

Supplementary Material to: Drought Effects on Nitrogen Provisioning in Different Agricultural Systems: Insights Gained and Lessons Learned from a Field Experiment

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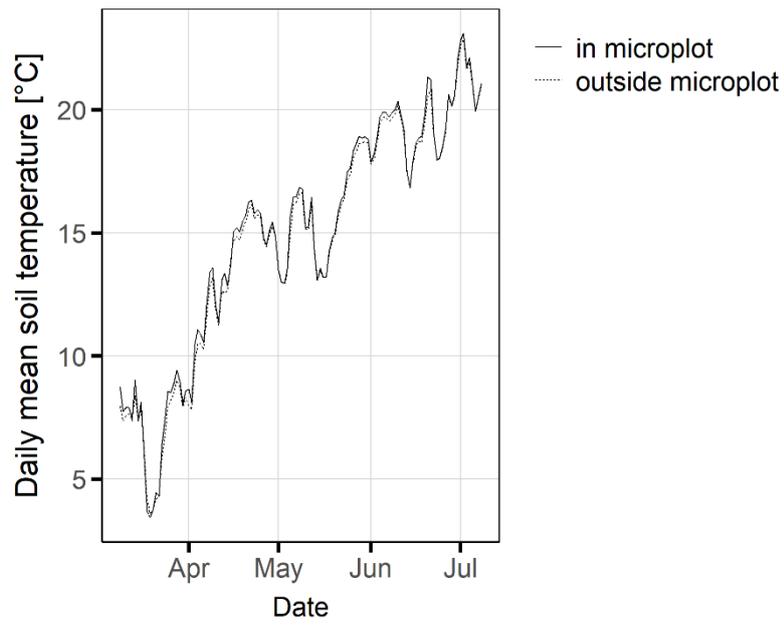
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Supplementary Figure 1: Conditions at the study site after the heavy spring rainfalls. Pictures were taken around the flowering of the winter wheat, when the second sampling date was initially planned.



Supplementary Figure 2: Daily mean soil temperature inside ($n = 6$ microplots) and outside of the microplots ($n = 6$ microplots). The temperature was logged at a 0.10-m depth.

Supplementary Table 1. Soil characteristics (top 10 cm) in the biodynamic (BioDyn) and conventional (ConMin) farming systems and differences between the two farming systems as assessed from the baseline sampling. All data are medians of the posterior distribution with 95% credible intervals (CrIs), %points: percentage points. Credible intervals in bold exclude zero. Soil pH (H₂O): soil pH measured in water; Ctot: total soil organic carbon; Ntot: total soil organic nitrogen; WHC: water holding capacity

Parameter	BioDyn median (95%CrI)	ConMin median (95%CrI)	BioDyn vs ConMin		
			Median	95% CrI	90% CrI
Soil pH (H ₂ O)	6.8 [6.6, 7.0]	6.4 [6.2, 6.6]	0.4	0.2, 0.6	0.2, 0.5
Ctot [%]	1.84 [1.44, 2.26]	1.35 [0.95, 1.76]	0.49% points	0.33, 0.66	0.37, 0.62
Ntot [%]	0.19 [0.15, 0.23]	0.14 [0.09, 0.18]	0.05% points	0.03, 0.07	0.04, 0.06
WHC [%]	40.0 [35.4, 44.3]	36.7 [32.1, 41.0]	3.3% points	-0.8, 7.5	0.1, 6.7
Bulk density [g/cm ³]	1.23 [1.12, 1.34]	1.29 [1.18, 1.40]	-0.06	-0.14, 0.02	-0.13, 0

Supplementary Table 2. Model estimates for differences in soil water content (% points) between selected treatment comparisons. Data are medians of the posterior distribution with 95% and 90% CrI. Farming system comparison is given as average over the drought treatment. Credible intervals in bold exclude zero.

