

A quantitative review of the effects of biochar application using meta-analysis

Agriculture, Ecosystems and Environment

144, 175-187

DOI: [10.1016/j.agee.2011.08.015](https://doi.org/10.1016/j.agee.2011.08.015)

Citation Report

#	ARTICLE	IF	CITATIONS
1	Carbon Storage with Benefits. <i>Science</i> , 2012, 338, 1034-1035.	6.0	343
2	Is biochar or straw-bale construction a better carbon storage from a life cycle perspective?. <i>Chemical Engineering Research and Design</i> , 2012, 90, 452-458.	2.7	24
3	Rapid molecular screening of black carbon (biochar) thermosequences obtained from chestnut wood and rice straw: A pyrolysis-GC/MS study. <i>Biomass and Bioenergy</i> , 2012, 45, 115-129.	2.9	44
4	A first step towards identification of tannin-derived black carbon: Conventional pyrolysis (Py-GC-MS) and thermally assisted hydrolysis and methylation (THM-GC-MS) of charred condensed tannins. <i>Organic Geochemistry</i> , 2012, 47, 99-108.	0.9	21
5	Physical activation of biochar and its meaning for soil fertility and nutrient leaching – a greenhouse experiment. <i>Soil Use and Management</i> , 2012, 28, 177-184.	2.6	125
6	Short-term effect of biochar and compost on soil fertility and water status of a Dystric Cambisol in NE Germany under field conditions. <i>Journal of Plant Nutrition and Soil Science</i> , 2012, 175, 698-707.	1.1	248
7	Effects of biochar amendment in two soils on greenhouse gas emissions and crop production. <i>Plant and Soil</i> , 2012, 360, 287-298.	1.8	251
8	Effects of biochar compared to organic and inorganic fertilizers on soil quality and plant growth in a greenhouse experiment. <i>Journal of Plant Nutrition and Soil Science</i> , 2012, 175, 410-422.	1.1	380
9	Is sustainability certification for biochar the answer to environmental risks?. <i>Pesquisa Agropecuaria Brasileira</i> , 2012, 47, 637-648.	0.9	20
10	THE REDUCTION OF WHEAT Cd UPTAKE IN CONTAMINATED SOIL VIA BIOCHAR AMENDMENT: A TWO-YEAR FIELD EXPERIMENT. <i>BioResources</i> , 2012, 7, .	0.5	68
11	Sustainability, certification, and regulation of biochar. <i>Pesquisa Agropecuaria Brasileira</i> , 2012, 47, 649-653.	0.9	33
12	Proposing an interdisciplinary and cross-scale framework for global change and food security researches. <i>Agriculture, Ecosystems and Environment</i> , 2012, 156, 57-71.	2.5	45
13	Nutrient dynamics, microbial growth and weed emergence in biochar amended soil are influenced by time since application and reapplication rate. <i>Agriculture, Ecosystems and Environment</i> , 2012, 158, 192-199.	2.5	186
14	Molecular characterization of <i>Ulex europaeus</i> biochar obtained from laboratory heat treatment experiments – A pyrolysis-GC/MS study. <i>Journal of Analytical and Applied Pyrolysis</i> , 2012, 95, 205-212.	2.6	54
15	Positive effects of composted biochar on plant growth and soil fertility. <i>Agronomy for Sustainable Development</i> , 2013, 33, 817-827.	2.2	252
16	Biochar™s effect on crop productivity and the dependence on experimental conditions – a meta-analysis of literature data. <i>Plant and Soil</i> , 2013, 373, 583-594.	1.8	580
17	Biochar application reduces nodulation but increases nitrogenase activity in clover. <i>Plant and Soil</i> , 2013, 366, 83-92.	1.8	94
18	Contrasting effects of manure and green waste biochars on the properties of an acidic ferralsol and productivity of a subtropical pasture. <i>Plant and Soil</i> , 2013, 366, 213-227.	1.8	121

