U.S. Department of Agriculture
Economic Research Service
Resource and Rural Economics Division
Conservation and Environment Branch

GS-1560/0110/1530-12, Data Scientist/Economist/Statistician (Data Science)

Duty location: Location negotiable after selection

Initial 2-year appointment with the potential for additional 1-year extensions up to a total of 4-years.

INTRODUCTION

This position serves within United States Department of Agriculture (USDA)'s Economic Research Service (ERS), Resource and Rural Economics Division (RRED), Conservation and Environment Branch (CEB). The Economic Research Service (ERS) mission is to inform and enhance public and private decision making on economic and policy issues related to agriculture, food, the environment, and rural development. The ERS is the primary source of economic information and research in the U.S. Department of Agriculture. In addition, ERS disseminates economic information and research results through an array of outlets.

The Resource and Rural Economics Division (RRED) provides information and analysis to enhance public policy, and to conduct analysis that informs national public and private decisions involving the interrelationship among natural resources, environmental amenities, rural development, and agricultural activities, agricultural research and development, technology and productivity, the structure of farming, upstream agricultural and other rural businesses, farm income, and well-being of farm and rural households. Data indicators, forecasts, and special studies are disseminated to policy makers, program officials, and the public in publications, briefings, and electronic products.

The Conservation and Environment Branch (CEB) addresses a wide spectrum of issues as they relate to conservation and environmental policies that affect the agricultural sector. CEB analyzes the effect of Federal policies and programs on the adoption of conservation practices, input use, and land allocation to the extent that these changes are likely to affect agricultural resources or environmental quality. Topics include the cost-effectiveness and design of USDA conservation programs (technical and financial assistance), regulatory programs affecting agricultural producers, and environmental markets, strategies for climate change mitigation and adaptation, and the potential environmental consequences of farm commodity, crop insurance, and disaster programs.

This position is part of the Climate Change Fellows Program (CCPF) that USDA has established in order to gain the expertise needed to implement USDA's climate strategy, and to provide scientific expertise and analysis to decision-makers in support of the complex scientific and technical issues underling current USDA programs that address climate resilient agricultural

systems and communities. ERS seeks two USDA Climate Change Fellows to support core work related to the Conservation Technical Assistance (CTA) section of the Inflation Reduction Act (IRA) statute. The implementation of this statute calls for the quantification of carbon sequestration and greenhouse gases (GHG), over a period of 8 years, using the existing GHG inventory and assessment program of USDA. This work supports the broader efforts of USDA towards Monitoring, Measuring, Reporting and Verification (MMRV), and is being spread over seven key action areas that are currently being pursued in coordination with USDA's Natural Resources Conservation Service (NRCS) and Office of the Chief Economist (OCE), along with other USDA agencies.

Fellows will support a new interagency Conservation Practices Data Team. Team members will be responsible for developing methodologies to gather data and provide annual estimates for major crop and livestock GHG-related practices (such as such as tillage and cover crops; and nutrient, manure, and livestock feed management) using existing and new data sources, such as federal census and survey data, USDA program and administrative data, and remotely sensed data. The Team will be comprised of staff and fellows at four USDA agencies: the Economic Research Service (ERS), the National Agricultural Statistics Service (NASS), the Natural Resources Conservation Service (NRCS), and the Agricultural Research Service (ARS), and led by USDA ERS and USDA NASS.

MAJOR DUTIES AND RESPONSIBILITIES

The Conservation Data Science Fellow will:

- Coordinate with Data Team members and senior staff to provide leadership that ensures that USDA surveys are collecting the information necessary to create statistical estimates of conservation and GHG-related practices
- Identify and study conservation practice data sources, and determine the strengths and weaknesses of those data sources
- Make recommendations for how to revise, modify, streamline and/or augment federal surveys such as the USDA Agricultural Resource Management Survey to collect timely, accurate, and consistent information about conservation and GHG-related practices
- Participate in the development, refinement, testing, and implementation of federal surveys such as the Agricultural Resource Management Survey to ensure conservation practice survey data collection methods are meeting USDA goals
- Work with team members and supervisor to develop and document methodologies for creating robust statistical estimates of adoption of conservation and GHG-related practices for crop and livestock production, and new processes to operationalize these methodologies and produce timely and consistent data series
- Consult with internal and external stakeholders to ensure that proposed statistical estimates and methodologies address end user needs.
- Assemble and maintain multi-year datasets and data products to ensure data quality and develop associated metadata

