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

Research Agricultural Economist, GS-0110

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 subject to funding availability.

INTRODUCTION

The incumbent is a Research Agricultural Economist at the Economic Research Service, Resource and Rural Economics Division. The Economic Research Service (ERS) is a primary source of economic information and research in the U.S. Department of Agriculture. ERS conducts a research program to inform public and private decision making on economic and policy issues involving food, farming, natural resources, and rural development.

The ERS research program is aimed at the information needs of USDA, Congress, policy officials, the research community, and the public at large on economic and policy issues related to agriculture, food, natural resources, and rural development.

The mission of the Resource and Rural Economics Division (RRED) is to provide 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 the 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, the economics of organic agriculture, and the potential environmental consequences of farm commodity, crop insurance, and disaster programs**.**

This position is part of the Climate Change Fellows Program that USDA has established in order to engage 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 underlying current USDA programs to address climate resiliency in agricultural systems and communities.

ERS seeks a USDA Climate Change fellow to work within the Conservation & Environment Branch of RRED, to support key analytical 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), Agricultural Research Service (ARS) and Office of the Chief Economist (OCE), along with other USDA agencies.

The Climate Change Fellow will be responsible for conducting complex, empirical economic analysis in close coordination and collaboration with other CEB staff working across key action areas of the IRA-MMRV effort – and may also provide technical support for the development of programmatic activities. Extensive background research on existing literature and data sources will be needed from the incumbent. In addition, the Fellow will play a key role in coordinating data exchange and analysis of ERS survey data, NRCS administrative data and public data sets that will be necessary to achieve the goals and milestones of the inter-agency teams working under different action areas.

The ideal Climate Fellow is an analytically-oriented person who is well-versed in issues, farm management practices and policies that address climate change through adaptation and/or mitigation in the agricultural sector, and how these interact with existing markets, policies and programs for US Agriculture. Familiarity with biophysical models of crop growth and/or livestock, and how they can be used in quantitative sector models of agriculture would be highly regarded in a candidate.

Factor 1 -Research Assignment

A. Assigned Responsibility

The incumbent of this position serves as a key ERS point of contact working across different teams organized around the GHG quantification analysis supported by the Inflation Reduction Act (IRA) who are focused on: (i) soil carbon, (ii) nitrous oxide and methane, and (iii) modeling work. The modeling fellow would work with these teams to provide requested ERS farm management/practice data to inform GHG measurement and communicate data needed to improve emissions modeling to support farmer decision making and policy modeling.

The fellow would also coordinate with ERS modeling team members and senior USDA staff in the preparation/development of models and databases that relate to the quantification of GHG emissions in the agricultural sector, and would also run the models once they are developed.

Principal responsibilities include analysis that provides a perspective of the economic situation and policy environment for the agricultural sector and communicates this information to USDA partners, public and private decision makers. The incumbent will be responsible for carrying out this work and related staff analyses either individually or in conjunction with the other researchers in the agency and working to implement the IRA in other USDA agencies. The incumbent participates in research projects and cooperates with other team members in the preparation and publication of policy-relevant research.

The incumbent would also be expected to:

- Identify and study data sources and approaches to modeling GHG emissions in agriculture
- Determine the strengths and weaknesses of identified approaches and available data sources.
- Assemble appropriate data, develop tables, charts, graphics and perform analysis of economic data and phenomena – status, trends and model-derived projections related to greenhouse gas emissions associated with agricultural production.
- Use econometric and/or programming-based simulation methods to analyze the effects of climate change, supply, demand, trade, price and/or policy developments on land use and relevant markets.
- Collect, edit, analyze, evaluate, and interpret published and unpublished data pertinent to the assignment. Identify and study data sources needed for analysis of assigned areas of study, and determine the strengths and weaknesses of those data sources.
- Develop or participate in design of data products that may include databases, tabular data and charts.

The incumbent combines knowledge of domestic agricultural production systems and environmental policy with detailed knowledge of economic theory, agricultural and environmental economics, and econometrics.

