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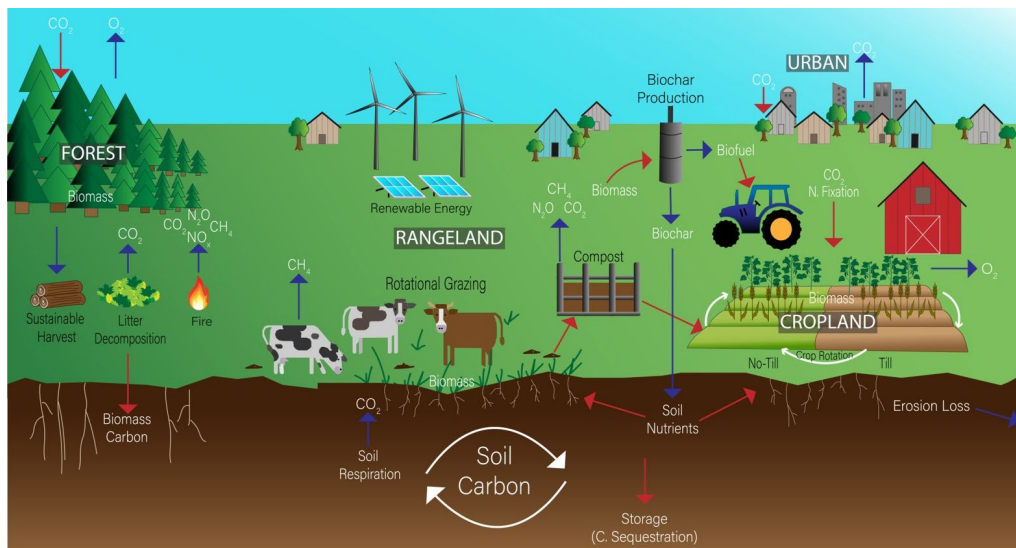


Photo credit: Rajan Ghimire

### Extension guide on rangeland carbon sequestration

Drs. Casey Spackman and Christopher D. Allison published an extension guide (Guide B-827) highlighting carbon sequestration opportunities on rangelands. The guide discusses that carbon sequestration in rangelands can mitigate climate change impacts and present economic opportunities for ranchers by participating in the carbon credit market. Establishing uniform carbon opportunity plans, financial assistance, and baseline assessments are crucial for sustainable carbon management and potential income from the carbon credit market. The full article can be assessed through [pubs.nmsu.edu/b/B827/](http://pubs.nmsu.edu/b/B827/). Dr. Spackman is a co-principal investigator for the Carbon Management and Soil Health Initiative Project.

### Extension workshop videos are online

In Albuquerque, NM, a one-day Extension workshop on "Carbon Farming in New Mexico" was held on July 26, 2023. The summary video of presentations from several experts and panel discussion sessions are now online and can be assessed through the National Center on Carbon Management and Soil Health website ([nccmsh.nmsu.edu/workshop.html](http://nccmsh.nmsu.edu/workshop.html)). Thank you, Dr. Tomilee Turner and her team, for helping edit and upload the videos.



## Greenhouse gas monitoring with soil gas flux system started at Clovis ASC

There is a growing global interest in quantifying greenhouse gas (GHG) fluxes from cropland and rangeland soils, aiming to identify alternative management practices that mitigate GHG emissions. As a part of the Carbon Management and Soil Health Initiative, researchers at the NMSU Agricultural Science Center at Clovis have started measuring greenhouse gases (CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub>) using the Li-COR soil gas flux system. The measurements can be done continuously with automated long-term chambers supplied with continuous energy through solar panels.



## Publication highlight: Cover crops for improving soil carbon storage and soil health



Four years of cover cropping under silage crop rotation systems in eastern New Mexico demonstrated 10-17% more soil organic carbon (SOC) with cover crops than without at 0–10 cm depth ([Acharya et al., 2024](#)). Despite a hot, dry, semi-arid climate with limited rainfall (about 18 inches annually), the research also shows greater soil microbial community size and activities. Another study from the same site ([Adhikari et al., 2024](#)) highlighted the importance of cover crop selection, showing that the quality of cover crop residue influences carbon mineralization, impacting long-term carbon and nitrogen storage. For more details, please visit:

1. Acharya et al., 2024. Cover crop-mediated soil carbon storage and soil health in semi-arid irrigated cropping systems. *Agriculture, Ecosystems & Environment*.
2. Adhikari et al., 2024. Cover crop residue quality regulates decomposition dynamics and soil carbon mineralization kinetics in semi-arid cropping systems. *Applied Soil Ecology*.

## Digging deeper!!



Soil processes are not limited to surface layers—understanding soil carbon sequestration requires deep-profile assessments of carbon. As a part of Carbon Management and Soil Health project, researchers and students collected soil samples to a depth of 60 cm in Las Cruces, NM, from long-managed pecan orchards.



***We wish everyone a wonderful holiday season and a start to the new year 2024 filled with love, laughter, peace, and joy!***

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