II

118TH CONGRESS
1ST SESSION

S. 1778

To require the Secretary of Agriculture to carry out a study and research and demonstration on agrivoltaic systems.

IN THE SENATE OF THE UNITED STATES

MAY 31 (legislative day, MAY 30), 2023

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

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A BILL

To require the Secretary of Agriculture to carry out a study and research and demonstration on agrivoltaic systems.

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 ''Agrivoltaics Research and Demonstration Act of 2023''.

SEC. 2. AGRIVOLTAIC SYSTEMS.

(a) DEFINITION OF AGRIVOLTAIC SYSTEM.—In this section, the term ''agrivoltaic system'' means a system under which solar energy production and agricultural production, including crop or animal production, occurs in an

integrated manner on the same piece of land through the duration of a project.

(b) STUDY.—

(1) IN GENERAL.—The Secretary of Agriculture (referred to in this section as the ''Secretary''), in coordination with the Secretary of Energy and relevant experts, shall conduct a study on agrivoltaic systems that shall include—

(A) a review of the current research and gaps in research relating to the regional compatibility of different species of livestock with different agrivoltaic panel and agrivoltaic system designs, including—

(i) the optimal height of and distance between solar panels for—

(I) livestock grazing; and

(II) shade for livestock;

(ii) manure management considerations;

(iii) fencing requirements;

(iv) other animal handling considerations; and

(v) the incorporation of apiculture;

(B) an assessment of animal breeding research needs with respect to beneficial and com-

patible characteristics and behaviors of different species of grazing animals in agrivoltaic systems;

(C) a review of the current research and gaps in research relating to the regional compatibility of different crop types with different agrivoltaic system designs, including—

(i) the optimal height of and distance between solar panels for—

(I) plant shading; and

(II) farm equipment use;

(ii) the impact on crop yield;

(iii) the impact on soil moisture and water availability; and

(iv) market opportunities to sell crops at a premium price;

(D) an assessment of plant breeding research needs with respect to beneficial and compatible characteristics of different crops, including specialty and perennial crops, in agrivoltaic systems;

(E) a risk-benefit analysis of agrivoltaic systems in different regions of the United States, including a comparison between the total greenhouse gas impact of agrivoltaic sys-

tems and solar energy systems that displace agricultural production;

(F) an assessment of the economic scalability of agrivoltaic systems across different agricultural land types, production systems, and regional markets;

(G) an assessment of the types of agricultural land best suited and worst suited for agrivoltaic systems;

(H) an assessment of how to best develop agrivoltaic systems on a national and local scale consistent with—

(i) maintaining or increasing agricultural production;

(ii) increasing agricultural resilience;

(iii) retaining prime farmland;

(iv) increasing economic opportunities in farming and rural communities;

(v) reducing nonfarmer ownership of farmland; and

(vi) enhancing biodiversity;

(I) an assessment of the unique risk management and crop insurance needs of agrivoltaic systems;

(J) an assessment of how Federal procurement of agricultural products could help build a market for agricultural products from farms with agrivoltaic systems; and

(K) an assessment of appropriate modifications to better incorporate agrivoltaic systems into existing Federal—

(i) agricultural conservation programs;

(ii) agricultural risk management programs, including Federal crop insurance;

(iii) renewable energy programs;

(iv) agricultural procurement programs; and

(v) investment tax credits.

(2) 5-YEAR PLAN.—Based on the study under paragraph (1), the Secretary shall develop a 5-year plan for using the research, extension, outreach, conservation, and renewable energy activities of the Department of Agriculture to better support agrivoltaic systems that do not displace agricultural production.

(3) REPORT.—Not later than 3 years after the date of enactment of this Act, the Secretary shall submit to the Committee on Agriculture of the House of Representatives and the Committee on Ag-

riculture, Nutrition, and Forestry of the Senate a report containing the results of the study conducted under paragraph (1).

(4) REGULATORY DEFINITION.—

(A) IN GENERAL.—Based on the study under paragraph (1), the Secretary, in consultation with the Secretary of Energy and farm and conservation groups, shall develop a definition of the term ''agrivoltaic system'' for purposes of the incorporation of agrivoltaic systems into Federal—

(i) agricultural conservation programs;

(ii) agricultural risk management programs, including Federal crop insurance;

(iii) renewable energy programs;

(iv) agricultural procurement programs; and

(v) investment tax credits.

(B) CONSIDERATIONS.—In developing the definition of ''agrivoltaic system'' under subparagraph (A), the Secretary shall consider—

(i) using or modifying the definition described in subsection (a);

(ii) regional needs and variations in climate, soils, costs, existing infrastructure, and market access for agrivoltaic system products;

(iii) existing State and local agrivoltaic system policies and definitions; and

(iv) such other factors as the Secretary determines to be appropriate.

(c) AGRIVOLTAIC SYSTEM RESEARCH AND DEMONSTRATION.—

(1) IN GENERAL.—The Secretary, acting through the Administrator of the Agricultural Research Service and in coordination with the Director of the National Institute of Food and Agriculture and the relevant research programs of the Department of Energy, shall establish and maintain a network of research and demonstration sites operated by the Agricultural Research Service to investigate and demonstrate agrivoltaic systems in multiple regions of the United States, including arid, semi-arid, and wet agricultural zones, that—

(A) increase agricultural productivity and profitability;

(B) enhance agricultural resilience and the capacity to mitigate and adapt to climate change;

(C) protect biodiversity; and

(D) increase economic opportunities in farming and rural communities.

(2) COLLABORATION.—In establishing and maintaining the network described in paragraph (1), the Secretary shall collaborate with USDA Climate Hubs and extension programs to share research findings and translate research findings into educational, outreach, and technical assistance materials for agricultural producers.

(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $15,000,000 for each of fiscal years 2024 through 2028.

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