

115TH CONGRESS
2D SESSION

S. _____

To improve soil moisture and precipitation monitoring, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mr. THUNE introduced the following bill; which was read twice and referred
to the Committee on _____

A BILL

To improve soil moisture and precipitation monitoring, 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 “Improved Soil Moisture
5 and Precipitation Monitoring Act of 2018”.

6 **SEC. 2. IMPROVED SOIL MOISTURE MONITORING.**

7 (a) IN GENERAL.—Not later than 1 year after the
8 date of the enactment of this Act, the Secretary of Agri-
9 culture shall develop and implement a strategy to improve
10 the accuracy of the United States Drought Monitor
11 through increased geographic resolution of rural in-situ

1 soil moisture profile observation or other soil moisture pro-
2 file measuring devices, as the Secretary considers appro-
3 priate.

4 (b) IMPLEMENTATION.—

5 (1) IN GENERAL.—In implementing the strat-
6 egy required by subsection (a), the Secretary shall
7 prioritize adding soil moisture profile stations in
8 States described in paragraph (2) so that the num-
9 ber of drought monitoring stations is increased to an
10 average of 1 such station per 1,250 square miles in
11 each such State or by 50 stations in each such
12 State, whichever is less.

13 (2) STATES DESCRIBED.—A State described in
14 this paragraph is a State that has experienced D3
15 (extreme drought) or D4 (exceptional drought) (as
16 defined by the United States Drought Monitor)
17 within any 6 months during the period beginning on
18 January 1, 2016, and ending on the date of the en-
19 actment of this Act.

20 (c) COORDINATION.—In carrying out this section, the
21 Secretary may coordinate with other Federal agencies,
22 State and local governments, and non-Federal entities
23 that collaborate with the United States Drought Monitor.

24 (d) COST-EFFECTIVENESS.—In carrying out this sec-
25 tion, the Secretary shall consider cost-effective solutions

1 to maximize the efficiency and accuracy of the United
2 States Drought Monitor.

3 (e) AUTHORIZATION OF APPROPRIATIONS.—There
4 are authorized to be appropriated to the Secretary
5 \$5,000,000 for each of fiscal years 2019 through 2024
6 to carry out this section.

7 **SEC. 3. STANDARDS FOR INTEGRATING CITIZEN SCIENCE**
8 **INTO DROUGHT MODELS.**

9 (a) IN GENERAL.—Not later than 1 year after the
10 date of the enactment of this Act, the Secretary of Agri-
11 culture shall—

12 (1) develop a set of standards for integration of
13 data derived from citizen science (as defined in the
14 Crowdsourcing and Citizen Science Act (15 U.S.C.
15 3724)) into the United States Drought Monitor
16 models, including data relating to—

17 (A) location and spacing of monitoring sta-
18 tions;

19 (B) data quality standards;

20 (C) incorporation of data from commer-
21 cially available weather stations;

22 (D) standardized procedures for autono-
23 mous integration of data;

24 (E) streamlining of data entry methods;

25 and

- 1 (F) reasonable metadata fields; and
- 2 (2) develop a set of consistent standards for soil
- 3 moisture data collection based on equipment that is
- 4 readily available, including standards relating to—
- 5 (A) acceptable error ranges;
- 6 (B) sensor installation procedures;
- 7 (C) manufacturers of soil moisture probes;
- 8 (D) calibration methodology;
- 9 (E) metadata fields; and
- 10 (F) soil descriptions.

11 (b) INCLUSION OF DATA FROM COOPERATIVE OB-

12 SERVER PROGRAM.—For purposes of subsection (a)(1),

13 data derived from citizen science includes data from the

14 Cooperative Observer Program of the National Weather

15 Service.

16 **SEC. 4. REQUIREMENT FOR ELEMENTS OF DEPARTMENT**

17 **OF AGRICULTURE TO USE THE SAME MONI-**

18 **TORING DATA.**

19 (a) IN GENERAL.—To be consistent with assistance

20 provided under the Livestock Forage Program adminis-

21 tered by the Farm Service Agency of the Department of

22 Agriculture and the Pasture, Rangeland, Forage Program

23 administered by the Risk Management Agency of the De-

24 partment, and the annual establishment of grazing rates,

25 as applicable, on Forest Service grasslands and other ap-

1 plicable land, the Secretary of Agriculture shall direct
2 those agencies to use the United States Drought Monitor,
3 in-situ soil moisture profile monitoring stations described
4 in section 2, data from the Cooperative Observer Program
5 described in section 3(b), and any other applicable data
6 to determine and establish grazing loss assistance and
7 grazing rates, as applicable.

8 (b) COORDINATION.—In carrying out this section, the
9 Secretary may coordinate with—

10 (1) other Federal agencies, State and local gov-
11 ernments, and non-Federal entities that collaborate
12 with the United States Drought Monitor; and

13 (2) other Federal and non-Federal entities in-
14 volved in collecting data on precipitation and soil
15 monitoring.

16 (c) COST-EFFECTIVENESS.—In carrying out this sec-
17 tion, the Secretary shall consider cost-effective solutions
18 to maximize the efficiency and accuracy of the data uti-
19 lized to determine eligibility for assistance under the pro-
20 grams specified in subsection (a).