

Figure S1: TEM images of nano-B at different magnification power of 2000x (a) and 12000x (b).

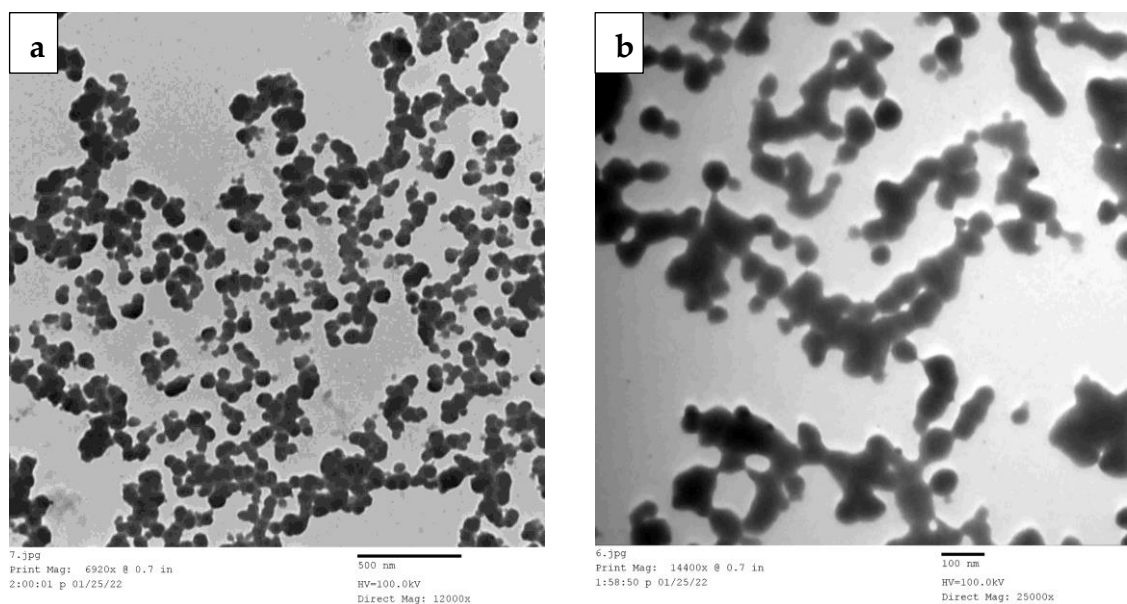


Figure S2: TEM images of nano-CaO at different magnification power of 12000x (a) and 25000x (b).

Table S1: The initial physiochemical properties of the experimental soil.

Soil Properties	Season 2020		Season 2021	
	Mean	SD	Mean	SD
Mechanical analysis:				
Clay %	17.5	0.25	20	0.36
Sand %	70	1.83	68.5	1
Silt %	12.5	1.5	11.5	0.87
Soil texture	Sandy loam			
Chemical properties				
pH (1:1)	8.03	0.02	8.12	0.06
EC (1:1, water extract (ds/m)	7.9	0.1	8.2	0.21
Organic matter content %	0.96	0.03	0.91	0.03
Calcium carbonate content%	5.7	0.26	5.3	0.21
pH (1:1)	8.03	0.04	8.12	0.01
EC (1:1, water extract (ds/m)	7.9	0.25	8.2	0.30
Soluble cations (1: 2) (cmol/kg soil)				
Ca ²⁺ meq/L	18.3	0.26	17.2	0.15
Mg ²⁺ meq/L	8.96	0.01	9.03	0.01
Na ⁺ meq/L	57	1	57.39	0.8
K ⁺ meq/L	2.66	0.02	2.36	0.03
Soluble anions (1 : 2) (cmol/kg soil)				
HCO ₃ ⁻ meq/L	21.3	0.11	20.25	0.03
Cl ⁻ meq/L	22.25	0.02	23.24	0.19
SO ₄ ²⁻ meq/L	56.6	1.43	56	1
Available nutrients				
Nitrogen (N) mg/kg	219	0.3	218.7	0.21
Phosphorus (P) mg/kg	22.9	0.12	22.7	0.2
Potassium (K) mg/kg	420	1.8	425	1

The values in table are the mean of three replicates. SD, standard deviation.

Table S2: Physical properties of nano-B.

Property		Result
Appearance	Color	White or Gray
	Form	Fine Powder
Solubility		Suspension in Water / Ethanol
Avg. Particle Size (d, nm/TEM)		60 ± 10 nm (i.e., < 100 nm)
Storage		Ambient Condition

Table S3: Physical properties of nano-CaO.

Property		Result
Appearance	Color	White
	Form	Powder
Solubility		Suspension in Water / Ethanol
Avg. Particle Size (d, nm/TEM)		45 ± 5 nm
Shape		Quasi-spherical Shape