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20	Biochar in bioenergy cropping systems: impacts on soil faunal communities and linked ecosystem processes. <i>GCB Bioenergy</i> , 2013, 5, 81-95.	2.5	92
21	Shifting paradigms: development of high-efficiency biochar fertilizers based on nano-structures and soluble components. <i>Carbon Management</i> , 2013, 4, 323-343.	1.2	310
22	Enhanced wheat yield by biochar addition under different mineral fertilization levels. <i>Agronomy for Sustainable Development</i> , 2013, 33, 475-484.	2.2	251
23	Assessing potential of biochar for increasing water holding capacity of sandy soils. <i>GCB Bioenergy</i> , 2013, 5, 132-143.	2.5	394
24	Regulating Environmental Factors of Nutrients Release from Wheat Straw Biochar for Sustainable Agriculture. <i>Clean - Soil, Air, Water</i> , 2013, 41, 697-701.	0.7	19
25	Interactions between biochar stability and soil organisms: review and research needs. <i>European Journal of Soil Science</i> , 2013, 64, 379-390.	1.8	388
26	Augmenting soil water storage using uncharred switchgrass and pyrolyzed biochars. <i>Soil Use and Management</i> , 2013, 29, 98-104.	2.6	27
27	An energy-efficient biochar chain involving biomass gasification and rice cultivation in Northern Italy. <i>GCB Bioenergy</i> , 2013, 5, 192-201.	2.5	34
28	Life Cycle Assessment to Evaluate the Environmental Impact of Biochar Implementation in Conservation Agriculture in Zambia. <i>Environmental Science & Technology</i> , 2013, 47, 1206-1215.	4.6	71
29	Using biochar for remediation of soils contaminated with heavy metals and organic pollutants. <i>Environmental Science and Pollution Research</i> , 2013, 20, 8472-8483.	2.7	663
30	Comparison of biochar properties from biomass residues produced by slow pyrolysis at 500°C. <i>Bioresource Technology</i> , 2013, 148, 196-201.	4.8	471
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32	Biochar mitigates negative effects of salt additions on two herbaceous plant species. <i>Journal of Environmental Management</i> , 2013, 129, 62-68.	3.8	222
33	Is biochar a source or sink for polycyclic aromatic hydrocarbon (PAH) compounds in agricultural soils?. <i>GCB Bioenergy</i> , 2013, 5, 96-103.	2.5	119
34	Biochars immobilize soil cadmium, but do not improve growth of emergent wetland species <i>Juncus subsecundus</i> in cadmium-contaminated soil. <i>Journal of Soils and Sediments</i> , 2013, 13, 140-151.	1.5	92
35	Biochar from water hyacinth (<i>Eichornia crassipes</i>) and its impact on soil biological activity. <i>Catena</i> , 2013, 111, 64-71.	2.2	204
36	Life in the "charosphere" – Does biochar in agricultural soil provide a significant habitat for microorganisms?. <i>Soil Biology and Biochemistry</i> , 2013, 65, 287-293.	4.2	407

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37	Production and characterization of slow pyrolysis biochar: influence of feedstock type and pyrolysis conditions. <i>GCB Bioenergy</i> , 2013, 5, 104-115.	2.5	629
38	Impact of wheat straw biochar addition to soil on the sorption, leaching, dissipation of the herbicide (4-chloro-2-methylphenoxy)acetic acid and the growth of sunflower (<i>Helianthus annuus</i> L.). <i>Ecotoxicology and Environmental Safety</i> , 2013, 92, 215-221.	2.9	105
39	Biochar addition indirectly affects N ₂ O emissions via soil moisture and plant N uptake. <i>Soil Biology and Biochemistry</i> , 2013, 58, 99-106.	4.2	177
40	Biochar soil amendment increases tomato seedling resistance to drought in sandy soils. <i>Journal of Arid Environments</i> , 2013, 88, 222-225.	1.2	89
41	Meta-analysis of strategies to control nitrate leaching in irrigated agricultural systems and their effects on crop yield. <i>Agriculture, Ecosystems and Environment</i> , 2013, 174, 1-10.	2.5	246
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43	Impact of biochar on nitrate accumulation in an alkaline soil. <i>Soil Research</i> , 2013, 51, 521.	0.6	32
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45	Direct and Indirect Short-term Effects of Biochar on Physical Characteristics of an Arable Sandy Loam. <i>Soil Science</i> , 2013, 178, 465-473.	0.9	62
46	Effect of Different Biochars on Yield and Yield Components of Wheat on Different Soils. <i>Advanced Materials Research</i> , 2013, 726-731, 2665-2669.	0.3	6
48	Reductions in soil surface albedo as a function of biochar application rate: implications for global radiative forcing. <i>Environmental Research Letters</i> , 2013, 8, 044008.	2.2	32
49	A Smart Technology of Carbon Sequestration by the Use of Biochar. <i>Climate Change Management</i> , 2013, , 587-596.	0.6	0
50	Distributed biochar and bioenergy coproduction: a regionally specific case study of environmental benefits and economic impacts. <i>GCB Bioenergy</i> , 2013, 5, 177-191.	2.5	101
51	Biochar field testing in the UK: outcomes and implications for use. <i>Carbon Management</i> , 2013, 4, 159-170.	1.2	36
52	Heterogeneous global crop yield response to biochar: a meta-regression analysis. <i>Environmental Research Letters</i> , 2013, 8, 044049.	2.2	214
53	A Review: Carbon Dioxide Capture: Biomass-Derived-Biochar and Its Applications. <i>Journal of Dispersion Science and Technology</i> , 2013, 34, 974-984.	1.3	32
54	Biochar-Fungi Interactions in Soils. , 2013, , 77-107.		24
55	The Application of Biochar in the EU: Challenges and Opportunities. <i>Agronomy</i> , 2013, 3, 462-473.	1.3	52

