CSG067

Policy Proposals to Build Soil Health & Combat Climate Change

A Federal & 50-State Landscape Analysis

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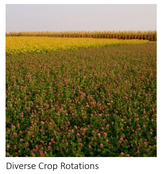
[OVERVIEW

- **A growing body of research demonstrates that building soil health can be good for farmers and the environment.** Some of these benefits include: improving water quality, conserving water resources, increasing resilience to floods and droughts, sequestering carbon, and increased crop yields.
- Practices shown to improve soil health include **cover crops, planting perennials, crop rotations, no-till farming, and organic amendments**.
- Because soil health can both help farmers adapt to more extreme weather, while also removing carbon from the atmosphere, it has been proposed **as a way for farmers to be part of the climate change solution**.
- **Growing activity in state policies** demonstrates interest in government support for building healthier agricultural soils to deliver numerous benefits for farmers and the environment.
- Momentum on the state level suggests there may be **an opportunity for federal action** to accelerate progress in advancing soil health and achieving numerous environmental benefits.

Perennials

Cover Crops



Diverse Crop Rotations

No-Till

Conservation practices such as perennials, cover crops, diverse crop rotations, and no-till farming can improve soil health and deliver numerous benefits by:

- Keeping soils covered and protected year-round to prevent erosion.
- Maintaining roots in the ground to improve soil structure and water quality.
- Increasing water infiltration and soil water holding capacity, improving resilience to droughts and floods and reducing runoff.

[METHODS

To understand the landscape of US soil health policy, we conducted an analysis of federal and state legislation passed or introduced over the past 4 years.

- **Federal legislation** was collected across the 114th & 115th Congresses.
- **State level legislation** was limited to bills introduced or passed between 2015 and the end of 2018.

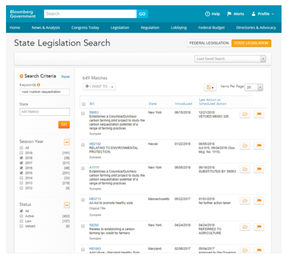
Data sources:

- Federal: ***Congress.gov*** advanced search platform **(Fig. 1)**
- State: ***Bloomberg Government*** state legislation search engine; online summaries of state efforts **(Fig. 1)**

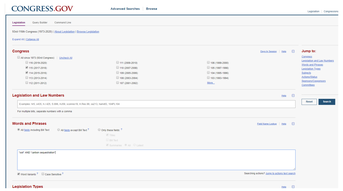
Analysis approach and criteria:

- Keywords and search themes were developed iteratively to capture a broad range of concepts appearing in policies related to soil health. Example keywords include: "soil health," "carbon sequestration," "climate," "soil conservation," "carbon farming"
- Bill text was searched to determine relevance to larger **themes of soil health and climate.**
- Excluded results that did not mention search terms or concepts in the context of **agriculture**.
- Excluded results that contained relevant keywords, but did not meet criteria of **working towards improving soil health**.

Figure 1: Search engines used in analysis



(Left) Screenshot of *Bloomberg Government's* State Legislation Search used for this study.



(Lower) Screenshot of *Congress.gov* Federal Legislation Advanced Search tool used for this study.

[RESULTS

Policy overview:

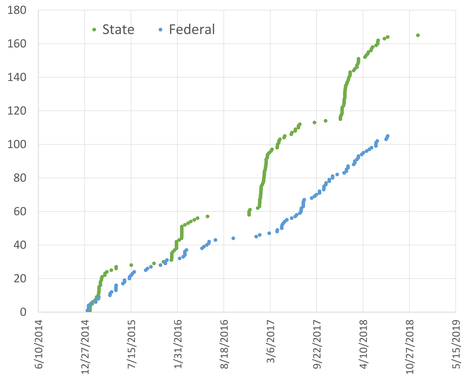
Our search identified **105 federal bills (Fig. 3)** and **166 state bills (Fig. 4)** passed or introduced.

- On the Federal level:
  - California **(22)**, Colorado **(6)**, North Dakota **(6)**, Oregon **(6)**, Rhode Island **(6)**, Texas **(5)**, West Virginia **(5)**, New York **(4)**
  - Bills introduced are more spread out geographically, with smaller amounts across a higher number of states.
- On the State level:
  - California **(35)**, Hawaii **(17)**, Minnesota **(13)**, Vermont **(11)**, Iowa **(11)**, New York **(9)**, and Massachusetts **(8)**.
  - In California, 15 of the 35 bills introduced have been passed; 4 have passed out of 17 in Hawaii, 1 out of 13 in Minnesota, 3 in Vermont, 1 in Iowa, and none in either New York or Massachusetts.

Included in these numbers are bills that have a) been **reintroduced** year-to-year or Congress-to-Congress, and b) are identical bills that have been introduced **across both chambers**.

These numbers also include bills that have been introduced as well as those that have passed and become law.

Figure 2: Timeline of soil legislation introduction



Timeline indicates increasing momentum:

Fig. 2 shows the timeline of bills included in this study. These bills were introduced across 4 years at both the state and federal level. While this is just a sample, it is indicative of a growing body of soil health legislation and increasing momentum.

The locations of these bills are shown in **Fig 3.** and **Fig. 4.** For the federal map, bills are sorted by the state of the original cosponsor.

