

117TH CONGRESS
2D SESSION

S. 4895

To amend the Agricultural Research, Extension, and Education Reform Act of 1998 to direct the Secretary of Agriculture to establish a national biochar research network, and for other purposes.

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 20, 2022

Mr. GRASSLEY (for himself, Mr. BROWN, Mr. THUNE, and Mr. TESTER) introduced the following bill; which was read twice and referred to the Committee on Agriculture, Nutrition, and Forestry

A BILL

To amend the Agricultural Research, Extension, and Education Reform Act of 1998 to direct the Secretary of Agriculture to establish a national biochar research network, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Biochar Research Net-
5 work Act of 2022”.

1 **SEC. 2. NATIONAL BIOCHAR RESEARCH NETWORK.**

2 Title IV of the Agricultural Research, Extension, and
3 Education Reform Act of 1998 is amended by inserting
4 before section 404 (7 U.S.C. 7624) the following:

5 **“SEC. 403. NATIONAL BIOCHAR RESEARCH NETWORK.**

6 “(a) ESTABLISHMENT.—The Secretary shall estab-
7 lish a national biochar research network (referred to in
8 this section as the ‘research network’) of not more than
9 20 research stations or facilities described in subsection
10 (c) to test the full range of biochar types across soil types,
11 soil conditions, application methods, and climatic and ag-
12 ronomic regions—

13 “(1) to assess the soil carbon sequestration po-
14 tential of biochar;

15 “(2) to understand how to use biochar produc-
16 tively to contribute to climate mitigation, crop pro-
17 duction, resilience to extreme weather events, eco-
18 system health, and natural resource conservation;
19 and

20 “(3) to deliver science-based, region-specific,
21 cost-effective, and practical information to farmers,
22 ranchers, foresters, land reclamation managers,
23 urban land managers, and other land and natural
24 resource managers and businesses on sustainable
25 biochar production and application.

26 “(b) SCOPE.—

1 “(1) IN GENERAL.—The research network shall
2 encompass—

3 “(A) agriculture, horticulture, rangeland,
4 forestry, and other biochar uses; and

5 “(B) a broad range of feedstocks, produc-
6 tion processes, and application treatments.

7 “(2) RESEARCH.—The research conducted by
8 the research network shall include—

9 “(A) cross-site and mechanistic experi-
10 ments—

11 “(i) to fill critical knowledge gaps and
12 gain a more complete understanding of the
13 impact of various types of biochar in vary-
14 ing site conditions on soil properties, plant
15 growth, greenhouse gas emissions, and car-
16 bon sequestration in different soils, cli-
17 mates, and other natural and agronomic
18 conditions;

19 “(ii) to provide mechanistic and
20 technoeconomic insights on thermochemical
21 conversion processes in biochar production
22 and the coproduction of biochar and bio-
23 energy, including interactions of feedstock
24 properties with reactor conditions and
25 processes on the relative proportions and

1 properties of biochar, biofuels, and value-
2 added coproducts, as well as process effi-
3 ciency;

4 “(iii) to generate data to develop, cali-
5 brate, and validate robust mechanistic
6 models to predict the full life cycle of
7 greenhouse gas, crop response, and related
8 agronomic and environmental implications
9 of particular applications of biochar;

10 “(iv) to generate data to help guide
11 the design of new, more efficient biochar
12 and bioenergy production reactors and bio-
13 refineries; and

14 “(v) to generate data to develop, cali-
15 brate, and validate testing methodologies
16 for biochar to identify potential contami-
17 nants or other factors that may cause un-
18 intended consequences; and

19 “(B) site-specific farm and forestry sys-
20 tems assessments and pilot-scale biochar pro-
21 duction and application systems—

22 “(i) to refine the most promising soil-
23 based uses, sources, and methods of pro-
24 ducing and applying biochar in particular
25 regions—

- 1 “(I) to enhance productivity;
- 2 “(II) to increase profitability,
- 3 scalability, and portability;
- 4 “(III) to reduce greenhouse gas
- 5 emissions;
- 6 “(IV) to improve ecosystem
- 7 health;
- 8 “(V) to strengthen resilience to
- 9 extreme weather events; and
- 10 “(VI) to explore soil, crop, cli-
- 11 mate, management, and biochar inter-
- 12 actions;
- 13 “(ii) to develop new knowledge to sup-
- 14 port decisions on sustainable production
- 15 and use of biochar;
- 16 “(iii) to collect relevant data needed
- 17 for full life cycle greenhouse gas and eco-
- 18 nomic analyses and complete those anal-
- 19 ysis;
- 20 “(iv) to predict plant response, soil
- 21 health, soil carbon sequestration, eco-
- 22 system health, water quality, greenhouse
- 23 gas, and economic outcomes for specific
- 24 implementations of biochar technology;

1 “(v) to provide data to evaluate local
2 biomass feedstocks, support selection of
3 sustainable biochar production methods,
4 and address biochar production issues; and

5 “(vi) to share research results to in-
6 form farmers, horticulturalists, ranchers,
7 foresters, urban biochar users, extension
8 agents and specialists, and technical assist-
9 ance providers on the most advantageous
10 ways to use biochar to increase profit-
11 ability, raise productivity, lower costs, im-
12 prove soil and plant health, and enhance
13 resilience to extreme weather events while
14 contributing to carbon sequestration and
15 greenhouse gas reductions.

16 “(c) ELIGIBILITY.—An entity shall be eligible to be
17 selected to conduct research as part of the research net-
18 work if the entity is—

19 “(1) a State agricultural experiment station or
20 a State forestry experiment station;

21 “(2) a research facility of the Agricultural Re-
22 search Service, the Forest Service, or any other
23 agency of the Department of Agriculture that the
24 Secretary determines to be appropriate; or

1 “(3) a research facility of the Department of
2 Energy, the Department of Commerce, or the De-
3 partment of the Interior.

4 “(d) ADMINISTRATION.—

5 “(1) IN GENERAL.—The research network shall
6 be administered by the Administrator of the Agricul-
7 tural Research Service, in partnership with—

8 “(A) the Chief of the Forest Service;

9 “(B) the Director of the National Institute
10 of Food and Agriculture;

11 “(C) the Secretary of Energy;

12 “(D) the Secretary of Commerce;

13 “(E) the Secretary of the Interior; and

14 “(F) such other agencies of the Depart-
15 ment of Agriculture as the Secretary determines
16 to be appropriate.

17 “(2) CONSERVATION.—The Secretary, acting
18 through the Chief of the Natural Resources Con-
19 servation Service—

20 “(A) may develop a practice standard in-
21 formed by the research conducted by the re-
22 search network; and

23 “(B) shall coordinate the activities of the
24 research network with—

1 “(i) the development and refinement
2 of a biochar conservation practice stand-
3 ard; and

4 “(ii) improvements and expansion of
5 conservation program technical and finan-
6 cial support for biochar production and ap-
7 plication.

8 “(e) AUTHORIZATION OF APPROPRIATIONS.—There
9 is authorized to be appropriated to carry out this section
10 \$50,000,000 for each of fiscal years 2023 through 2028.”.

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