Table S1. Main soil characteristics of the experimental field at the beginning of the trial in 2018.

Sand	54 %
Silt	34 %
Clay	12 %
Water content at field capacity	13 %
Water content at wilting point	7.1 %
pH in H_2O	6.3
C_{org}	1.1 %
Total N	0.13 %
C/N	8.3
CEC	11.9 meq $100g^{-1}$
Exchangeable Ca	4.24 meq $100g^{-1}$
Exchangeable Mg	0.97 meq $100g^{-1}$
Exchangeable K	0.09 meq $100g^{-1}$
Exchangeable Na	0.09 meq $100g^{-1}$
Assimilable P_2O_5	18 meq $100g^{-1}$

Figure S1. Mean and maximum temperature (left axis), precipitation and irrigation (right axis) during 2020 and 2021 maize growing seasons.

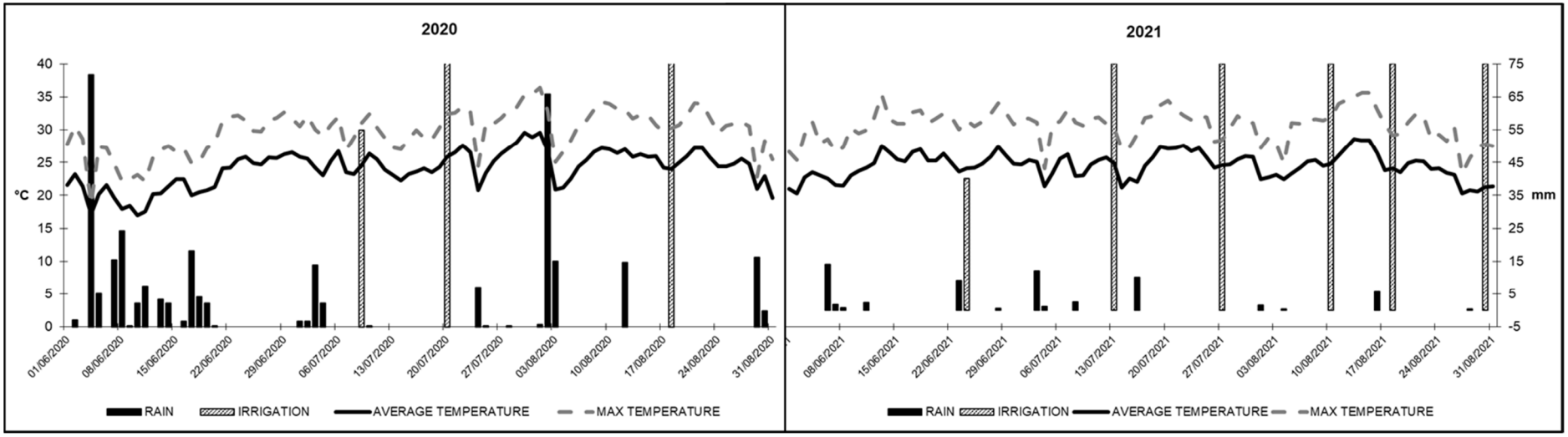

Figure S2. Aerial image of the experimental trial at Cascina Baroncina (45° 17′ 25′′ N—9° 29′ 43′′ E). Source: Google Earth.

Table S2. Biochar characterization according to Italian (ICH-AR, Italian Biochar Association), EU (EBC, European Biochar Certificate) and internation-al (IBI, International Biochar Initiative) prescriptions.

Parameter	Value	Unit
Moisture	68.3	%
pH	9.2	
Electrical conductivity	6	10^{-1}S m^{-1}
Total organic C	77.6	% d.w.
Ashes at 550 ° C	6.3	% d.w.
Total N	0.2	% d.w.
Maximum water retention	77	%
Heavy metals	<permitted limits	
Total Pb	<5	mg kg^{-1} d.w.
Total Cd	<1	mg kg^{-1} d.w.
Total Cu	40	mg kg^{-1} d.w.
Total Zn	150	mg kg^{-1} d.w.
Total Ni	138	mg kg^{-1} d.w.
Total Hg	<1	mg kg^{-1} d.w.
Cr VI	<0,25	mg kg^{-1} d.w.
Sum of polycyclic aromatics	<1	mg kg^{-1} d.w.