Farmer-Centered Research to Scale Soil Carbon

Recommendations for the upcoming Farm Bill

WHY SOIL CARBON?

Soils, the second largest carbon sink after oceans, present an untapped opportunity to significantly mitigate and bolster resilience to climate change.

US farmers and ranchers can become more competitive and resilient to extreme weather by implementing soil carbon practices such as agroforestry, cover crops, and rotational grazing. In order to increase soil carbon storage on our agricultural lands, we need the upcoming Farm Bill to authorize a farmer-centered research agenda that grounds these practices in science and spurs their adoption.

SOIL CARBON CHALLENGES

- Existing soil carbon research efforts are disparate, siloed, and sparsely funded.
- Sampling and measurement of soil carbon storage is arduous, expensive, and non-standardized.
- Data collection and management efforts are low-quality and non-standardized.
- Farmers and ranchers face unknown risks and costs in implementing soil carbon practices.
- State- and Tribal-led climate action is hindered by lack of funding.

THE FARM BILL OPPORTUNITY

- Centralize and coordinate soil carbon research.
- Develop measurement protocols, tools, and models for soil carbon.
- Standardize soil carbon data collection and management.
- Launch demonstration trials to build farmer and rancher confidence in soil carbon practices.
- Provide matching funds to states and Tribes with climate-focused programs.

1. *Centralize and coordinate federal soil carbon research efforts.*

Significant research is needed to scale soil carbon storage, but current efforts across the federal government are uncoordinated. A whole-of-government approach, led by USDA, can ensure soil carbon research, education, and technical assistance activities are centralized, efficient, and accessible.

- **Create an interagency committee on soil carbon research and dedicate $5 million** for USDA to lead the committee in developing a federal soil carbon strategy and action plan.
- **Establish a soil carbon research coordinator** to lead the committee, identify potential improvements to collaboration on soil carbon research, and advise on budget proposals.

2. *Launch a national Soil Carbon Monitoring Network (SCMN).*

Accurate soil carbon management starts with accurate measurement. A robust monitoring network can map existing soil carbon stocks, uncover the areas with the greatest potential gains, and link agricultural management practices to carbon outcomes.

- **Create a SCMN and dedicate $60 million annually** to provide a critical, up-to-date resource on soil carbon stocks across the US and connect soil carbon outcomes to different agricultural management practices.
- **Authorize the Rapid Carbon Assessment (RaCA) and provide $15 million annually** to conduct annual soil carbon surveys with soil samples taken uniformly at 2 meters in depth.
- **Provide $40 million annually to the Long-Term Agroecosystem Research (LTAR) Network** to organize additional long-term soil carbon research projects, hire a dedicated data management team to coordinate data efforts, and establish new monitoring sites.
- **Provide $5 million annually to the Climate Hubs** to support the translation of SCMN findings into actionable insights for farmers and ranchers.

3. *Develop and improve soil carbon MRV tools and protocols.*

Accurate MRV is critical to ensuring the climate benefits of practices that store carbon lay the groundwork for science-based incentives. Disparate MRV protocols and complicated, expensive tools prevent farmers from implementing robust soil carbon MRV.

- **Authorize the Climate Hubs and LTAR Network and dedicate funding** to lead and coordinate soil carbon MRV efforts at USDA.
- **Provide $25 million annually to the LTAR Network** to audit existing and develop new soil sampling protocols, develop and improve new soil carbon measurement tools, and advance soil carbon dynamics research.
- **Provide $6 million annually to the Climate Hubs** to make standard soil sampling and soil carbon MRV resources publicly available to farmers and ranchers.

4. *Establish a network of real-world demonstration trials.*

Demonstration trials help farmers and ranchers gain confidence in implementing new practices and ensure they're maintained long-term. These trials showcase which practices work best for different regions, enable farmers to make informed decisions, and spur early adoption of innovative agricultural practices.

- **Increase funding gradually for the Conservation Innovation Grants On-Farm Trials to $100 million** to develop an ambitious network of soil carbon demonstration trials through the Soil Health Demonstration program.
- **Increase authorizations for the Sustainable Agriculture Research and Education program to $72 million** to expand on-farm soil carbon demonstration trials, helping create a community of practice rooted in local agricultural realities.

5. *Bolster state and Tribal action on agricultural lands.*

Region-specific climate mitigation and adaptation strategies are critical to addressing the varied effects of climate change across the US landscape. A block grant program can support climate action by states and Tribes and incentivize farmers and ranchers to sequester carbon, reduce emissions, and build resilience into their operations.

- **Create a competitive block grant program** to support region-specific and collaborative state and Tribal climate efforts on private and Tribal agricultural lands.
- **Fund the new grant program at $150 million in FY23 and increase gradually to $300 million by FY30** to support states and Tribes in delivering assistance to farmers and ranchers, encouraging producer networks, advancing research and demonstration projects, and conducting monitoring and evaluation.