

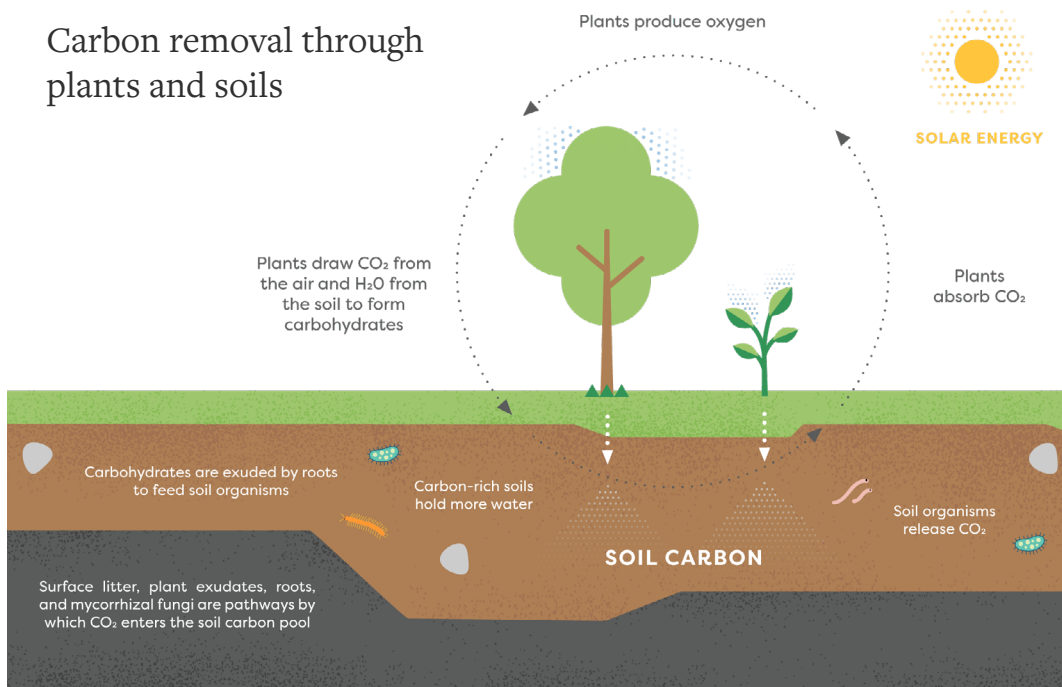
Restoring Carbon for Healthy Agricultural Lands: A US Federal Policy Roadmap

Investing in time-tested and novel carbon removal solutions to build farm and community resilience

Carbon180's Road to 2030 series gives federal policymakers actionable steps to bring the benefits of carbon removal (CDR) to Americans' doorsteps through multiple pathways. CDR on agricultural lands offers the potential, right now, to act on climate while positioning farmers and ranchers to withstand mounting environmental and economic disruption. Climate scientists agree we need to get CDR to gigaton scale by mid-century to avoid the worst impacts of climate change.

Agricultural CDR encompasses a suite of approaches — including agroforestry, other perennial systems, and sustainable cropland management — that work with natural land processes to capture and store atmospheric carbon. Agricultural CDR is also evolving to include pathways that use agricultural land or biomass for carbon removal, but store carbon through physical or geochemical means, such as biochar and enhanced rock weathering.

Carbon removal through plants and soils



Grounded in land steward experience

Since scaling agricultural CDR relies on millions of individual land stewards, Carbon180 partnered with community organizations across six US agricultural regions to convene listening sessions with 200+ land stewards from diverse backgrounds, spanning small to large operations. Land stewards shared what kind of support they need to implement practices that build soil carbon and health, and additional conversations with technical assistance providers and scientists offered further guidance on where and how different agricultural pathways can scale.



QUICK NAVIGATION

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THE BIG PICTURE

Rebuilding our carbon savings account

Millennia of human agricultural land use, accelerated over the last two centuries of intensive and extractive agriculture, has resulted in a soil carbon “debt” of about 130 gigatons of carbon in the top 2 meters of agricultural soils globally, offering a major opportunity to restore soil carbon stocks.¹

Adopt, adopt, adopt

Adoption of conservation practices across 175 million acres can remove 106 million metric tons of CO₂ equivalent (MtCO₂e) per year over the next 2 - 3 decades. Broader adoption on 336 million acres could remove 204 MtCO₂e per year.²

Based on these rich discussions, we developed a roadmap with policy recommendations to address *five enabling conditions* to meet land stewards' needs while enhancing agricultural CDR:

Infrastructure and Market Access

- Invest in a diverse supply of perennial seed in key agricultural regions.
- Invest in market development for cropping systems with high CDR potential, such as a perennial pilot market development program.
- **Use federal procurement, including annual procurement goals and processes, to drive conservation practice adoption and more locally resilient supply chains.**
- Ensure policies governing private sector engagement center producers and prioritize practices that confer proven ecological benefits.

Land Access and Tenure

- Preserve farmland from development while enabling long-term carbon storage across upcoming agricultural land transitions through investment in local land link programs and land, capital, and market access programs.
- Expand sustainable land stewardship options outside of traditional land ownership through innovative land sharing models and a **new sustainable land steward workforce development program.**

Technical Assistance and Local Capacity Building

- Bolster technical capacity of local NRCS offices to provide comprehensive and up-to-date soil health and carbon management support.
- **Establish nationwide free soil health testing and interpretation.**
- Support local capacity building and community innovation in sustainable agriculture.

Incentives and Risk Mitigation

- Retool existing conservation programs to better support adoption of carbon storing practices and systems.
- **Adapt existing conservation programs to better enable durable soil carbon storage, including through longer program contracts.**
- Build on-farm resilience through a data-driven crop insurance program.
- Strengthen federal incentive integrity to ensure that agricultural production does not come at the expense of other existing carbon sinks.

Monitoring, Research and Development

- **Improve landscape-level soil carbon MMRV to offer land stewards better tools that link holistic ecosystem outcomes with land management, including through a novel soil carbon inventory and analysis network.**
- Invest in innovative farmer-focused research on perennial systems.
- Improve understanding of underexplored and emerging CDR pathways, like biochar and enhanced rock weathering.

For questions or further discussion, please reach out to land@carbon180.org.

No carbon tunnel vision

Land stewards tend to see the most value from tangible benefits like improved soil health, biodiversity, input reduction, and enhanced operational resilience that often, but not always, accompany carbon removal. Carbon180's policy recommendations focus on solutions that meet land steward and ecosystem needs, while removing legacy carbon from the atmosphere.

SOURCES

1. J. Sanderman, T. Hengl, G.J. Fiske, 2017. Soil carbon debt of 12,000 years of human land use, *Proc. Natl. Acad. Sci. U.S.A.* 114 (36) 9575-9580, <https://doi.org/10.1073/pnas.1706103114>
2. Hatfield, J.L., Wang, Y., Matlock, M.D., Rice, C.W. (2024). Potential for US Agriculture to be Greenhouse Gas Negative. https://cast-science.org/wp-content/uploads/2024/11/US-FRA_CAST-FullReport.pdf