- Use advanced data management, analysis, and visualization skills in several of the following software packages/applications/coding languages to accomplish core duties: R, Stata, SAS, Google Earth Engine, Javascript, Python, SQL, Tableau, ArcGIS Pro
- In collaboration with Team members, develop protocols for data editing, storage, management, and integration, including identifying challenges and developing creative solutions for new and unexpected data challenges
- As assigned and in collaboration with Data Team members, maintain an ERS data series (product), including updates to documentation, adjustments to changes in the reporting from primary data sources, and responses to client questions and concerns
- Provide customer support functions for data series users
- Provide subject matter expertise in the development and production of specialized datasets and the analysis to investigate program changes and data trend issues. Develop tables, charts, and graphics to document changes in conservation and GHG-related practice adoption, and contribute to the development of trend reports that draw on associated data series and datasets.

Other duties

Maintains contacts and works with ERS and USDA staff; outside resources such as trade and/or private organizations, universities, state and local officials, and staffs of members of Congress to coordinate and complete assigned tasks.

As assigned, serves on interagency committees formulating official USDA estimates and analyses.

Serves as an internal and external technical expert, including through engagement with outside individuals or organizations when projects are performed under cooperative agreements or contracts.

Develops and delivers presentations and publications on data series development and uses for external audiences. Coordinates work with others on the same topic.

EVALUATION FACTORS

1. Knowledge Required by the Position, 1-7, 1250 pts

Knowledge of the mission, functions and policies of Economic Research Service.

Professional knowledge of data science and statistical techniques, and quantitative methods, and/or economic concepts, principles, theories, methods and techniques as they apply to data science.

Skill in using statistical and analytical methods in order to accomplish assignments.

Skill and knowledge of statistical and data management software, applications, and tools that facilitate the management of survey and geospatial data, the automation of data management, integration, and statistical estimation routines, and analysis and visualization of complex and spatial data. This includes skill in assembly of appropriate data, developing tables, charts and graphics and performing analysis of trends in farmer practice adoption; selection, modification or

development of procedures to meet unexpected or altered conditions; and skill in data management and metadata documentation for complex datasets and data products.

Knowledge of Government policies and programs relevant to assigned activities.

Knowledge of the structure and geography of U.S. agriculture, including crop and/or livestock production, and GHG-related practices

Skill in the use of statistical, data management and presentation software (such as Excel, Access, PowerPoint, SAS, STATA, GAMS, GAUSS, SQL, PYTHON, etc.) to develop and maintain data products and datasets/databases and conduct analysis.

Skill in writing clearly and objectively for newsletters, reports and/or articles.

Knowledge of survey, questionnaire, and data collection techniques.

Knowledge of questionnaire organization and design, and skill in providing feedback for survey improvement.

Skill in assembling and maintaining multi-year datasets and ensuring data quality.

Communication skills in order to work with all levels of personnel, provide and receive information, and present information.

Skill in planning and scheduling work and developing processes to ensure timelines for completion of activities is met.

Interpersonal skills to work successfully with team members and other agencies, non-Federal organizations, and contactors.

2. Supervisory Controls, 2-4, 450 pts

The incumbent is supervised by the ERS Conservation and Environment Branch Chief who provides general supervision through routine discussions of project progress and results. The Conservation Practices Data Team Leads at ERS and NASS will also provide general direction and overall guidance. The incumbent carries out assignments independently, establishing priorities in concert with mission objectives, setting priorities and executing a work schedule that assures the timely completion of tasks. The incumbent ensures work products adhere to established requirements; develops and recommends procedural revisions; and negotiates solutions to problems. The incumbent keeps the supervisor or designee informed of progress concerning sensitive issues or prolonged delays in meeting objectives. The incumbent is responsible for developing and presenting recommendations regarding processes and the allocation of staff time and technology resources to ensure the completion of planned data product releases. Completed work is considered technically correct and is normally accepted

with little or no change. Work is reviewed for timely achievement of objectives, supervisor usually does not review methods used.

