

Please use this form to clearly and concisely report on project progress. The information included should reflect quantifiable results that can be used to evaluate and measure project success. Comments should be limited to the designated boxes. Technical reports, no longer than 4 pages, may be attached to this summary report.

Project Number:	2223R0036
Project Title:	How does cover crops impact soil water dynamics and soybean production in Louisiana?
Organization:	Louisiana State University-Agricultural Center
Project Lead Name:	Xi Zhang
Report Date:	December. 05, 2023

In the Progress Summary section below, please provide a brief summary of project progress in lay language that will be shared publicly in the [National Soybean Checkoff Research Database](#). Do not include any confidential or proprietary information. If no lay language is provided, the contents of this entire report will be published in the [National Soybean Checkoff Research Database](#).

Progress Summary (in non-proprietary lay language suitable to be shared publicly):

The project started on April 1, 2023. In the past quarter (10/2023-12/2023),

- (1) After harvesting the soybean, different cover crops have been planted in two plots with different soil types.
- (2) Installed soil moisture and temperature sensors in two depths to monitor soil water and thermal status.

Detailed Progress Status – Expand upon the above section. What key activities were undertaken and what were the key accomplishments during this reporting period? List each key deliverable from the proposal and describe progress made (or not made) toward achieving it, including metrics were appropriate.

- (1) Legume and non-legume cover crops (i.e., winter rye, sweet clover, and subterranean clover) with different root traits (fibrous roots vs. taproot) have been planted in two plots with different soil textures (i.e., sandy loam vs. silty clay loam) to investigate the influences of different cover crops in diverse soils on water usage during the cover crop growing season and soil water storage, availability, and recharge for the following cash crop.
- (2) Soil moisture (TEROS 10) and temperature (TEROS 12) sensors were installed at two depths (i.e., 0-8 and 8-16 inches) in the research plots with different treatments to continuously collect soil water (volumetric soil water content) and thermal (soil temperature) status data. These data will be combined with weather station data to quantify the amount of water loss from cover crops, evaluate cover crops water use, and estimate the actual effects of cover cropping on soil water storage changes in different soils.