Differences in soil water content	Comparison		Sampling date	Model estimate (median)	95% CrI	90% CrI
	R-RC	BioDyn	T1	-1.7	-5.5, 1.8	-4.8, 1.1
R-RC	ConMin	T1	-1.4	-5.0, 2.0	-4.3, 1.4	
R-RC	BioDyn	T2	-3.6	-7.3, -0.3	-6.6, -0.9	
R-RC	ConMin	T2	-5.5	-10.3, -1.5	-9.3, -2.2	
	BioDyn-ConMin		T1	0.7	-6.4, 8.2	-4.9, 6.6
	BioDyn-ConMin		T2	-8.3	-16.7, -0.8	-14.7, -2.3

Supplementary Table 3. Model estimates for differences in plant dry weight (DW) and plant N content between selected treatment comparisons. Data are medians of the posterior distribution with 95% and 90% CrI. Farming system comparison is given as average over the drought treatment. Credible intervals in bold exclude zero.

Response	Comparison		Sampling date	Model estimate (median)	95% CrI	90% CrI
Plant DW (g/microplot)	R-RC	BioDyn	T1	-1.27	-19.17, 16.49	-15.90, 13.56
	R-RC	ConMin	T1	-3.15	-20.89, 14.62	-17.94, 11.33
	R-RC	BioDyn	T2	-10.66	-29.64, 8.99	-26.39, 5.5
	R-RC	ConMin	T2	-11.94	-29.76, 5.90	-26.63, 2.76
	BioDyn-ConMin		T1	28.26	-2.65, 59.65	3.1, 53.27
	BioDyn-ConMin		T2	-9.45	-41.34, 23.19	-35.27, 16.49
Plant N (g/microplot)	R-RC	BioDyn	T1	-0.28	-0.69, 0.15	-0.62, 0.07
	R-RC	ConMin	T1	-0.46	-0.87, -0.05	-0.79, -0.12
	R-RC	BioDyn	T2	-0.31	-0.76, 0.15	-0.68, 0.07
	R-RC	ConMin	T2	-0.29	-0.72, 0.12	-0.64, 0.05
	BioDyn-ConMin		T1	0.37	-0.34, 1.10	-0.21, 0.96
	BioDyn-ConMin		T2	-0.17	-0.92, 0.59	-0.78, 0.44

Supplementary Table 4. Model estimates for differences in N derived from fertiliser (Ndff), and N derived from the soil (Ndfs) pool between selected treatment comparisons. Data are medians of the posterior distribution with 95% and 90% CrI. Farming system comparison is given as averages over the drought treatment. Credible intervals in bold exclude zero.

Response	Comparison		Sampling date	Model estimate (median)	95% CrI	90% CrI
Ndff (g/microplot)	R-RC	BioDyn	T1	-0.13	-0.29, -0.03	-0.25, -0.04
	R-RC	ConMin	T1	-0.11	-0.25, -0.01	-0.22, -0.02
	R-RC	BioDyn	T2	-0.01	-0.22, 0.21	-0.18, 0.17
	R-RC	ConMin	T2	-0.10	-0.35, 0.10	-0.29, 0.06
	BioDyn-ConMin		T1	0.03	-0.19, 0.25	-0.13, 0.20
	BioDyn-ConMin		T2	-0.08	-0.49, 0.32	-0.40, 0.23
Ndfs (g/microplot)	R-RC	BioDyn	T1	-0.13	-0.47, 0.19	-0.41, 0.13
	R-RC	ConMin	T1	-0.32	-0.64, -0.04	-0.58, -0.09
	R-RC	BioDyn	T2	-0.30	-0.73, 0.14	-0.65, 0.06
	R-RC	ConMin	T2	-0.18	-0.60, 0.20	-0.52, 0.13
	BioDyn-ConMin		T1	0.32	-0.20, 0.90	-0.09, 0.78
	BioDyn-ConMin		T2	-0.08	-0.79, 0.66	-0.66, 0.51