3. Guidelines, 3-4, 450 pts

Guidelines include Department and ERS policies and procedures; guidance concerning various reports, bulletins and studies, and data documentation; professional economic literature; contract specifications; software guidance; survey criteria and procedures; precedents; data sources requirements and guidance; manuals; receiving, filing and distributing preliminary survey datasets requirements; statistical and analytical methods; and reporting requirements. Although the guidelines are extensive, they are usually in general terms and may give rise to conflicting interpretations and applications. The incumbent exercises considerable judgment in interpreting guidelines to accommodate the situation and in deviating from established methods to modify, adapt, and/or refine broader guidelines. Policy issues are referred to supervisor or designee.

4. Complexity, 4-4, 225 pts

Assignments involve assessing and understanding critically important economic and climate change related issues. The complexity of issues range from the broad application of data science, data management, and statistical principles to the application of specific technical expertise and/or forecasting abilities. The incumbent is an active participant in the identification of important issues central to the program needs. Assignments include identification of appropriate methods for developing statistical estimates of practice adoption, the development of datasets and survey instruments, documentation of datasets and data series, and the interpretation and presentation of statistics and trends. Assignments involve pre-specified, often rigid, deadlines and require substantial depth, breadth and intensity.

The work involves the coordination of activities with other staff within and outside ERS, and the development and maintenance of effective relationships is imperative.

The work involves situations that require the incumbent to draw on both knowledge of and experience to evaluate the circumstances and then use ingenuity in tailoring activities to meet the needs of the situation. Issues confronted are often sensitive and the incumbent must anticipate problems, and evaluate their potential impact and effect appropriate solutions.

5. Scope and Effect, 5-5, 325 pts

The work of the incumbent enhances USDA's understanding of the effect of farmer practice adoption on greenhouse gas emissions and other environmental outcomes, and advances our understanding of how to use diverse datasets and methods to provide accurate and timely estimates of crop and livestock conservation practice adoption.

The incumbent gathers, develops and interprets a wide range of complex data and datasets; conducts complex economic analysis using software and statistical methods; and proposes

solutions for new and unexpected data challenges. In addition, the incumbent has a major role in survey and questionnaire development.

The work of the incumbent contributes to agricultural, natural resource and food policy and data management issues important to Department budgetary, program management, and long-term policy decisions. Ultimately, the professional judgment used in the economic analysis and the resulting recommendations and/or analytical models are of national consequence.

6. Personal Contacts, Level 4

Contacts may include USDA (including the Office of the Chief Economist and the Office of the Secretary) and ERS senior management; professionals inside and outside ERS (including FAS, AMS, FSA, NRCS, NASS); staffs of Executive Branch appointees and/or members of Congress; state and local government offices; universities; national/ international organizations; private organizations; representatives of firms; trade associations; and the public. Develops and maintains long term contacts which are frequent, recurring, and maybe initiated by the incumbent or other parties.

7. Purpose of Contacts, Level C (Factor 6 & 7, 230 pts)

Contacts are made to identify emerging issues; coordinate projects; exchange information; present results of analysis on complex economic issues; respond to data and analytical requests; participate in conferences, meetings, or presentations; maintain liaison; resolve problems; present results of analysis; correlate economic knowledge with specific questions related to activities; and coordinate and ensure timely completion of activities.

8. Physical Demands, 8-1, 5 pts

The work is basically sedentary and usually accomplished while seated at a desk or table, although some travel to meetings and conferences away from the work site is required.

9. Work Environment, 9-1, 5 pts

The work is normally performed in an office and/or conference room setting in public buildings adequately lighted, heated or air-conditioned, and ventilated. The incumbent is expected to observe common sense safety precautions in all work situations.

Total Points 2940 (GS-12 Range 2755-3150)