

Motivation and Challenges in Adopting Soil Health Practices

Conservation of soil and natural resources is a major challenge of the 21st Century. Soil health is in the cornerstone of food security, water quality, climate change, and human health. There are an ample number of agronomic practices which claim to be regenerative and sophisticated enough to improve the soil health, complex ecological functioning, environmental quality, and crop production. Farmers need to choose a practice at the end of the day to become a part of the effort to create a sustainable food production system and be community members of soil conservationists to leave better soil for future generations. There are several research showing evidence of quantitative improvement in soil health using cover crops, no-till, crop rotation, crop diversity, crop residue, and manure management.

Recently there is a growing consensus among researchers and educators on acknowledging and accounting for farmers' perspectives as an end-user while promoting any management practice (Arbuckle and Roesch-McNally, 2015). More qualitative research is needed to understand how producers navigate and the significant field-level challenges they face while adopting soil health management and especially cover crops. Given the field-level difficulties, it is important to identify what motivates or deters a farmer from adopting such stewardship. Understanding farmers' perspectives are essential in shaping research priorities and formulating outreach and incentive programs to address the shortcomings in adopting soil health management.

A study by Das et al., (2022) highlighted that the adoption of cover crops is considerably low across the Midwest and the United States, though there are several research works and evidence supporting the benefits of cover crops for soil health and ecosystem services. The 2012 national survey reported only 2.3% of the total agricultural lands in the Midwestern United States were planted to cover crops (Roesch-McNally et al., 2018). Das et al., (2022) studied the motivation and challenges associated with the adoption of soil health management and cover crops. Reducing top-soil erosion was the most significant motivating factor in adopting soil health management and cover crops. Increasing soil water infiltration, organic matter, soil carbon, and the stewardship to sustain soil resources for future generations were some of the significant reasons for adopting different soil health management practices. Stewardship spirit among farmers to conserve soil resources and pass down a healthy ecosystem to future generations presents a bright hope and motivation for adoption of soil health managements.

The most significant challenge in adopting cover crops is a narrow window between the main crop harvest and cover crops planting. Cover crop planting and termination often coincide with a small management window that affects the field activities, such as harvesting and planting of primary cash crops. Input costs, including seeding, weather issues and farm labor were also considered as major difficulties for adopting cover crops. In the study by Das et al., (2022), producers stated that a cost-share covering planting and termination would help in wider adoption of cover crops. Some producers also shared their concerns about the yield drag, especially in semi-arid regions, where precipitation is low. Understanding field-level challenges and motivation will inform policy makers, educators, and conservationists in adapting their programs to provide better technical assistance, education, and support to producers to adopt soil health management practices.

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