Content analysis reveals broad scope of soil health policies:

- **Fig. 5** shows the results of the content analysis of identified bills, revealing that such bills cover a wide range of topics.
- **Green** corresponds to terms represented in State level bills, and **blue** to the same terms represented in Federal bills.
- Terms not represented in **blue**, such as "climate change (mitigation)," "soil conservation," and others, indicate topics explicitly addressed in the state but not federal bills included in this study.
- Terms not represented in **green**, such as "carbon capture," "carbon emissions," "social cost of carbon," are representative of broader concepts used in federal but not state bills.

Figure 3: Federal policy map

Landscape of Federal level policies introduced or passed in the 114th and 115th Congress.

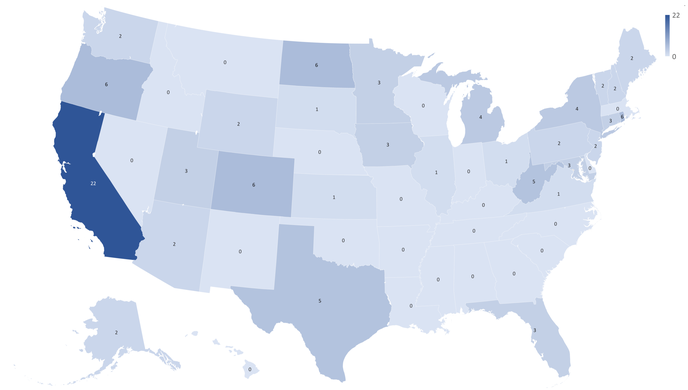


Figure 4: State policy map

Landscape of State level policies introduced or passed between 2015 and 2018.

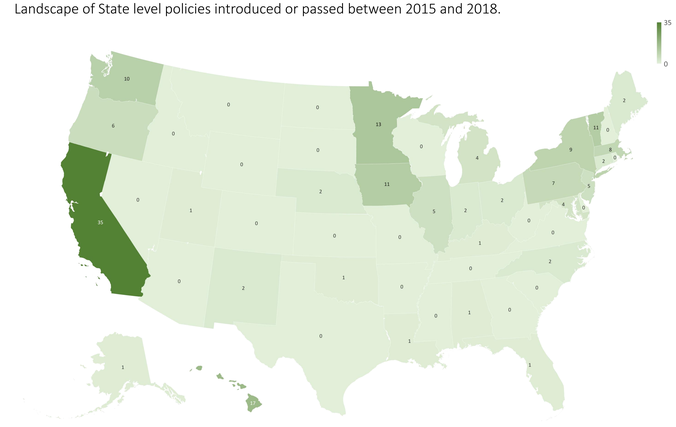
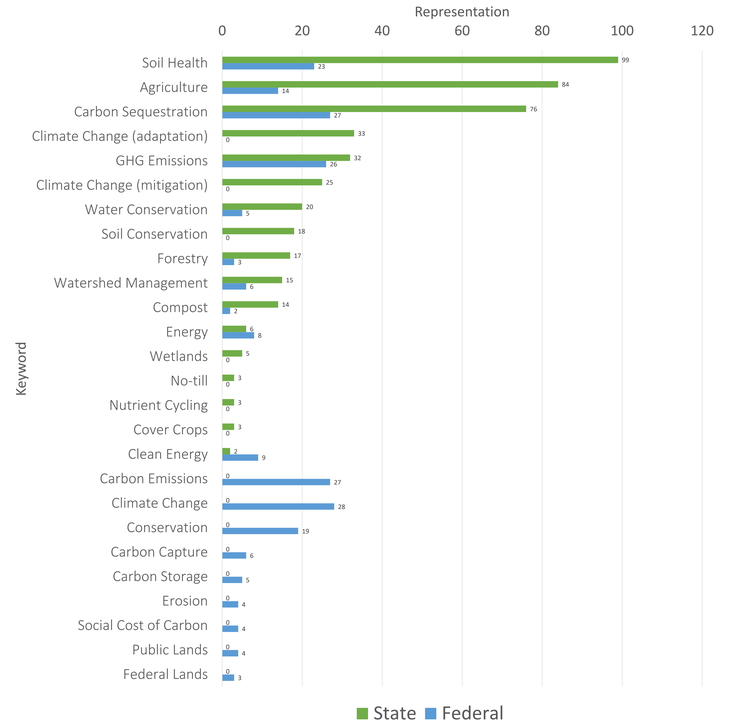


Figure 5: Content analysis results – federal and state



[DISCUSSION

- Our searches identified over **100 bills on the federal level** and over **150 on the state level** introduced and passed across a 4-year snapshot.
- **There is significantly more activity on the state level**, likely due to the existence of 50 individual legislative bodies, as opposed to just one on the federal level. Because of this, state bills are clustered with less geographical diversity, but with higher numbers in each state. Certain states stood out, such as CA, MN, IA, NY, and VT, representing the West, Midwest, and Northeast regions of the US.
- **In 2019, momentum in soil health policies has continued**. For example:
  - New Mexico has introduced a Soil Health bill which has been signed into law as of 4/2/2019
  - Nebraska has introduced a Healthy Soils Task Force bill, which has also been signed into law as of 4/17/2019. Additional bills include one incentivizing healthy soils and another recognizing the climate threat to Nebraska.

[CONCLUSIONS

- Overall, we found a growing field of healthy soils policies in both state and federal legislation, covering a wide range of topics.
- Increased research on healthy soils practices and outcomes is urgently needed to inform strong science-based policies at the state and federal level.

[REFERENCES & PHOTO CREDITS

Photo credits: USDA, Tobias Carter/Savanna Institute, A Basche, PR Westerman, A Basche

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