The position requires a thorough understanding of the relevant professional literature; proficiency and precision in the use of a variety of unrelated analytical techniques and methods, often considerably difficult and involving the correlation of numerous factors; the perception necessary to recognize, understand, and explain significant, and possibly subtle, variations from expected findings; initiative and knowledge sufficient to select, modify or develop procedures to meet unexpected or altered conditions; and the imagination and creativity, when necessary, to suggest investigations based on observations in related areas.

B. Research Objectives and Methodology

Incumbent's assignment involves research and staff analysis on GHG emissions in agriculture and the potential technologies and practices that can mitigate them. The incumbent independently plans and conducts complex and difficult economic analyses and research related to the domestic farm economy and key production practices relevant for environmental policy. The objectives are to: Initiate, formulate, plan, and execute an collaborative program of research and analysis addressing various complex problems relating to U.S. agriculture, adaptation to climate change, and GHG mitigation policy. The incumbent conceptualizes complex economic and/or other social science problems requiring a broad understanding of numerous

interrelationships, complex variables, and new analytical methods. Questions presented are unusually difficult because of the nature and scope of the problem and the wide range of methodologies that have been applied to analysis in the literature. Probe and analyze primary and secondary data and information collected from a wide variety of sources to determine their validity and sufficiency; data and information may contain significant gaps and vary greatly in reliability. Data resources may include aggregated experimental data from ARS and other publicly funded research on GHG emissions and sequestration from working lands agricultural conservation and management practices, the Agricultural Resource Management Survey (ARMS), Census of Agriculture, administrative data on conservation programs and practice implementation from the NRCS ProTracts database, and spatial data characterizing environmental and resource conditions. Creativity in selecting and merging variables from diverse data sources will be required. Plan and organize projects and studies, determines approaches, and selects analytical methods and theories to achieve desired objectives.

C. Expected Results

The research results in explanations of phenomena, information to improve the understanding of techniques and processes, and papers describing new and modified theories and principles. The specific research will impact the broad area of agricultural issues relating to U.S. agricultural GHG emissions and climate change adaptation. Outcomes of the research will lead to published reports, staff reports, and/or briefings to Agency and Departmental officials.

D. Knowledge Required

The research assignment requires professional knowledge of economic concepts and principles, data science, or quantitative methods. Knowledge of the structure and geography of U.S. agriculture, including crop and/or livestock production, and GHG-related practices is also used..

Factor 2-**Supervisory Controls**

A. Assigned Authority

The supervisor may either assign a broad problem area to the researcher or allow the researcher to work with substantial freedom within an area of primary interest. The researcher has freedom to identify, define, and select specific projects, and to determine the most promising research strategies and problem approaches.

B. Technical Guidance Received

The incumbent formulates hypotheses, solves problems encountered with only occasional supervisory input, or develops and carries out the plan; keeps the supervisor informed about plans and progress, analyzes and interprets results, and prepares comprehensive reports of

findings, and interprets findings and assesses their organizational and professional applicability and locates and explores the most promising areas of research.

C. Review of Results

The supervisor reviews the work for technical soundness and the methods used and the work is subject to a satisfactory peer review.

Factor 3-**Guidelines and Originality**

A. Availability of literature

Research objectives require the understanding and use of research methodologies from economics and agricultural economics disciplines, including mathematics, and statistics.

Broad guidelines exist in the form of Department and Agency policies and professional literature in economics. The incumbent may be required to develop new criteria and methods which deviate from established methods. In those cases, there may be no precedents and the methods and procedures developed serve as precedents for other analyses.

B. Originality Required

Originality may involve the development and application of new techniques and original methods of attack to the solution of unusual problems; the application of a high degree of insight to isolate and define critical features of the problem; the application of considerable originality and ingenuity in adapting, extending, and synthesizing existing theory, principle or technique into new patterns; or the defining and conducting of auxiliary research studies necessary to the solution of the problem.