|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Project Title | | How does cover crops impact soil water dynamics and soybean production in Louisiana? | | | | | |
| PI’s Name | | Xi Zhang | | E-mail | | xizhang@agcenter.lsu.edu | |
| PI’s Title | | Assistant Professor | | Institution: | | Louisiana State University-Ag Center | |
| Mailing Address | | 262 Research Station Drive | | | | | |
| City/State/Zip | | Bossier City, LA 71112 | | | | | |
| Phone number | | (318) 408-0983 | | | | | |
| Additional PIs  For this project | | Changyoon Jeong, Associate Professor, Louisiana State University-Ag Center  Email: cjeong@agcenter.lsu.edu, Phone: (318) 408-0975 | | | | | |
| Research Locations  (and states involved) | | Red River Research Station, Louisiana State University-Agricultural Center  Bossier City, Louisiana | | | | | |
| **Timeline:**  **Current Year - FY23** | | | **Multi-Year Project Information** (if applicable) | | | | |
| Year 1 | | Year 2 | | Year 3 |
| Start Date | Apr. 1, 2023 | |  | |  | |  |
| End Date | Mar. 31, 2024 | |  | |  | |  |
| Funds Requested | $20,002 | | $20,002 | | $ | | $ |
| **Program Area:** Irrigation/Water management, Research Validation or Demonstration, Other (Soil Management) | | | | | | | |
| Objectives | | (1) Quantify the impacts of cover cropping on soil water budget and thus soybean production. (2) Investigate the economic feasibility of cover cropping through a cost-benefit analysis. | | | | | |
| Justification | | Cover crops can deplete soil water when they are growing, and the water use of cover cropping is unclear. The impacts of cover cropping on soil water budget can influence soybean production depending on climate and soil type. Previous studies were conducted mainly in the Midwest. Therefore, quantify cover cropping and water dynamics interactions in Louisiana is essential for evaluating the benefits of cover cropping for soybean production in the Midsouth. | | | | | |
| Exp Setup | | The study will be conducted on soybean fields with different soils in Louisiana. Soil moisture and evapotranspiration data in cover cropped and control plots in each field will be collected to estimate soil water status and crop water use. Leaf area index, grain yield, and nutrient content will be determined to estimate soybean performance under different treatments. A cost-benefit analysis will be performed to assess the economic feasibility of cover cropping. | | | | | |
| Summary | | Cover cropping has potential to impact crop yield due to consumptive water losses through evapotranspiration. This research quantifies the effects of cover cropping on soil water budget and improve cover cropping management to enhance soybean production. | | | | | |
| Key Metrics | | Soybean production | | | | | |
| Expected Deliverables | | Peer-review articles, presentations in professional conferences, field days, newsletters, extension publications, and on-farm demonstrations. | | | | | |
| Benefit to midsouth farmers | | This project incorporates research and outreach to provide research-based information to stakeholders to increase soybean production, strengthen farming systems for long-term profitability, and improve farmers’ economic well-being and quality of life. | | | | | |
| Progress Made | |  | | | | | |
| Signature of Principle Investigator | | | | | | Date: Aug. 10, 2022 | |
| Shape  Description automatically generated with medium confidence | | | | | |  | |

DO NOT GO OVER ONE PAGE. THIS IS A SINGLE PAGE FOR THE BOARD MEMBER’S QUICK REFERENCE.