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57	Biochar Effect on Maize Yield and Soil Characteristics in Five Conservation Farming Sites in Zambia. <i>Agronomy</i> , 2013, 3, 256-274.	1.3	222
58	Practicality of Biochar Additions to Enhance Soil and Crop Productivity. <i>Agriculture (Switzerland)</i> , 2013, 3, 715-725.	1.4	73
59	Characterization, Stability, and Plant Effects of Kiln-Produced Wheat Straw Biochar. <i>Journal of Environmental Quality</i> , 2013, 42, 429-436.	1.0	27
60	Effects of Biochar Amendment on Soil Thermal Conductivity, Reflectance, and Temperature. <i>Soil Science Society of America Journal</i> , 2013, 77, 1478-1487.	1.2	79
61	Biochar Alteration of the Sorption of Substrates and Products in Soil Enzyme Assays. <i>Applied and Environmental Soil Science</i> , 2013, 2013, 1-5.	0.8	25
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65	Influence of Calcium Carbonate and Charcoal Applications on Organic Matter Storage in Siltâ€Sized Aggregates Formed during a Microcosm Experiment. <i>Soil Science Society of America Journal</i> , 2014, 78, 1624-1631.	1.2	29
66	Potential risk of biochar-amended soil to aquatic systems: an evaluation based on aquatic bioassays. <i>Ecotoxicology</i> , 2014, 23, 1784-1793.	1.1	42
67	Opportunities and constraints for biochar technology in Australian agriculture: looking beyond carbon sequestration. <i>Soil Research</i> , 2014, 52, 739.	0.6	49
68	From rhetoric to reality: farmer perspectives on the economic potential of biochar in China. <i>International Journal of Agricultural Sustainability</i> , 2014, 12, 440-458.	1.3	49
69	Biochar increases plant-available water in a sandy loam soil under an aerobic rice crop system. <i>Solid Earth</i> , 2014, 5, 939-952.	1.2	73
70	Physicochemical changes in pyrogenic organic matter (biochar) after 15 months of field aging. <i>Solid Earth</i> , 2014, 5, 693-704.	1.2	156
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72	Influence of biochar incorporation on <scp>TDR</scp>â€based soil water content measurements. <i>European Journal of Soil Science</i> , 2014, 65, 105-112.	1.8	35
73	The role of biochar in retaining nutrients in amended tropical soils. <i>Journal of Plant Nutrition and Soil Science</i> , 2014, 177, 671-680.	1.1	62

