

118TH CONGRESS
2D SESSION

H. R. 7391

To require the Secretary of Agriculture to carry out a study and research and demonstration on agrivoltaic systems and to issue guidance on best practices for protection of soil health and productivity during the siting, construction, operation, and decommissioning of solar energy systems on agricultural land.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 15, 2024

Mr. SORENSEN (for himself, Ms. PINGREE, and Ms. CROCKETT) introduced the following bill; which was referred to the Committee on Agriculture

A BILL

To require the Secretary of Agriculture to carry out a study and research and demonstration on agrivoltaic systems and to issue guidance on best practices for protection of soil health and productivity during the siting, construction, operation, and decommissioning of solar energy systems on agricultural land.

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 “Securing and Under-
5 standing our National Renewable Agriculture Yields for
6 Energy Act” or the “SUNRAY for Energy Act”.

1 **SEC. 2. AGRIVOLTAIC SYSTEMS.**

2 (a) DEFINITION OF AGRIVOLTAIC SYSTEM.—

3 (1) IN GENERAL.—The Secretary of Agriculture
4 (referred to in this section as the “Secretary”) shall
5 incorporate the definition of the term “agrivoltaic
6 system” under paragraph (2) into all applicable pro-
7 grams of the Department of Agriculture relating to
8 agrivoltaic systems.

9 (2) DEFINITION OF AGRIVOLTAIC SYSTEM.—

10 (A) IN GENERAL.—The term “agrivoltaic
11 system”—

12 (i) means a system under which solar
13 energy production and agricultural produc-
14 tion, including crop or animal production,
15 occurs in an integrated manner on the
16 same piece of land through the duration of
17 a solar project; and

18 (ii) includes any subsequent definition
19 developed under subparagraph (B).

20 (B) SUBSEQUENT DEFINITION.—

21 (i) IN GENERAL.—The Secretary, in
22 consultation with the Secretary of Energy
23 and farm and conservation groups, shall
24 develop a definition of the term
25 “agrivoltaic system” for purposes of the in-
26 corporation of agrivoltaic systems into—

1 (I) Federal agricultural conserva-
2 tion programs;

3 (II) Federal agricultural risk
4 management programs, including
5 Federal crop insurance;

6 (III) Federal renewable energy
7 programs;

8 (IV) Federal agricultural pro-
9 curement programs;

10 (V) Federal investment tax cred-
11 its;

12 (VI) such other programs as the
13 Secretary determines to be appro-
14 priate; and

15 (VII) the regulations of the Sec-
16 retary relating to the programs de-
17 scribed in subclauses (I) through (VI).

18 (ii) CONSIDERATIONS.—In developing
19 the definition of “agrivoltaic system”
20 under clause (i), the Secretary shall con-
21 sider—

22 (I) using or modifying the defini-
23 tion under subparagraph (A)(i);

24 (II) regional needs and variations
25 in climate, soils, costs, existing infra-

1 structure, and market access for
2 agrivoltaic system products;

3 (III) existing State and local
4 agrivoltaic system policies and defini-
5 tions; and

6 (IV) such other factors as the
7 Secretary determines to be appro-
8 priate.

9 (b) STUDY.—

10 (1) IN GENERAL.—The Secretary, in coordina-
11 tion with the Secretary of Energy and relevant ex-
12 perts, shall conduct a study on agrivoltaic systems
13 that shall include—

14 (A) a review of the current research and
15 gaps in research relating to the regional com-
16 patibility of different species of livestock with
17 different agrivoltaic panel and agrivoltaic sys-
18 tem designs, including—

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

21 (I) livestock grazing; and

22 (II) shade for livestock;

23 (ii) manure management consider-
24 ations;

25 (iii) fencing requirements;

1 (iv) other animal handling consider-
2 ations; and

3 (v) the incorporation of apiculture;

4 (B) an assessment of animal breeding re-
5 search needs with respect to beneficial and com-
6 patible characteristics and behaviors of different
7 species of grazing animals in agrivoltaic sys-
8 tems;

9 (C) a review of the current research and
10 gaps in research relating to the regional com-
11 patibility of different crop types with different
12 agrivoltaic system designs, including—

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

15 (I) plant shading; and

16 (II) farm equipment use;

17 (ii) the impact on crop yield;

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

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

22 (D) an assessment of plant breeding re-
23 search needs with respect to beneficial and com-
24 patible characteristics of different crops, includ-

1 ing specialty and perennial crops, in agrivoltaic
2 systems;

3 (E) a risk-benefit analysis of agrivoltaic
4 systems in different regions of the United
5 States, including a comparison between the
6 total greenhouse gas impact of agrivoltaic sys-
7 tems and solar energy systems that displace ag-
8 ricultural production;

9 (F) an assessment of the economic
10 scalability of agrivoltaic systems across dif-
11 ferent agricultural land types, production sys-
12 tems, and regional markets;

13 (G) an assessment of the types of agricul-
14 tural land best suited and worst suited for
15 agrivoltaic systems;

