

Eligible Biochar Feedstocks List

March 19, 2024

The feedstocks listed below are eligible for inclusion under a biochar project registering under the Reserve’s U.S. and Canada Biochar Protocol. All feedstock sourcing operations must comply with relevant environmental laws and regulations, as described in the protocol. Assumed business as usual fate for each feedstock source is identified, as are any additional environmental safeguards. Environmental safeguards for biochar applications are specified separately in the Eligible Biochar End Uses List.

Feedstock categories	Eligible sources	Assumed business as usual fate(s)	Environmental safeguards
Agricultural waste	Harvest residues (straw, stalks, etc.)	Combustion; decomposition	Retention of significant residue amounts is required to maintain soil organic carbon and productivity of the site. Documentation that residues have not been removed from the feedstock site in excess of the amounts identified by crop type in Table S10 of Karan et al. (2023); ¹ for any crop types not listed, a limit of 30% residue removal is applied. Exceptions to these limits are allowed when biochar from the project is returned to the site where feedstocks were removed in amounts that ensure the amount of organic carbon removed in excess of the applicable limit is returned in the form of organic carbon in biochar.
	Orchard, vineyard, woody biomass prunings	Combustion (e.g., pile burning); decomposition	Demonstrate activity is part of normal management cycle/operations
	Orchard/vineyard renewal clearings	Combustion (e.g., pile burning); decomposition	
	Fruit and vegetable residues, including nut shells	Decomposition	None
Anaerobic Digestion Waste	Digestate from biodigesters	Decomposition	None

¹ Karan, S. K., Woolf, D., Azzi, E. S., Sundberg, C., & Wood, S. A. (2023). Potential for biochar carbon sequestration from crop residues: A global spatially explicit assessment. *GCB Bioenergy*, 15(12), 1424-1436, DOI: 10.1111/gcbb.13102.

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Animal husbandry waste	Animal manure	Decomposition; combustion	None
Aquaculture by-products	Plants/organisms growing as a by-product to aquaculture operations, such as seaweed, waste algae, invasive plant species	Decomposition	If invasive species are harvested, must demonstrate that the species were not intentionally introduced to provide feedstock for biochar.
Food processing residues	By-products, residues and waste biomass from food processing operations, including washing, cleaning, peeling, centrifugation, and separation	Decomposition	Rate of residue per unit of food processed must not increase to provide biochar feedstock
	Expired food	Decomposition	None
	Food service (e.g., restaurants/kitchens) organic waste/residues	Decomposition	
Forestry	By-products and residues from harvesting or forest management activities (e.g., slash), including biomass treated and/or removed during fuel reduction or pest management activities	Combustion (e.g., pile burning); decomposition	Demonstrate that feedstock is a waste or by-product of harvesting operations or forest management activities. Material from in-forest biomass must be less than 10" diameter, excepting cases where the Project Developer can demonstrate larger material is being removed to address heightened risks of fire, insect infestations, or human safety.
	Non-merchantable post-disturbance (pest infestation, wildfire, windthrow) woody biomass	Combustion (e.g., pile burning); decomposition	Provide evidence of disturbance Material from in-forest biomass must be less than 10" diameter, excepting cases where the Project Developer can demonstrate larger material is being removed to address heightened risks of fire, insect infestations, or human safety.
	Waste and residues from management of woody vegetation associated with agroforestry and rangelands	Combustion (e.g., pile burning); decomposition	Demonstrate activity is part of normal management cycle/operations

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Purpose-grown biomass	Perennial, non-woody species	Combustion; no business as usual fate, i.e., not previously grown	<p>Must meet conditions specified for performance standard test for feedstocks, as specified in the protocol.</p> <p>Must be a native species or sterile hybrid if a non-native species.</p> <p>Must not replace existing commodity crops.</p> <p>Harvesting activities must involve minimal soil disturbance.</p>
Sewage sludge	Biosolids	Decomposition	None
Urban waste	Urban/rural green waste (e.g., prunings/cuttings, landscaping residues)	Decomposition	None
	Construction/lumber waste	Decomposition	Biochar produced using temperatures <500° C must be tested for polychlorinated biphenyls (PCBs)
	Wastepaper and cardboard	Decomposition	
	Biomass component of municipal solid waste, with documentation of how the biomass component is isolated from non-biomass components	Decomposition	
Wood processing	By-products and residues from wood processing facilities (e.g., sawmill sawdust)	Combustion; decomposition	None