

119TH CONGRESS
1ST SESSION

S. 507

To enhance the participation of precision agriculture in the United States,
and for other purposes.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 11, 2025

Mr. THUNE (for himself and Mr. WARNOCK) introduced the following bill;
which was read twice and referred to the Committee on Agriculture, Nu-
trition, and Forestry

A BILL

To enhance the participation of precision agriculture in the
United States, and for other purposes.

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 “Promoting Precision
5 Agriculture Act of 2025”.

6 **SEC. 2. DEFINITIONS.**

7 In this Act:

8 (1) **ADVANCED WIRELESS COMMUNICATIONS**
9 **TECHNOLOGY.**—The term “advanced wireless com-
10 munications technology” means advanced technology

1 that contributes to mobile (5G or beyond) networks,
2 next-generation Wi-Fi networks, or other future net-
3 works using other technologies, regardless of wheth-
4 er the network is operating on an exclusive licensed,
5 shared licensed, or unlicensed frequency band.

6 (2) ARTIFICIAL INTELLIGENCE.—The term “ar-
7 tificial intelligence” has the meaning given the term
8 in section 238(g) of the John S. McCain National
9 Defense Authorization Act for Fiscal Year 2019
10 (Public Law 115–232; 10 U.S.C. note prec. 4061).

11 (3) FOREIGN ADVERSARY.—The term “foreign
12 adversary” means any foreign government or foreign
13 nongovernment person engaged in a long-term pat-
14 tern or serious instances of conduct significantly ad-
15 verse to the national security of the United States,
16 or security and safety of United States persons.

17 (4) PRECISION AGRICULTURE.—The term “pre-
18 cision agriculture” means managing, tracking, or re-
19 ducing crop or livestock production inputs, including
20 seed, feed, fertilizer, chemicals, water, time, and
21 such other inputs as the Secretary determines to be
22 appropriate, at a heightened level of spatial and tem-
23 poral granularity to improve efficiencies, reduce
24 waste, and maintain environmental quality.

1 (5) PRECISION AGRICULTURE EQUIPMENT.—

2 The term “precision agriculture equipment” means
3 any equipment or technology that directly contrib-
4 utes to a reduction in, or improved efficiency of, in-
5 puts used in crop or livestock production, includ-
6 ing—

7 (A) global positioning system-based or
8 geospatial mapping;

9 (B) satellite or aerial imagery;

10 (C) yield monitors;

11 (D) soil mapping;

12 (E) sensors for gathering data on crop,
13 soil, and livestock conditions;

14 (F) Internet of Things and technology that
15 relies on edge and cloud computing;

16 (G) data management software and ad-
17 vanced analytics;

18 (H) network connectivity products and so-
19 lutions, including public and private wireless
20 networks;

21 (I) global positioning system guidance,
22 auto-steer systems, autonomous fleetings, and
23 other machine-to-machine operations;

24 (J) variable rate technology for applying
25 inputs, such as section control; and

(K) any other technology that leads to a reduction in, or improves efficiency of, crop and livestock production inputs, which may include—

(i) seed;

(ii) feed;

(iii) fertilizer;

(iv) chemicals;

(v) water;

(vi) time;

(vii) fuel;

(viii) emissions; and

(ix) such other inputs as the Secretary determines to be appropriate.

(6) SECRETARY.—The term “Secretary” means the Secretary of Agriculture.

(7) TRUSTED.—The term “trusted” means, with respect to a provider of advanced communications service or a supplier of communications equipment or service, that the Secretary has determined that the provider or supplier is not owned by, controlled by, or subject to the influence of, a foreign adversary.

(8) VOLUNTARY CONSENSUS STANDARDS DEVELOPMENT ORGANIZATION.—The term “voluntary

1 consensus standards development organization”
 2 means an organization that develops standards in a
 3 process that meets the principles for the develop-
 4 ment of voluntary consensus standards (as defined
 5 in the document of the Office of Management and
 6 Budget entitled “Federal Participation in the Devel-
 7 opment and Use of Voluntary Consensus Standards
 8 and in Conformity Assessment Activities” (OMB
 9 Circular A–119)).

10 **SEC. 3. PURPOSES.**

11 The purposes of this Act are—

12 (1) to enhance the participation of precision ag-
 13 riculture in the United States; and

14 (2) to promote United States leadership in vol-
 15 untary consensus standards development organiza-
 16 tions that set standards for precision agriculture.

17 **SEC. 4. INTERCONNECTIVITY STANDARDS FOR PRECISION**
 18 **AGRICULTURE.**

19 (a) IN GENERAL.—Not later than 2 years after the
 20 date of enactment of this Act, the Secretary, in consulta-
 21 tion with the Director of the National Institute of Stand-
 22 ards and Technology and the Federal Communications
 23 Commission, shall—

24 (1) develop voluntary, consensus-based, private
 25 sector-led interconnectivity standards, guidelines,

1 and best practices for precision agriculture that will
2 promote economies of scale and ease the burden of
3 the adoption of precision agriculture; and

4 (2) in carrying out paragraph (1)—

5 (A) coordinate with relevant public and
6 trusted private sector stakeholders and other
7 relevant industry organizations, including vol-
8 untary consensus standards development orga-
9 nizations; and

10 (B) consult with sector-specific agencies,
11 other appropriate agencies, and State and local
12 governments.

13 (b) CONSIDERATIONS.—The Secretary, in carrying
14 out subsection (a), shall, in consultation with the Director
15 of the National Institute of Standards and Technology
16 and the Federal Communications Commission, consider—

17 (1) the evolving demands of precision agri-
18 culture;

19 (2) the connectivity needs of precision agri-
20 culture equipment;

21 (3) the cybersecurity challenges facing precision
22 agriculture, including cybersecurity threats for agri-
23 culture producers and agriculture supply chains;

24 (4) the impact of advanced wireless communica-
25 tions technology on precision agriculture; and

1 (5) the impact of artificial intelligence on preci-
2 sion agriculture.

3 **SEC. 5. GAO ASSESSMENT OF PRECISION AGRICULTURE**
4 **STANDARDS.**

5 (a) STUDY.—Not later than 1 year after the Sec-
6 retary develops standards under section 4, and every 2
7 years thereafter for the following 8 years, the Comptroller
8 General of the United States shall conduct a study that
9 assesses those standards, including the extent to which
10 those standards, as applicable—

11 (1) are voluntary;

12 (2) were developed in coordination with relevant
13 industry organizations, including voluntary con-
14 sensus standards development organizations; and

15 (3) have successfully encouraged the adoption
16 of precision agriculture.

17 (b) REPORT.—The Comptroller General of the
18 United States shall submit to the Committee on Com-
19 merce, Science, and Transportation and the Committee on
20 Agriculture, Nutrition, and Forestry of the Senate and the
21 Committee on Science, Space, and Technology and the
22 Committee on Agriculture of the House of Representatives
23 a report that summarizes the findings of each study con-
24 ducted under subsection (a).

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