

Statement of purpose of bill as introduced: This bill proposes to authorize the use of biochar in agricultural waste storage facilities for the purposes of odor control and nutrient retention. The bill also requires the Secretary of Agriculture, Food and Markets to submit to the General Assembly a report recommending additional uses of biochar in farming in Vermont. Similarly, the bill would require the Commissioner of Forests, Parks and Recreation to report to the General Assembly regarding the feasibility of establishing or enhancing the production of biochar in the State.

It is hereby enacted by the General Assembly of the State of Vermont:

Sec. 1. FINDINGS

The General Assembly finds that:

(1) Biochar is a carbon-rich solid produced by the thermochemical conversion of organic matter through a process called pyrolysis.

(2) The production and use of biochar can have a significant, positive impact in the areas of energy, agriculture, [waste reduction](#), [physical products made of carbon](#), and the environment.

(3) Biochar has been shown to increase soil fertility by improving nutrient and water retention, lowering density, and increasing microbial activity, thereby improving water quality by reducing soil erosion and nutrient runoff.

(4) The use of biochar in liquid manure or bedded pack effectively binds ammonium and ammonia, thereby increasing the plant-available nitrogen when spread on fields, along with a significant decrease in or elimination of odor. [Similarly, biochar can filter phosphorous from farm run-off, cutting off vital nutrients to nuisances including blue-green phytoplankton algae.](#)

(5) The addition of biochar to bedded pack and liquid manure has been shown to reduce emissions of methane and nitrous oxide, both potent greenhouse gases. [Once saturated with manure, biochar can be spread onto fields without odor and slowly release nutrients into soils.](#)

(6) Biochar can be produced from many forms of organic matter including whole trees, residual forest materials, wood chips, [perennial grasses](#), wheat straw, spoiled hay, food processing waste, demolition waste, sewage sludge, invasive species, and many other forms of agricultural and municipal waste. [\[PLEASE OMIT DEMOLITION WASTE\]](#)

(7) The production of biochar could enhance rural economic development and employment, including providing a market for low-grade [and unsaleable](#) wood harvested in Vermont.

(8) To fully realize the soil health and odor control benefits of the use of biochar in agriculture, the State should authorize [and encourage](#) the addition of biochar to agricultural waste storage facilities and the use of biochar as a soil amendment.

(9) To determine the feasibility of biochar production in the State as a potential contributor to rural economic development, the State should require the Commissioner of Forests, Parks and

Recreation to analyze the feasibility of establishing a biochar production facility or industry in Vermont.

(10) To better understand all of the potential uses of biochar in agriculture, the State should require the Secretary of Agriculture, Food and Markets to recommend additional beneficial uses of biochar for farming in Vermont.

Sec. 2. 6 V.S.A. § 4802 is amended to read:

§ 4802 DEFINITIONS

As used in this chapter:

(1) “Agency” means the Agency of Agriculture, Food and Markets.

(2) “Farming” has the same meaning as used in 10 V.S.A. § 6001(22).

(5) “Manure” means livestock waste in solid or liquid form that may also contain bedding, spilled feed, water, or soil.

(6) “Secretary” means the Secretary of Agriculture, Food and Markets.

(8) “Waste” or “agricultural waste” means material originating or emanating from a farm that is determined by the Secretary or the Secretary of Natural Resources to be harmful to the waters of the State, including: sediments; minerals, including heavy metals; plant nutrients; pesticides; organic wastes, including livestock waste, animal mortalities, compost, feed and crop debris; waste oils; pathogenic bacteria and viruses; thermal pollution; silage runoff; untreated milk house waste; and any other farm waste as the term “waste” is defined in 10 V.S.A. § 1251(12).

(10) “Biochar” means material derived from thermochemical conversion of biomass in an oxygen-limited environment containing at least 60 percent carbon. [MAKE THIS 30% PLEASE.](#)

Sec. 3. 6 V.S.A. § 4815 is amended to read:

§ 4815. WASTE STORAGE FACILITY

(a) No person shall construct a new waste storage facility or expand or modify a waste storage facility in existence on July 1, 2006 unless the facility meets the standard established for such facilities by the Natural Resources Conservation Service of the U.S. Department of Agriculture or an equivalent standard. If an equivalent design standard is used, the design and construction shall be certified by the Secretary of Agriculture, Food and Markets or a licensed professional engineer operating within the scope of his or her expertise.

(c) As used in this section, “waste storage facility” means an impoundment made for the purpose of storing agricultural waste by constructing an embankment, excavating a pit or dugout, fabricating an inground and aboveground structure, or any combination thereof.

(d) Biochar may be added to a waste storage facility for the purposes of odor control of agricultural waste in the facility or for the purposes of increasing nutrient retention of agricultural waste applied to fields.

Sec. 4. AGENCY OF AGRICULTURE, FOOD AND MARKETS; REPORT -ON USE OF BIOCHAR IN FARMING

(a) As used in this section:

(1) “Biochar” means material derived from thermochemical conversion of biomass in an oxygen-limited environment containing at least 60 percent carbon.

(2) “Farming” has the same meaning as in 10 V.S.A. § 6001(22).

(b) On or before January 15, 2021, the Secretary of Agriculture, Food and Markets shall submit to the House Committee on Agriculture and Forestry and the Senate Committee on Forestry a report recommending additional uses of biochar in farming in Vermont. The report shall address:

- (1) how biochar may be used as a soil amendment to improve soil health, retain carbon, or reduce nutrient runoff;
- (2) how biochar may be used in the preparation or production of fuel or power from agricultural products or wastes;
- (3) how biochar may be used as commercial feed in the State, including any legislative or regulatory amendments necessary to use biochar as commercial feed; and
- (4) any other recommendation that the Secretary deems relevant regarding the use of biochar in farming in Vermont.

Sec. 5. COMMISSIONER OF FORESTS, PARKS AND RECREATION; REPORT ON BIOCHAR PRODUCTION IN THE STATE

(a) On or before January 15, 2021, the Commissioner of Forests, Parks and Recreation shall submit to the House Committee on Agriculture and Forestry and the Senate Committee on Agriculture a report analyzing the feasibility of establishing or enhancing the production of biochar in the State. The report shall:

- (1) summarize existing biochar production in the State;
- (2) summarize the biochar production process, including the equipment necessary, production process, wood supply required, and the amount of land needed for production;
- (3) summarize the existing State and regional markets for the use of biochar, including any recommendations for expanding State and regional markets for biochar;

(4) analyze whether wood products harvested in Vermont, including soft woods, are currently being used in biochar production; and

(5) recommend whether or not the State should enhance or incent the development of a biochar production facility or industry in Vermont.

(b) "Biochar" means material derived from thermochemical conversion of biomass in an oxygen-limited environment containing at least 60 percent carbon.

Sec. 6. EFFECTIVE DATE

This act shall take effect on passage.