - NT	2.37 d	1.55 bc	1.96 b	2.45 c	1.55ab	2.01 c
	<i>Means (Tillage B, main effects) - Homogeneous subsets*</i>					
Tillage B - MP	1.67a	1.56	1.61a	1.68a	1.58	1.75a
Tillage B - CP	2.05 b	1.60	1.82 b	2.09 b	1.62	1.85ab
Tillage B - PH	2.12 b	1.59	1.85 b	1.99 b	1.62	1.75a
Tillage B - DH	2.18 b	1.55	1.87 bc	2.32 c	1.57	1.89 b
Tillage B - NT	2.38 c	1.57	1.98 c	2.37 c	1.57	1.96 b
	<i>Means (Field X Tillage A, interaction effects) - Homogeneous subsets*</i>					
Field 1 x Tillage A - MP	1.67a	2.01 c	1.82a	1.72a	1.97 c	1.73a
Field 1 x Tillage A - CP	2.29 bc	1.74 b	1.99abc	2.20 b	1.76 b	1.98 b
Field 1 x Tillage A - PH	2.11 b	1.61ab	1.84ab	2.27 bc	1.67ab	2.02 bc
Field 1 x Tillage A - DH	2.48 c	1.58a	2.01 bc	2.36 bc	1.60a	2.03 bc
Field 1 x Tillage A - NT	2.50 c	1.71ab	2.08 c	2.59 c	1.70ab	2.15 c
Field 2 x Tillage A - MP	1.67a	2.01 c	1.82a	1.44a	1.67 b	1.44a
Field 2 x Tillage A - CP	2.29 bc	1.74 b	1.99abc	1.92 b	1.46a	1.70 b
Field 2 x Tillage A - PH	2.11 b	1.61ab	1.84ab	1.99 bc	1.37a	1.74 b
Field 2 x Tillage A - DH	2.48 c	1.58a	2.01 bc	2.08 bc	1.30a	1.75 b
Field 2 x Tillage A - NT	2.50 c	1.71ab	2.08 c	2.31 c	1.40a	1.87 b
	<i>Means (Field X Tillage B, interaction effects) - Homogeneous subsets*</i>					
Field 1 x Tillage B - MP	1.80a	1.72	1.74a	1.82a	1.73	1.89a
Field 1 x Tillage B - CP	2.18 b	1.76	1.94 b	2.23 bc	1.77	1.99ab
Field 1 x Tillage B - PH	2.25 b	1.75	1.97 b	2.13ab	1.77	1.90a
Field 1 x Tillage B - DH	2.31 b	1.71	1.99 b	2.46 bc	1.72	2.03ab
Field 1 x Tillage B - NT	2.51 b	1.73	2.10 b	2.51 c	1.72	2.10 b
Field 2 x Tillage B - MP	1.54a	1.40	1.49a	1.54a	1.43	1.61a
Field 2 x Tillage B - CP	1.92ab	1.44	1.70ab	1.95 b	1.47	1.71a
Field 2 x Tillage B - PH	1.99 b	1.43	1.73 b	1.85ab	1.47	1.61a
Field 2 x Tillage B - DH	2.05 b	1.39	1.75 b	2.18 b	1.42	1.74a
Field 2 x Tillage B - NT	2.25 b	1.41	1.85 b	2.23 b	1.42	1.82a
	<i>Means - (Tillage A x Tillage B, simple comparisons) - Homogeneous subsets*</i>					
MP x <MP	1.44a	1.80 bcde	1.62abc	1.40a	1.68abcd	1.54ab
MP x <CP	1.64abc	1.78abcde	1.71abc	1.62abc	1.53abcd	1.58abc
MP x <PH	1.52ab	1.87 de	1.70abc	1.51ab	1.54abcd	1.53a
MP x <DH	1.58ab	1.84 cde	1.71abc	1.69abcd	1.54abcd	1.62abcd
MP x <NT	1.54ab	1.95 e	1.74abc	1.70abcd	1.62abcd	1.66abcd
CP x <MP	1.77abcde	1.53abcde	1.65abc	1.79abcde	1.78abcd	1.79abcde
CP x <CP	2.24 defgh	1.71abcde	1.98 bcd	2.03 bcdefg	1.81 bcd	1.92abcde
CP x <PH	2.18 cdefg	1.53abcde	1.86abcd	1.87abcdef	1.48abc	1.68abcd
CP x <DH	2.21 defgh	1.56abcde	1.89 bcd	2.27 defgh	1.52abcd	1.90abcd
CP x <NT	2.40 fghi	1.59abcde	1.99 bcd	2.34 efghi	1.50abcd	1.92abcde
PH x <MP	1.51a	1.37ab	1.44a	1.67abc	1.87 cd	1.77abcd
PH x <CP	1.75abcd	1.48abcd	1.62ab	2.18 cdefgh	1.53abcd	1.86abcd
PH x <PH	2.16 cdefg	1.50abcde	1.83abcd	2.09 bcdefg	1.65abcd	1.87abcde
PH x <DH	2.09 bcdefg	1.52abcde	1.80abcd	2.35 efghi	1.42abc	1.89abcde
PH x <NT	2.38 fghi	1.40abc	1.89 bcd	2.38 efghi	1.61abcd	2.00 bcde
MP x <MP	1.84abcdef	1.48abcd	1.66abc	1.73abcd	1.84 bcd	1.79abcde
DH x <CP	2.27 defghi	1.52abcde	1.90 bcd	2.21 cdefgh	1.56abcd	1.89abcde
DH x <PH	2.35 efghi	1.42abcd	1.89 bcd	2.09 bcdefg	1.52abcd	1.81abcde
DH x <DH	2.50 ghi	1.38abc	1.94 bcd	2.52 ghi	1.44abc	1.98abcde
DH x <NT	2.77 hi	1.32a	2.05 cd	2.54 ghi	1.47abc	2.01 cde
NT x <MP	1.78abcde	1.62abcde	1.70abc	1.79abcde	1.95 d	1.87abcde
NT x <CP	2.34 efghi	1.50abcde	1.92 bcd	2.40 fghi	1.59abcd	2.00 bcde
NT x <PH	2.38 fghi	1.61abcde	2.00 bcd	2.38 efghi	1.40ab	1.89abcde
NT x <DH	2.54 ghi	1.47abcd	2.01 bcd	2.77 hi	1.32a	2.05 de
NT x <NT	2.83 i	1.57abcde	2.20 d	2.90 i	1.57abcd	2.24 e

*based on Tukey test