Supplementary Materials: ^{15}N-Nitrogen Use Efficiency, Productivity, and Quality of Durum Wheat Integrating Nitrogen Management and an Indigenous Bacterial Inoculant in a Single Growing Season

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Supplementary Table S1. Additional climatic conditions during the crop cycle.

Crop Cycle / Climatic characteristic	Mean maximum temperature (°C)	Mean minimum temperature (°C)	Accumulated precipitation (mm)
Dec	27.7	9.2	15.0
Jan	26.2	8.4	1.0
Feb	25.8	6.1	1.2
Mar	28.6	6.5	0.0
Apr	31.4	11.9	0.3
May	34.9	14.6	0.0

Supplementary Table S2. Wheat quantitative traits of yield and harvest indexes.

Treatment	Plant height (cm)	Root depth (cm)	Spikes m^{-2}	Grains spike^{-1}	Spike size (cm)	Grain yield (ton ha^{-1})	Straw yield (ton ha^{-1})	Harvest index
0 kg N ha^{-1}	78.1 ± 4.9 b	105 ± 14.1 a	267 ± 13 bc	50 ± 6 a	6.5 ± 0.4 bc	5.69 ± 0.43 b	4.01 ± 0.39 b	0.58 ± 0.01 a
0 kg N ha^{-1} + BC	81.2 ± 3.6 d	111.5 ± 12 a	281 ± 36 c	51 ± 9 a	6 ± 0.7 a	4.34 ± 0.51 a	3.13 ± 0.33 a	0.60 ± 0.02 ab
120 kg N ha^{-1}	78.6 ± 4.0 bc	101 ± 9.9 a	221 ± 28 a	53 ± 6 b	6.5 ± 0.5 bc	6.37 ± 0.52 c	3.98 ± 0.59 b	0.63 ± 0.02 de
120 kg N ha^{-1} + BC	77.7 ± 3.5 b	112.5 ± 3.5 a	258 ± 32 bc	51 ± 6 a	6.4 ± 0.3 b	6.29 ± 0.26 c	3.45 ± 0.11 a	0.64 ± 0.01 e
240 kg N ha^{-1}	76.7 ± 3.9 a	87.5 ± 3.5 a	243 ± 24 ab	54 ± 7 b	6.6 ± 0.4 c	6.48 ± 0.70 c	4.03 ± 0.44 b	0.62 ± 0.02 cd
240 kg N ha^{-1} + BC	79.2 ± 3.6 c	105 ± 17 a	269 ± 17 bc	56 ± 6 c	7.2 ± 0.5 d	7.06 ± 0.28 d	4.41 ± 0.25 b	0.61 ± 0.01 bc

Values indicate mean ± standard deviation. Different letters in the same column indicate a significant difference, using the Duncan test (p<0.05). BC corresponds to the treatments inoculated with the studied bacterial consortium (*Bacillus cabrialesii subsp. cabrialesii* TE3^{T}, *Priestia megaterium* TRQ8, and *Bacillus paralicheniformis* TRQ65).

Supplementary Table S3. Wheat quality traits of the studied treatments.

Treatment	Hectoliter weight (kg hL^{-1})	1000 grain weight (g)	Protein (%)	SDS sedimentation test (mL)	SDS/Protein Index	Wholemeal yellowness (Minolta, b*)
0 kg N ha^{-1}	79.83 ± 0.44 a	58.83 ± 1.93 b	8.92 ± 0.31 a	11.40 ± 0.32 ab	1.28 ± 0.08 b	14.26 ± 0.13 a
0 kg N ha^{-1} + BC	79.88 ± 0.93 a	57.04 ± 2.45 ab	9.48 ± 0.85 a	11.23 ± 0.47 a	1.21 ± 0.15 b	14.20 ± 0.40 a
120 kg N ha^{-1}	80.98 ± 0.73 b	57.50 ± 1.77 ab	11.09 ± 0.90 b	11.08 ± 0.82 a	1.00 ± 0.06 a	14.59 ± 0.25 bc
120 kg N ha^{-1} + BC	80.80 ± 0.46 b	58.66 ± 2.44 b	11.09 ± 0.78 b	11.50 ± 0.97 ab	1.04 ± 0.05 a	14.45 ± 0.23 ab
240 kg N ha^{-1}	80.63 ± 0.66 b	56.73 ± 2.27 a	11.72 ± 1.07 bc	12.00 ± 1.21 bc	1.03 ± 0.09 a	14.73 ± 0.37 c
240 kg N ha^{-1} + BC	80.89 ± 0.35 b	56.49 ± 1.39 a	11.90 ± 0.51 c	12.32 ± 0.40 c	1.05 ± 0.04 a	14.63 ± 0.22 bc

Values indicate mean ± standard deviation. Different letters in the same column indicate a significant difference, using the Duncan test (p<0.05). BC corresponds to the treatments inoculated with the studied bacterial consortium (*Bacillus cabrialesii subsp. cabrialesii* TE3^{T}, *Priestia megaterium* TRQ8, and *Bacillus paralicheniformis* TRQ65). Four replicates per treatment.

Supplementary Table S4. Nitrogen (^{15}N) uses the efficiency of wheat under two different doses of urea and the inoculation of a native bacterial consortium.

Treatment	Nitrogen Use Efficiency of 15N labeled urea (%)			15N remnant in the first 30 cm of soil (%)	Losses of 15N (%)
	Grain (%)	Straw (%)	Whole plant (%)		
120 kg N ha^{-1}	40.7 ± 5.7 a	2.9 ± 1.1 a	43.7 ± 6.3 a	5.2 ± 1.7 a	51.1 ± 8 ab
120 kg N ha^{-1} + BC	40.3 ± 18.4 a	4.7 ± 1.0 a	45 ± 19.3 a	4.6 ± 1.3 a	43.3 ± 13 a
240 kg N ha^{-1}	25.8 ± 12.3 a	3 ± 0.3 a	28.8 ± 12.6 a	3.1 ± 1.5 a	67.6 ± 11.2 b
240 kg N ha^{-1} + BC	23.1 ± 4.0 a	3.1 ± 0.9 a	26.2 ± 4.8 a	9.7 ± 3.4 b	64.1 ± 2.9 b

1 atom % ^{15}N excess labeled urea was used in this experiment. BC corresponds to the inoculation of a bacterial consortium (*Bacillus cabrialesii subsp. cabrialesii* TE3^{T}, *Priestia megaterium* TRQ8, and *Bacillus paralicheniformis* TRQ65). Values indicate mean ± standard deviation. Different letters in the same column indicate a significant difference using the Duncan test (p<0.05).