Promoting Soil Health: Barriers, Motivations, Enabling Conditions

Summary

We will conduct a comprehensive analysis of the barriers, motivations, and enabling conditions that affect the ability of California farmers and ranchers to implement farming practices that advance beneficial soil health outcomes. This project draws on UC Berkeley faculty expertise at Berkeley Food Institute's (BFI) Center for Diversified Farming Systems in response to growing interest in soil health in California and nationwide. The research timeline is 11/1/17 – 10/31/19.

Area of Need

Farming practices that improve the health of soils, including those that increase agrobiodiversity and organic matter and avoid chemical inputs, have been identified as vital for climate resilience. Understanding why farmers adopt or do not adopt practices that promote soil health is imperative for creating more sustainable agricultural systems. Such research is urgently needed to fill a major knowledge gap regarding effective ways to increase the adoption of soil health practices.

Practices That Promote Soil Health

Practices that enhance the health of soils lead to better crop quality and nutrition, increased crop yields, improvement of livestock health, greater agrobiodiversity, favorable economic outcomes for farmers, and climate resilience.

These "diversification practices" include:

- polyculture
- crop rotation
- rotational grazing
- cover cropping
- no or minimal till
- using green manure and compost

Crimson clover cover crop
(Source: NRCS)

Such beneficial techniques are often *not* adopted by farmers because of multiple reinforcing market, knowledge, agronomic, environmental, and policy barriers. Farming methods that enhance soil health require knowledge and skills that may take time to develop, may entail costly risks during early implementation, and/or may not be economically competitive in the market compared to conventional farming approaches. Additionally, drought years and reduced irrigation supplies may deter farmers from adopting beneficial practices, even though they may provide resilience in the face of these challenges.

Current government policies and incentives do not sufficiently recognize these challenges nor help farmers overcome them. Existing programs are often under-resourced and routinely over-subscribed. In California, the Healthy Soils Initiative administered by the California Department of Food and Agriculture is beginning to support pilot projects that provide incentives for farmers to adopt soil health practices.

Research Objectives and Approach

BFI's research project objectives are to:

1. Identify barriers, motivations, and enabling conditions that affect the ability of California farmers and ranchers to implement soil health practices. Farmers surveyed include both certified organic and non-organic, and will include a range of operations in terms of farm size and socioeconomic status.
    a. We will survey University of California Cooperative Extension Specialists (UCCE) and county-level Resource Conservation District (RCD) advisers.

    b. These surveys will be complemented by additional surveys (from about 200 growers) and semi-structured interviews (of 20-30 growers) targeting a sample of farmers representing different regions in California and growers who have been chosen to receive incentives under the Healthy Soils Initiative (HSI).

2. Develop policy recommendations for legislators, policymakers, and key industry representatives in California and nationally to facilitate adoption of these practices to benefit growers, consumers, and environmental quality.

3. Increase adoption of these practices by communicating to California's farmers and consumers about the benefits of soil health for sustainable agriculture and the role of diversified, organic practices in improving soil health.

Synthesis, Outputs and Impacts

Outputs will include a synthesis report, policy briefs, and information targeted to legislators, policymakers, and agricultural industry actors. We will also develop a model policy framework, applicable in California and potentially nationwide, with specific recommendations for policy interventions to overcome barriers and increase opportunities for soil health practices.

Next Steps

We request your assistance with the following:

- Publicizing the opportunity to participate in surveys to be used in this study.
- Communicating the results of this research with government and grower networks.
- Contacting the project researchers to share expertise, contacts and ideas on the project.

Contacts at UC Berkeley

Professor Alastair Iles, iles@berkeley.edu, Professor Claire Kremen, ckremen@berkeley.edu, Joanna Ory, Postdoctoral Fellow, joannaory1@berkeley.edu, or Ann Thrupp, Berkeley Food Institute Executive Director, athrupp@berkeley.edu