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75	Coâ€benefits, tradeâ€offs, barriers and policies for greenhouse gas mitigation in the agriculture, forestry and other land use (<sc>AFOLU</sc>) sector. <i>Global Change Biology</i> , 2014, 20, 3270-3290.	4.2	137
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77	Biochars in soils: new insights and emerging research needs. <i>European Journal of Soil Science</i> , 2014, 65, 22-27.	1.8	47
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80	On the importance of accurate reporting: a response to comments on â€~Biochar and its effects on plant productivity and nutrient cycling: a metaâ€™analysisâ€™™. <i>GCB Bioenergy</i> , 2014, 6, 172-175.	2.5	9
81	Farmerâ€™led maize biochar trials: Effect on crop yield and soil nutrients under conservation farming. <i>Journal of Plant Nutrition and Soil Science</i> , 2014, 177, 681-695.	1.1	89
82	Soil biochar amendment in a nature restoration area: effects on plant productivity and community composition. <i>Ecological Applications</i> , 2014, 24, 1167-1177.	1.8	50
83	Use of phytoremediation and biochar to remediate heavy metal polluted soils: a review. <i>Solid Earth</i> , 2014, 5, 65-75.	1.2	372
84	Impacts of 1.5-Year Field Aging on Biochar, Humic Acid, and Water Treatment Residual Amended Soil. <i>Soil Science</i> , 2014, 179, 333-339.	0.9	33
85	Biochar application rate affects biological nitrogen fixation in red clover conditional on potassium availability. <i>Agriculture, Ecosystems and Environment</i> , 2014, 191, 83-91.	2.5	150
86	Improvement to Maize Growth Caused by Biochars Derived From Six Feedstocks Prepared at Three Different Temperatures. <i>Journal of Integrative Agriculture</i> , 2014, 13, 533-540.	1.7	45
87	Effects of Rice Straw and Its Biochar Addition on Soil Labile Carbon and Soil Organic Carbon. <i>Journal of Integrative Agriculture</i> , 2014, 13, 491-498.	1.7	67
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89	Utilization of biochar impregnated with anaerobically digested slurry as slowâ€™release fertilizer. <i>Journal of Plant Nutrition and Soil Science</i> , 2014, 177, 97-103.	1.1	27
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93	Medium-term effects of corn biochar addition on soil biota activities and functions in a temperate soil cropped to corn. <i>Soil Biology and Biochemistry</i> , 2014, 72, 152-162.	4.2	141
94	Agronomic performance of a high ash biochar in two contrasting soils. <i>Agriculture, Ecosystems and Environment</i> , 2014, 191, 99-107.	2.5	120
95	Carbon dioxide emissions from semi-arid soils amended with biochar alone or combined with mineral and organic fertilizers. <i>Science of the Total Environment</i> , 2014, 482-483, 1-7.	3.9	49
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97	Does biochar influence soil physical properties and soil water availability?. <i>Plant and Soil</i> , 2014, 376, 347-361.	1.8	347
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100	Biochar addition affected the dynamics of ammonia oxidizers and nitrification in microcosms of a coastal alkaline soil. <i>Biology and Fertility of Soils</i> , 2014, 50, 321-332.	2.3	158
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102	Effects of biochars produced from different feedstocks on soil properties and sunflower growth. <i>Journal of Plant Nutrition and Soil Science</i> , 2014, 177, 16-25.	1.1	198
103	Biochar, hydrochar and uncarbonized feedstock application to permanent grassland—Effects on greenhouse gas emissions and plant growth. <i>Agriculture, Ecosystems and Environment</i> , 2014, 191, 39-52.	2.5	136
104	Mobile organic compounds in biochar — A potential source of contamination — Phytotoxic effects on cress seed (<i>Lepidium sativum</i>) germination. <i>Journal of Environmental Management</i> , 2014, 137, 111-119.	3.8	132
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106	Effects of co-produced biochar on life cycle greenhouse gas emissions of pyrolysis-derived renewable fuels. <i>Biofuels, Bioproducts and Biorefining</i> , 2014, 8, 189-204.	1.9	31
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108	Stimulation of boreal tree seedling growth by wood-derived charcoal: effects of charcoal properties, seedling species and soil fertility. <i>Functional Ecology</i> , 2014, 28, 766-775.	1.7	55
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111	Comparative analysis of the microbial communities in agricultural soil amended with enhanced biochars or traditional fertilisers. <i>Agriculture, Ecosystems and Environment</i> , 2014, 191, 73-82.	2.5	171
112	Plant growth responses to biochar addition: an Australian soils perspective. <i>Biology and Fertility of Soils</i> , 2014, 50, 1035-1045.	2.3	102
113	Biochars provoke diverse soil mesofauna reproductive responses in laboratory bioassays. <i>European Journal of Soil Biology</i> , 2014, 60, 104-111.	1.4	90