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

19 (i) maintaining or increasing agricul-
20 tural production;

21 (ii) increasing agricultural resilience;

22 (iii) retaining prime farmland;

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

1 (v) reducing nonfarmer ownership of
2 farmland; and

3 (vi) enhancing biodiversity;

4 (I) an assessment of the unique risk man-
5 agement and crop insurance needs of agrivoltaic
6 systems;

7 (J) an assessment of how Federal procure-
8 ment of agricultural products could help build
9 a market for agricultural products from farms
10 with agrivoltaic systems; and

11 (K) an assessment of appropriate modifica-
12 tions to better incorporate agrivoltaic systems
13 into existing Federal—

14 (i) agricultural conservation pro-
15 grams;

16 (ii) agricultural risk management pro-
17 grams, including Federal crop insurance;

18 (iii) renewable energy programs;

19 (iv) agricultural procurement pro-
20 grams; and

21 (v) investment tax credits.

22 (2) 5-YEAR PLAN.—Based on the study under
23 paragraph (1), the Secretary shall develop a 5-year
24 plan for using the research, extension, outreach, con-
25 servation, and renewable energy activities of the De-

1 partment of Agriculture to better support agrivoltaic
2 systems that do not displace agricultural production.

3 (3) REPORT.—Not later than 3 years after the
4 date of enactment of this Act, the Secretary shall
5 submit to the Committee on Agriculture of the
6 House of Representatives and the Committee on Ag-
7 riculture, Nutrition, and Forestry of the Senate a
8 report containing the results of the study conducted
9 under paragraph (1).

10 (c) AGRIVOLTAIC SYSTEM RESEARCH AND DEM-
11 ONSTRATION.—

12 (1) IN GENERAL.—The Secretary, acting
13 through the Administrator of the Agricultural Re-
14 search Service and in coordination with the Director
15 of the National Institute of Food and Agriculture
16 and the relevant research programs of the Depart-
17 ment of Energy, shall establish and maintain a net-
18 work of research and demonstration sites operated
19 by the Agricultural Research Service to investigate
20 and demonstrate agrivoltaic systems in multiple re-
21 gions of the United States, including arid, semi-arid,
22 and wet agricultural zones, that—

23 (A) increase agricultural productivity and
24 profitability;

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

4 (C) protect biodiversity; and

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

7 (2) COLLABORATION.—In establishing and
8 maintaining the network described in paragraph (1),
9 the Secretary shall collaborate with climate hubs of
10 the Department of Agriculture and extension pro-
11 grams to share research findings and translate re-
12 search findings into educational, outreach, and tech-
13 nical assistance materials for agricultural producers,
14 including through cooperative agreements.

15 (d) AUTHORIZATION OF APPROPRIATIONS.—There is
16 authorized to be appropriated to carry out this section
17 \$15,000,000 for each of fiscal years 2024 through 2028.

18 **SEC. 3. BEST PRACTICES GUIDANCE FOR SOLAR ENERGY**

19 **LAND MANAGEMENT.**

20 (a) IN GENERAL.—Not later than 1 year after the
21 date of enactment of this Act, the Secretary of Agri-
22 culture, acting through the Chief of the Natural Resources
23 Conservation Service (referred to in this section as the
24 “Secretary”), in collaboration with the Secretary of En-
25 ergy (including the Solar Energy Technologies Office) and

1 the national office of the rural development mission area
2 of the Department of Agriculture, shall—

3 (1) develop both national and regionally rel-
4 evant guidance on best practices for protection of
5 soil health and productivity during the siting, con-
6 struction, operation, and decommissioning of solar
7 energy systems on agricultural land, which shall in-
8 clude—

9 (A) guidance for—

10 (i) soil carbon and soil health;

11 (ii) water management;

12 (iii) vegetation management, including
13 types of plants best suited for pollinators;

14 and

15 (iv) other practices, as determined ap-
16 propriate by the Secretary of Agriculture;

17 and

18 (B) regional considerations for each type
19 of guidance described in clauses (i) through (iv)
20 of subparagraph (A); and

21 (2) make the guidance developed under para-
22 graph (1) publicly available on the website of the
23 Natural Resources Conservation Service.

24 (b) REVIEW REQUIRED.—The Secretary, acting
25 through the Chief of the Natural Resources Conservation

1 Service, in coordination with the Secretary of Energy,
2 shall—

3 (1) update guidance developed under subsection
4 (a)(1) not less frequently than once every 2 years;
5 and

6 (2) ensure, to the maximum extent practicable,
7 the completeness and relevance of that guidance.

8 (c) CONSULTATION.—In conducting the review under
9 subsection (b), the Secretary shall consult with eligible
10 participants, State technical committees established under
11 section 1261(a) of the Food Security Act of 1985 (16
12 U.S.C. 3861(a)), crop consultants, cooperative extension
13 and land grant universities, nongovernmental organiza-
14 tions, industry, and other qualified entities.

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