



Introduction

NRCS works with farmers in the southern Mississippi River Delta region to provide precision land leveling for water conservation on agricultural lands. Land leveling expedites surface drainage and assists in the uniform distribution of irrigation water. However, the practice results in severe soil disturbance altering the physical, chemical, and biological properties of the soil that in the short term may result in losses in crop productivity. Farmers alleviate this decline through the application of poultry litter and/or the planting of a wheat cover crop. This project addresses the resource concerns of the Mississippi River Basin Initiative.

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Mississippi Crop Cover Study



Cover crop emerges after 18 days after planting at the Small Farm Demonstration Site in Preston, Mississippi

Goal

Assess the ability of wheat, rye, daikon radish, and crimson clover to restore soil physical properties altered by land leveling.

Locations - recently leveled with at least a 10 to 12 inch cut.

1. A – Sunflower County, Mississippi
2. B – Tippah County, Mississippi
3. C – Mound Bayou - Alcorn Extension, Mississippi
4. D - Preston - Alcorn Extension, Mississippi

Experimental Design

Randomized Complete Block Design
4 Replications





Sunflower County



Tiptah County



Mound Bayou - Alcorn Extension



Preston - Alcorn Extension

Plot Plan

REP 1	REP 3	REP 2	REP 4
wheat	rye, daikon radish	rye, crimson clover	control
control	wheat	rye	rye, daikon radish
rye	rye, crimson clover	rye, daikon radish	wheat
rye, crimson clover	control	control	rye
rye, daikon radish	rye	wheat	rye, crimson clover

Cooperators

1. Local NRCS District Conservationist
2. Mississippi, Arkansas, and Tennessee state agronomists
3. Ramona Garner, East NTSC Plant Materials Specialist
4. Joel Douglas, Central NTSC Plant Materials Specialist
5. David Lamm, National Soil Health and Sustainability Team

Treatments (Seed Mixes)

1. control (no covercrop)
2. wheat
3. cereal rye
4. rye, crimson clover
5. rye, daikon radish

Data Collection

1. Biomass

- (a.) Clip 0.5 m2 at soil surface, 2 weeks prior to cover crop termination. Take fresh weigh, pull grab sample of shoots for dry weight and N analysis

2. Soil Temperature

- (a.) 5 randomly distributed samples from each plot, 2 weeks prior to cover crop termination

3. Soil Moisture

- (a.) 5 randomly distributed samples from each plot, 2 weeks prior to cover crop termination

4. Soil Health Assessment

- (a.) Soil samples taken from each plot at cover crop planting and 2 weeks prior to cover crop termination