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116	Predicting the effects of biochar on volatile petroleum hydrocarbon biodegradation and emanation from soil: A bacterial community finger-print analysis inferred modelling approach. <i>Soil Biology and Biochemistry</i> , 2014, 68, 20-30.	4.2	33
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118	C mineralization and microbial activity in four biochar field experiments several years after incorporation. <i>Soil Biology and Biochemistry</i> , 2014, 78, 195-203.	4.2	138
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120	Environmental and Socioeconomic Impacts of Utilizing Waste for Biochar in Rural Areas in Indonesia—A Systems Perspective. <i>Environmental Science & Technology</i> , 2014, 48, 4664-4671.	4.6	46
121	A mycorrhizal fungus grows on biochar and captures phosphorus from its surfaces. <i>Soil Biology and Biochemistry</i> , 2014, 77, 252-260.	4.2	184
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123	Application of biochars to sandy and silty soil failed to increase maize yield under common agricultural practice. <i>Soil and Tillage Research</i> , 2014, 144, 184-194.	2.6	142
124	The role of sulfur- and phosphorus-mobilizing bacteria in biochar-induced growth promotion of <i>Lolium perenne</i> . <i>FEMS Microbiology Ecology</i> , 2014, 90, 78-91.	1.3	107
125	Evaluation of the thermal and environmental stability of switchgrass biochars by Py-GC-MS. <i>Journal of Analytical and Applied Pyrolysis</i> , 2014, 110, 239-247.	2.6	46
126	Biofuels from Pyrolysis in Perspective: Trade-offs between Energy Yields and Soil-Carbon Additions. <i>Environmental Science & Technology</i> , 2014, 48, 6492-6499.	4.6	58
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129	The biochar dilemma. <i>Soil Research</i> , 2014, 52, 217.	0.6	178
130	Short-Term Interactive Effects of Biochar, Green Manure, and Inorganic Fertilizer on Soil Properties and Agronomic Characteristics of Maize. <i>Agricultural Research</i> , 2014, 3, 128-136.	0.9	45
131	Effects of Biochar and Anaerobic Digester Effluent on Soil Quality and Crop Growth in Karnataka, India. <i>Agricultural Research</i> , 2014, 3, 137-147.	0.9	19
132	Effect of biochar on aerobic processes, enzyme activity, and crop yields in two sandy loam soils. <i>Biology and Fertility of Soils</i> , 2014, 50, 1087-1097.	2.3	67
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136	Soil amendment with biochar increases the competitive ability of legumes via increased potassium availability. <i>Agriculture, Ecosystems and Environment</i> , 2014, 191, 92-98.	2.5	114
137	Surface Properties and Chemical Composition of Corncob and Miscanthus Biochars: Effects of Production Temperature and Method. <i>Journal of Agricultural and Food Chemistry</i> , 2014, 62, 3791-3799.	2.4	129
138	Effects of biochars and hydrochars produced from lignocellulosic and animal manure on fertility of a Mollisol and Entisol. <i>Soil Use and Management</i> , 2014, 30, 175-181.	2.6	21
139	Sustainable biochar effects for low carbon crop production: A 5-crop season field experiment on a low fertility soil from Central China. <i>Agricultural Systems</i> , 2014, 129, 22-29.	3.2	77
140	Black carbon and soil properties at historical charcoal production sites in Germany. <i>Geoderma</i> , 2014, 232-234, 236-242.	2.3	85
141	Changes in Respiratory Function Following Intermittent Living in the Upland Environment and the Lowland Environment. <i>Journal of Physical Therapy Science</i> , 2014, 26, 335-339.	0.2	2
142	Short-Term Effect of Feedstock and Pyrolysis Temperature on Biochar Characteristics, Soil and Crop Response in Temperate Soils. <i>Agronomy</i> , 2014, 4, 52-73.	1.3	41
143	Shifting chars? Aligning climate change, carbon abatement, agriculture, land use and food safety and security policies. <i>Carbon Management</i> , 2014, 5, 119-121.	1.2	0
144	Emission of CO_2 from biochar-amended soils and implications for soil organic carbon. <i>GCB Bioenergy</i> , 2015, 7, 1294-1304.	2.5	76
145	Competing uses for China's straw: the economic and carbon abatement potential of biochar. <i>GCB Bioenergy</i> , 2015, 7, 1272-1282.	2.5	115

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147	Effect of Biochar on Nutrient Leaching in a Young Apple Orchard. <i>Journal of Environmental Quality</i> , 2015, 44, 1273-1282.	1.0	34
148	A dual-isotope approach to allow conclusive partitioning between three sources. <i>Nature Communications</i> , 2015, 6, 8708.	5.8	30
149	Introduction to Biochar as an Agricultural and Environmental Amendment. <i>SSSA Special Publication Series</i> , 0, , 1-14.	0.2	20
150	The Effects of Biochar Amendment on Soil Fertility. <i>SSSA Special Publication Series</i> , 0, , 123-144.	0.2	30
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