

117TH CONGRESS
1ST SESSION

S. _____

To promote scientific research and development opportunities for connected technologies that advance precision agriculture capabilities.

IN THE SENATE OF THE UNITED STATES

Mrs. FISCHER (for herself and Ms. KLOBUCHAR) introduced the following bill; which was read twice and referred to the Committee on

A BILL

To promote scientific research and development opportunities for connected technologies that advance precision agriculture capabilities.

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 “Advancing IoT for Pre-
5 cision Agriculture Act of 2021”.

6 **SEC. 2. PURPOSE.**

7 It is the purpose of this Act to promote scientific re-
8 search and development opportunities for connected tech-
9 nologies that advance precision agriculture capabilities.

1 **SEC. 3. NATIONAL SCIENCE FOUNDATION DIRECTIVE ON**
2 **AGRICULTURAL SENSOR RESEARCH.**

3 In awarding grants under its sensor systems and
4 networked systems programs, the Director of the National
5 Science Foundation shall include in consideration of port-
6 folio balance research and development on sensor
7 connectivity in environments of intermittent connectivity
8 and intermittent computation—

9 (1) to improve the reliable use of advance sens-
10 ing systems in rural and agricultural areas; and

11 (2) that considers—

12 (A) direct gateway access for locally stored
13 data;

14 (B) attenuation of signal transmission;

15 (C) loss of signal transmission; and

16 (D) at-scale performance for wireless
17 power.

18 **SEC. 4. UPDATING CONSIDERATIONS FOR PRECISION AGRI-**
19 **CULTURE TECHNOLOGY WITHIN THE NSF AD-**
20 **VANCED TECHNICAL EDUCATION PROGRAM.**

21 Section 3 of the Scientific and Advanced-Technology
22 Act of 1992 (42 U.S.C. 1862i) is amended—

23 (1) in subsection (d)(2)—

24 (A) in subparagraph (D), by striking
25 “and” after the semicolon;

1 (B) in subparagraph (E), by striking the
2 period at the end and inserting “; and”; and

3 (C) by adding at the end the following:

4 “(F) applications that incorporate distance
5 learning tools and approaches.”;

6 (2) in subsection (e)(3)—

7 (A) in subparagraph (C), by striking
8 “and” after the semicolon;

9 (B) in subparagraph (D), by striking the
10 period at the end and inserting “; and”; and

11 (C) by adding at the end the following:

12 “(E) applications that incorporate distance
13 learning tools and approaches.”; and

14 (3) in subsection (j)(1), by inserting “agricul-
15 tural,” after “commercial,”.

16 **SEC. 5. GAO REVIEW.**

17 Not later than 18 months after the date of enactment
18 of this Act, the Comptroller General of the United States
19 shall provide—

20 (1) a technology assessment of precision agri-
21 culture technologies, such as the existing use of—

22 (A) sensors, scanners, radio-frequency
23 identification, and related technologies that can
24 monitor soil properties, irrigation conditions,
25 and plant physiology;

1 (B) sensors, scanners, radio-frequency
2 identification, and related technologies that can
3 monitor livestock activity and health;

4 (C) network connectivity and wireless com-
5 munications that can securely support digital
6 agriculture technologies in rural and remote
7 areas;

8 (D) aerial imagery generated by satellites
9 or unmanned aerial vehicles;

10 (E) ground-based robotics;

11 (F) control systems design and
12 connectivity, such as smart irrigation control
13 systems; and

14 (G) data management software and ad-
15 vanced analytics that can assist decision mak-
16 ing and improve agricultural outcomes; and

17 (2) a review of Federal programs that provide
18 support for precision agriculture research, develop-
19 ment, adoption, education, or training, in existence
20 on the date of enactment of this Act.