Evaluating the Role of Agricultural Carbon Markets in Financing Soil Health on California Ranches

Stanford University **March 2021**

About the Lead Authors

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Introduction

90% of California is comprised of natural and working lands. Governor Newsom has set aggressive targets to both conserve land and mitigate climate change, using strategies like partnering with landowners on carbon sequestration. In this context, we explored new approaches to compensating landowners for building soil carbon. Specifically, we examined an agricultural soil carbon market called the Ecosystem Services Market Consortium (ESMC), set to launch in 2022. Through interviews with the architects of ESMC and with a diverse sample of California ranchers, we investigated food and agriculture companies' motivations for creating ESMC and how this carbon market could provide California ranchers with more funding for rangeland conservation.

Study Findings

Our research revealed several key considerations regarding ESMC and rangeland conservation. First, ranchers in the study were keen to support soil health on their properties and engage with ESMC, as long as the market was scientifically rigorous and paid them enough. Notably, how much ranchers would need to be paid for soil carbon to make participation worthwhile varied significantly across operations, in some cases requiring up to $70-80/metric ton of carbon.

From our interviews with ESMC members, we identified several factors motivating companies to develop the carbon market. One key motivation was to attract new forms of capital that could incentivize producers to adopt soil health practices like cover-cropping and grazing management. A second motivation was carbon insetting, a new approach to managing corporate emissions that addresses emissions from across companies' supply chains. In contrast to carbon offsetting, where companies purchase verified carbon credits to offset their emissions, corporations pursuing carbon insetting use strategies like investing in on-farm soil health practices. ESMC members highlighted several challenges to implementing the carbon market, including how to affordably scale rigorous monitoring, reporting and verification (MRV) systems and whether there is enough external demand for agricultural carbon offsets to support the market.

Today, there is significant unmet demand for conservation financing and agricultural carbon markets could help to fill this gap. Looking at just two Farm Bill conservation programs—EQIP and CSP—we found that $135M in applications remained unfunded in 2019, which can be understood as $135M in unmet demand for conservation financing. ESMC could address this demand by providing additional income to producers for soil carbon sequestration. However, the income potential of carbon markets is dependent upon producers successfully increasing soil carbon, and augmenting soil carbon on California rangelands is challenging due to their biogeochemical characteristics (see this new literature review on grazing management and soil carbon). That said, beyond augmenting soil carbon, ESMC could support California ranchers' broader soil health and production goals by potentially providing a new source of conservation financing.

Finally, while carbon markets can provide funding to producers who increase soil carbon, soil conservation practices can be expensive and onerous to implement and carbon markets tend to put the upfront risk on producers. Given this, programs that provide technical assistance and conservation funding—including Farm Bill programs implemented by the USDA Natural Resources Conservation Service and private sector financing tools—are essential to scaling the adoption of soil health practices and should accompany the deployment of new carbon markets like ESMC.

Learn More

To read the complete study findings published in *Ecology & Society*, visit:
https://doi.org/10.5751/ES-12254-260119

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