

## Supporting informations

Table S1. Measurement periods and ranges of soil temperature, moisture, and respiration of the seven sites in the different treatments. Soil temperature measured at 5 cm soil depth, soil moisture measured at the soil depths presented in Table 2. Overall average values are in bold within brackets.

Country	Site	Measurement periods <i>yyyy.mm</i>	Treatments	Number of data points	Soil temp. °C	Soil moist. Vol%	Soil respiration $\mu\text{mol m}^{-2} \text{s}^{-1}$
HU	Kiskunság	2010.04 - 2012.11	All treatments	261	0.40 - 40.50 ( <b>21.97</b> )	2.0 - 8.1 ( <b>4.1</b> )	0.11 - 2.48 ( <b>0.84</b> )
			Control	88	2.00 - 39.40 ( <b>22.14</b> )	2.2 - 8.1 ( <b>4.3</b> )	0.18 - 2.10 ( <b>0.92</b> )
			Drought	87	0.40 - 40.50 ( <b>21.98</b> )	2.0 - 7.0 ( <b>3.8</b> )	0.11 - 2.48 ( <b>0.75</b> )
			Warming	86	4.60 - 40.00 ( <b>21.79</b> )	2.2 - 6.8 ( <b>4.1</b> )	0.16 - 2.27 ( <b>0.84</b> )
ES	Garraf	2002.04 - 2003.12	All treatments	315	4.35 - 44.25 ( <b>19.04</b> )	5.6 - 31.6 ( <b>19.0</b> )	0.27 - 2.60 ( <b>1.16</b> )
			Control	105	4.35 - 43.95 ( <b>19.13</b> )	5.6 - 31.3 ( <b>19.7</b> )	0.29 - 2.60 ( <b>1.24</b> )
			Drought	105	4.77 - 40.24 ( <b>17.97</b> )	6.6 - 25.4 ( <b>17.2</b> )	0.27 - 2.15 ( <b>1.04</b> )
			Warming	105	5.59 - 44.25 ( <b>20.01</b> )	6.7 - 31.6 ( <b>20.0</b> )	0.33 - 2.34 ( <b>1.20</b> )
IT	Capo Caccia	2010.02 - 2011.11	All treatments	157	7.73 - 28.85 ( <b>17.59</b> )	3.2 - 27.6 ( <b>14.8</b> )	0.98 - 5.38 ( <b>2.65</b> )
			Control	51	7.73 - 28.85 ( <b>17.59</b> )	5.6 - 24.9 ( <b>14.9</b> )	0.98 - 5.14 ( <b>2.64</b> )
			Drought	54	7.82 - 28.28 ( <b>17.61</b> )	3.2 - 27.7 ( <b>14.4</b> )	1.03 - 5.38 ( <b>2.55</b> )
			Warming	52	8.47 - 28.68 ( <b>17.58</b> )	3.9 - 24.4 ( <b>15.1</b> )	1.09 - 4.99 ( <b>2.76</b> )
DK	Mols	2011.05 - 2012.09	All treatments	124	2.32 - 22.30 ( <b>12.82</b> )	5.8 - 18.3 ( <b>12.3</b> )	0.65 - 17.66 ( <b>3.71</b> )
			Control	43	2.32 - 22.30 ( <b>13.00</b> )	6.7 - 18.3 ( <b>12.9</b> )	0.65 - 8.78 ( <b>3.98</b> )
			Drought	40	3.06 - 21.44 ( <b>12.60</b> )	5.8 - 17.2 ( <b>11.5</b> )	0.73 - 17.66 ( <b>3.52</b> )
			Warming	41	3.27 - 20.60 ( <b>12.85</b> )	6.3 - 18.2 ( <b>12.5</b> )	0.92 - 13.87 ( <b>3.62</b> )
DK	Brandbjerg	2011.03 - 2012.12	All treatments	621	-0.25 - 18.48 ( <b>9.93</b> )	5.4 - 30.2 ( <b>16.3</b> )	0.02 - 8.48 ( <b>1.59</b> )
			Control	205	-0.08 - 17.23 ( <b>9.73</b> )	6.0 - 28.0 ( <b>17.8</b> )	0.09 - 8.48 ( <b>1.74</b> )
			Drought	208	-0.19 - 17.33 ( <b>9.82</b> )	5.4 - 24.7 ( <b>15.6</b> )	0.06 - 4.61 ( <b>1.35</b> )
			Warming	208	-0.25 - 18.48 ( <b>10.35</b> )	6.7 - 30.2 ( <b>15.6</b> )	0.02 - 6.86 ( <b>1.69</b> )
NL	Oldebroek	2010.07 - 2012.06	All treatments	224	2.49 - 18.89 ( <b>10.46</b> )	7.4 - 39.9 ( <b>24.7</b> )	0.26 - 3.05 ( <b>0.98</b> )
			Control	74	2.59 - 18.89 ( <b>10.53</b> )	7.4 - 39.9 ( <b>24.7</b> )	0.27 - 2.57 ( <b>1.11</b> )
			Drought	75	2.61 - 18.57 ( <b>10.42</b> )	9.9 - 39.5 ( <b>29.7</b> )	0.26 - 3.05 ( <b>0.98</b> )
			Warming	75	2.49 - 18.31 ( <b>10.44</b> )	7.5 - 39.6 ( <b>24.5</b> )	0.26 - 2.00 ( <b>0.87</b> )
UK	Clocaenog	2010.01 - 2012.12	All treatments	471	0.60 - 14.29 ( <b>7.91</b> )	8.7 - 71.4 ( <b>41.7</b> )	0.13 - 4.00 ( <b>1.15</b> )
			Control	155	0.60 - 13.76 ( <b>7.86</b> )	26.2 - 66.0 ( <b>42.6</b> )	0.13 - 2.78 ( <b>0.95</b> )
			Drought	157	0.88 - 13.56 ( <b>7.88</b> )	8.7 - 70.1 ( <b>32.7</b> )	0.25 - 3.51 ( <b>1.36</b> )
			Warming	159	0.98 - 14.29 ( <b>7.98</b> )	28.0 - 71.4 ( <b>49.6</b> )	0.13 - 4.00 ( <b>1.14</b> )