Cropland-Soils for Carbon Management

- Soil-based carbon dioxide (CO$_2$) storage in croplands is a low-energy, inexpensive, immediately deployable strategy for CO$_2$ removal from the atmosphere that increases drawdown of CO$_2$ via photosynthesis and stores the additional CO$_2$ as organic matter in soil and perennial vegetation.

- Roads to Removal goes beyond previous analyses by spatially integrating the biophysical potential for soil-based CO$_2$ removal with economic constraints on farmers.

Key Findings:

- For $40/metric tonne CO$_2$-equivalent, these practices could economically remove 130 million metric tonnes of CO$_2$ between 2025 and 2050.

- For $100/metric tonne CO$_2$-equivalent, these approaches could remove >850 million metric tonnes of CO$_2$ between 2025 and 2050.

- Without sustained application, gains in CO$_2$ removal could be reversed. As such, techniques should develop in tandem with CO$_2$ removal approaches that use highly durable geologic storage and follow rigorous monitoring, reporting and verification standards.

“Plants absorb carbon dioxide from the air, and store it in their biomass and soil. It can stay there for years to centuries as long as we help to maintain those ecosystems.”

Dr. Allegra Mayer
Lead Author, Cropland-Soils
Lawrence Livermore National Laboratory

Every region has a story. Every region has an opportunity.

To learn more about each carbon dioxide removal pathway, go to Roads2Removal.org