Using Cover Crops and No-Till to Combat Climate Change on US Cropland

A Fact Sheet Summarizing AFT's *Combating Climate Change on US Cropland* Report

Rebuilding carbon stocks in agricultural soils is not only crucial for the continued productivity of our nation's farmers, but necessary to combat the impacts of climate change. Despite a recent uptick in soil health practice adoption, fewer than a third of the 260 million acres in row crops are managed with no-till or strip-till, while less than five percent use cover crops, according to the 2017 Census of Agriculture. By increasing the use of just these two practices, American farmers have an unparalleled opportunity to combat climate change, improve water quality, and build on-farm resilience and profitability.

Immediate Agricultural Climate Solutions

While it is unrealistic to expect farmers to make management changes overnight, increased and sustained use of no-till/strip till and cover crops is achievable with current technology, rendering these practices readily available to offer immediate climate solutions. American Farmland Trust evaluated a near-term scenario in which farmers in selected corn belt and southeast states maintain existing practices and grow cover crops on an additional 15% of row crop acres and adopt no-till/strip till on 25% of acres currently managed with intensive or reduced tillage. Up to 97 million metric tonnes (MMT) of carbon dioxide equivalents (CO_2e) would be removed from the atmosphere annually under this scenario, according to estimates generated with the CaRPE tool.* U.S. farmers could deliver these benefits in the next three to five years if Congress and the Administration provide additional support, prioritize financial and technical assistance programs, and develop innovative incentives.

THIS SCENARIO ON A FRACTION OF US CROPLAND WOULD REMOVE 97 MMT OF CO_2e FROM THE ATMOSPHERE, EQUAL TO

removing 21 million

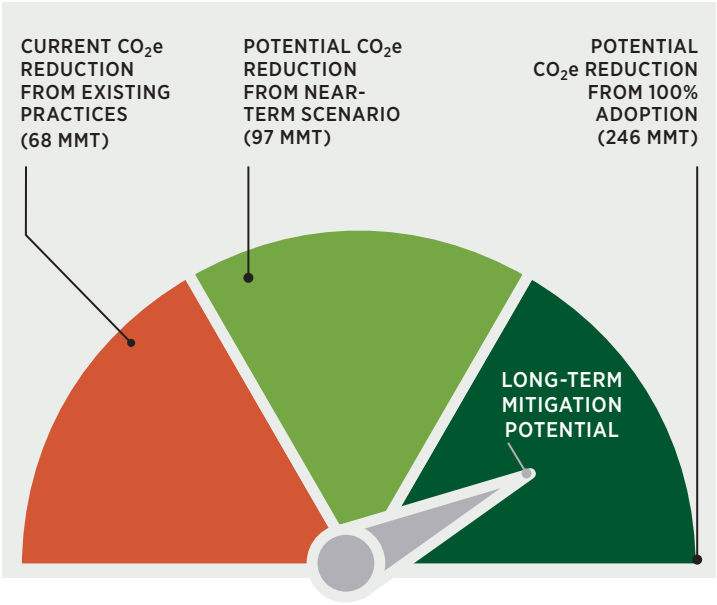
PASSENGER VEHICLES FROM THE ROAD FOR A YEAR OR

growing 1.6 billion

TREE SEEDLINGS FOR TEN YEARS.

Long-Term Mitigation Potential

Even greater climate benefits beyond this near-term scenario could be realized by expanding the technical, financial, and social support for farmers and ranchers. While 100 percent adoption of no-till and cover crops is unrealistic, the implementation of additional synergistic practices on cropland and grazing land could significantly combat climate change through reductions in GHG emissions and increased soil carbon sequestration.



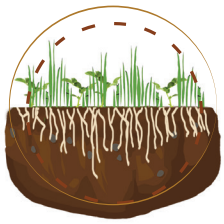
* farmland.org/carpetool

POTENTIAL CO-BENEFITS OF COVER CROPPING AND NO-TILL INCLUDE:

SOIL TEMPERATURE AND MOISTURE REGULATION

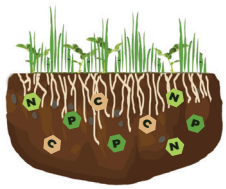
REDUCED SOIL LOSS FROM WIND & WATER

WINTER AND EARLY SEASON WEED SUPPRESSION



IMPROVED SOIL STRUCTURE

INCREASED DIVERSITY OF SOIL BIOLOGICAL COMMUNITIES



NUTRIENT CAPTURE AND AVAILABILITY

Practice Summary: Cover Crops

CURRENT ADOPTION (2017): 11 million acres

REMAINING ROW CROP ACRES FOR PRACTICE IMPLEMENTATION (2017): 250 million

NEW PRACTICE ADOPTION IN NEAR-TERM SCENARIO: 35 million acres

PRACTICE: Crops grown in the "off season" and not typically harvested.

NATIONAL AVERAGE CO_2e REDUCTION POTENTIAL: 0.25 (non-legume), 0.35 (legume) tonne CO_2e per acre per year

FACTORS AFFECTING CO_2e REDUCTION POTENTIAL:

- Field level characteristics and management including soil type, climate, topography, crop rotation and productivity, tillage, and residue and nutrient management.
- Cover crop specific management including the number of sequential years planting a cover crop, how long the cover crop is grown before termination, and cover crop species.
- The largest soil organic carbon increases are associated with temperate locations, fine-textured soils, and mixed species plantings of cover crops.

Practice Summary: No-Till/Strip-Till

CURRENT ADOPTION (2017): 82 million acres

REMAINING ROW CROP ACRES FOR PRACTICE IMPLEMENTATION (2017): 178 million

NEW PRACTICE ADOPTION IN NEAR-TERM SCENARIO: 34 million acres

PRACTICE: No-till systems plant directly into soil that has not been disturbed after harvest. Strip-till systems disturb a narrow strip where the seed is planted, leaving the remaining soil surface undisturbed. Both practices disturb less than 30% of the soil within the row. NRCS includes no-till and strip-till under the same practice standard. Considering this, the same CO_2e reduction potential applies to both.

NATIONAL AVERAGE CO_2e REDUCTION POTENTIAL: 0.51 tonne CO_2e per acre per year when switching from intensive till to no-till/strip till

FACTORS AFFECTING CO_2e REDUCTION POTENTIAL:

- Field level characteristics and management including soil type, climate, topography, crop rotation and productivity, residue and nutrient management, and depth of previous tillage practices.
- The largest soil organic carbon increases are associated with temperate locations and well-drained soils.

AMERICAN FARMLAND TRUST is the only national organization that takes a holistic approach to agriculture, focusing on the land itself, the agricultural practices used on that land, and the farmers and ranchers who do the work.

For more information about practices and outcomes highlighted in this fact sheet or the larger report, contact AFT Climate Initiative Director Jen Moore at jmoore@farmland.org or AFT Midwest Science Director Emily Bruner at ebruner@farmland.org or visit **farmland.org/carbonsequestration**.

American Farmland Trust
SAVING THE LAND THAT SUSTAINS US

1150 Connecticut Avenue NW, Suite 600 Washington, DC 20036 • (202) 331-7300 • farmland.org