

117TH CONGRESS  
1ST SESSION

# H. R. 3784

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

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## IN THE HOUSE OF REPRESENTATIVES

JUNE 8, 2021

Mr. MCNERNEY (for himself and Mr. FEENSTRA) introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committee on Agriculture, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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## 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”.

1 **SEC. 2. PURPOSE.**

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

5 **SEC. 3. NATIONAL SCIENCE FOUNDATION DIRECTIVE ON**  
6 **AGRICULTURAL SENSOR RESEARCH.**

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

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

15 (2) that considers—

16 (A) direct gateway access for locally stored  
17 data;

18 (B) attenuation of signal transmission;

19 (C) loss of signal transmission; and

20 (D) at-scale performance for wireless  
21 power.

22 **SEC. 4. UPDATING CONSIDERATIONS FOR PRECISION AGRI-**  
23 **CULTURE TECHNOLOGY WITHIN THE NSF AD-**  
24 **VANCED TECHNICAL EDUCATION PROGRAM.**

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

1 (1) in subsection (d)(2)—

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

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

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

7 “(F) applications that incorporate distance  
8 learning tools and approaches.”;

9 (2) in subsection (e)(3)—

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

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

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

15 “(E) applications that incorporate distance  
16 learning tools and approaches.”; and

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

19 **SEC. 5. GAO REVIEW.**

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

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

1           (A) sensors, scanners, radio-frequency  
2 identification, and related technologies that can  
3 monitor soil properties, irrigation conditions,  
4 and plant physiology;

5           (B) sensors, scanners, radio-frequency  
6 identification, and related technologies that can  
7 monitor livestock activity and health;

8           (C) network connectivity and wireless com-  
9 munications that can securely support digital  
10 agriculture technologies in rural and remote  
11 areas;

12           (D) aerial imagery generated by satellites  
13 or unmanned aerial vehicles;

14           (E) ground-based robotics;

15           (F) control systems design and  
16 connectivity, such as smart irrigation control  
17 systems; and

18           (G) data management software and ad-  
19 vanced analytics that can assist decision mak-  
20 ing and improve agricultural outcomes; and

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

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