119TH CONGRESS
1ST SESSION

S. _____

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

Mr. GRASSLEY (for himself and Mr. HEINRICH) introduced the following bill; which was read twice and referred to the Committee on _____

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.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Biochar Research Network Act of 2025''.

SEC. 2. NATIONAL BIOCHAR RESEARCH NETWORK.

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

"SEC. 403. NATIONAL BIOCHAR RESEARCH NETWORK.

''(a) ESTABLISHMENT.—The Secretary shall establish a national biochar research network (referred to in this section as the 'research network') of not more than 20 research sites or facilities described in subsection (c) to test the full range of biochar types across soil types, soil health and soil management conditions, application methods, and climatic and agronomic regions—

''(1) to assess the soil carbon sequestration potential of various biochars and management systems integrating biochar use;

''(2) to understand how to use biochar productively to contribute to climate mitigation, crop production, resilience to extreme weather events, ecosystem and soil health, natural resource conservation, and farm profitability; and

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

''(b) SCOPE.—

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

''(A) agriculture, horticulture, rangeland, forestry, and other biochar uses; and

''(B) a broad range of feedstocks, production processes, and application treatments.

''(2) RESEARCH.—The research conducted by the research network shall include—

''(A) cross-site and mechanistic experiments—

''(i) to fill critical knowledge gaps and gain a more complete understanding of the impact of various types of biochar in varying site conditions on soil properties, plant growth, greenhouse gas emissions, and carbon sequestration in different soils, climates, and other natural and agronomic conditions;

''(ii) to provide mechanistic and technoeconomic insights on thermochemical conversion processes in biochar production and the coproduction of biochar and bioenergy, including interactions of feedstock properties with reactor conditions and

processes on the relative proportions and properties of biochar, biofuels, and value-added coproducts, as well as process efficiency;

"(iii) to generate data to develop, calibrate, and validate robust mechanistic models to predict the full life cycle of greenhouse gas, crop response, and related agronomic and environmental implications of particular applications of biochar;

"(iv) to generate data to help guide the design of new, more efficient biochar and bioenergy production reactors and biorefineries; and

"(v) to generate data to develop, calibrate, and validate testing methodologies for biochar to identify potential contaminants or other factors that may cause unintended consequences; and

"(B) site-specific farm and forestry systems assessments and pilot-scale biochar production and application systems—

"(i) to refine the most promising soil-based uses, sources, and methods of pro-

ducing and applying biochar in particular regions—

"(I) to enhance productivity;

"(II) to increase profitability, scalability, and portability;

"(III) to reduce greenhouse gas emissions;

"(IV) to improve ecosystem and soil health;

"(V) to strengthen resilience to extreme weather events; and

"(VI) to explore soil, crop, climate, management, and biochar interactions;

"(ii) to develop new knowledge to support decisions on sustainable production and use of biochar;

"(iii) to collect relevant data needed for full life cycle greenhouse gas and economic analyses and complete those analysis;

"(iv) to predict plant response, soil health, soil carbon sequestration, ecosystem health, water quality, greenhouse

gas, and economic outcomes for specific implementations of biochar technology;

''(v) to provide data to evaluate local biomass feedstocks, support selection of sustainable biochar production methods, and address biochar production issues; and

''(vi) to share research results to inform farmers, horticulturalists, ranchers, foresters, urban biochar users, extension agents and specialists, and technical assistance providers on the most advantageous ways to use biochar to increase profitability, raise productivity, lower costs, improve soil and plant health, and enhance resilience to extreme weather events while contributing to carbon sequestration and greenhouse gas reductions.

''(c) ELIGIBILITY.—An entity shall be eligible to be selected to conduct research as part of the research network if the entity is—

''(1) a State agricultural experiment station or a State forestry experiment station;

''(2) a research facility of the Agricultural Research Service, the Forest Service, or any other

agency of the Department of Agriculture that the Secretary determines to be appropriate; or

''(3) a research facility of the Department of Energy, the Department of Commerce, or the Department of the Interior.

''(d) ADMINISTRATION.—

''(1) IN GENERAL.—The research network shall be administered by the Administrator of the Agricultural Research Service, in partnership with—

''(A) the Chief of the Forest Service;

''(B) the Director of the National Institute of Food and Agriculture;

''(C) the Secretary of Energy;

''(D) the Secretary of Commerce;

''(E) the Secretary of the Interior; and

''(F) such other agencies of the Department of Agriculture as the Secretary determines to be appropriate.

''(2) CONSERVATION.—The Secretary, acting through the Chief of the Natural Resources Conservation Service—

''(A) may develop or revise practice standards informed by the research conducted by the research network; and

"(B) shall coordinate the activities of the research network with—

"(i) the development, expansion, and refinement of conservation practice standards for biochar production and use for soil and forest health, climate adaptation and mitigation, and other conservation purposes; and

"(ii) improvements and expansion of conservation program technical and financial support for biochar production, application, and integration into soil health management systems and other conservation approaches.

"(e) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $50,000,000 for each of fiscal years 2025 through 2030.".