

# USDA Research Integrity and Capacity



Inspection Report 84801-0001-22

December 2020

OFFICE OF INSPECTOR GENERAL

# USDA Research Integrity and Capacity

## Inspection Report 84801-0001-22

OIG determined how USDA research agencies fulfilled the USDA mission to produce scientific research products during fiscal years 2017–2019.

### OBJECTIVE

Our objectives were to:

- (1) determine how USDA research agencies fulfilled the USDA mission to produce scientific research products;
- (2) determine whether changes in policy and/or processes impacted the publication of scientific reports, documents, and/or communications during FYs 2017–2019; and
- (3) analyze the impact of any changes in resources, staff, and staff experience levels on the publication of research results during this period.

### REVIEWED

We reviewed the REE organizational structure; applicable laws, policies, procedures, and regulations; REE agencies' website pages; and REE's human resource data.

### RECOMMENDS

We recommend that REE identify and implement a standard mechanism across all REE agencies to enhance both USDA's and the public's ability to identify REE agencies' publications from USDA-funded research by subject areas.

### WHAT OIG FOUND

The Office of Inspector General (OIG) did not identify an instance where any change in policies and/or processes impacted the publication of the U.S. Department of Agriculture's (USDA) research results during fiscal years (FYs) 2017–2019. However, we were unable to fully evaluate the impacts to USDA-funded research publications because we were unable to identify the complete number of Research, Education, and Economics (REE) mission area publications. This occurred because REE did not implement a mechanism to develop systems that could either report publications for all REE agencies or accurately identify all publications resulting from USDA-funded research in any particular subject area. As a result, REE cannot accurately and timely identify or count the number of scientific publications relevant to its stakeholders.

Similarly, OIG could not determine the full impact of the changes in resources, staff, and staff experience levels on the publication of REE research results during FYs 2017–2019 because we were unable to identify publications across all REE agencies. We found that one type of Economic Research Service research publication declined due to staffing losses; however, we could not determine the full impact of this change.

REE agreed with our recommendation, and we reached management decision on the recommendation.





## OFFICE OF INSPECTOR GENERAL

United States Department of Agriculture



**DATE:** December 8, 2020

**INSPECTION**

**NUMBER:** 84801-0001-22

**TO:** Dionne F. Toombs, Ph.D.  
Director  
Office of the Chief Scientist

**ATTN:** William C. Trenkle, Ph.D.  
Departmental Scientific Integrity Officer

**FROM:** Gil H. Harden  
Assistant Inspector General for Audit

**SUBJECT:** USDA Research Integrity and Capacity

This report presents the results of the subject review. Your written response to the official draft is included in its entirety at the end of the report. We have incorporated excerpts from your response, and the Office of Inspector General's (OIG) position, into the relevant sections of the report. Based on your written response, we are accepting management decision for the recommendation in the report, and no further response to this office is necessary. Please follow your internal agency procedures in forwarding final action correspondence to the Office of the Chief Financial Officer (OCFO).

In accordance with Departmental Regulation 1720-1, final action needs to be taken within 1 year of each management decision to prevent being listed in the Department's annual Agency Financial Report. Please follow your internal agency procedures in forwarding final action correspondence to OCFO.

We appreciate the courtesies and cooperation extended to us by members of your staff during our inspection fieldwork and subsequent discussions. This report contains publicly available information and will be posted in its entirety to our website (<http://www.usda.gov/oig>) in the near future.



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## Background and Objectives

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### Background

The U.S. Department of Agriculture (USDA) provides leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, scientific evidence, and efficient management. One way USDA accomplishes its mission is through its Research, Education, and Economics (REE) mission area, which includes the Agricultural Research Service (ARS), the Economic Research Service (ERS), the National Agricultural Statistics Service (NASS), and the National Institute of Food and Agriculture (NIFA). The agencies of the REE mission area are tasked with conducting and delivering foundational and applied research, delivering timely and relevant data and information, and creating and disseminating knowledge. REE includes 2 of the 13 primary Federal statistical agencies—ERS and NASS—which embrace a common set of professional standards and operational practices to help achieve and safeguard scientific integrity. These agencies collect, analyze, and disseminate information for statistical purposes and are responsible for ensuring the quality, objectivity, and transparency of the statistical information and analysis they provide.<sup>1</sup>

### Relevant Laws and Regulations

The America COMPETES Act requires all civilian Federal agencies conducting scientific research to develop and issue an overarching set of principles to ensure the communication and open exchange of data, results, and research conducted by Federal scientists to other agencies, policymakers, and the public.<sup>2</sup> In addition, the Office of Science and Technology Policy (OSTP) issued a memorandum directing each Federal agency with over \$100 million in annual research and development expenditures, which includes USDA, to develop a plan to support increased public access to the results of research funded by the Federal Government.<sup>3</sup> This includes any results based on research directly arising from Federal funds that are published in peer-reviewed scholarly publications.

OSTP also issued a scientific integrity memorandum, which provides additional guidance to executive departments and agencies to implement the Administration's policies on scientific integrity.<sup>4</sup> Consistent with the memorandum's principles, USDA issued Departmental Regulation (DR) 1074-001, *Scientific Integrity*, which establishes USDA's scientific integrity policy.<sup>5</sup> The DR notes that it is USDA's policy to ensure USDA scientists may communicate their scientific findings (data and results) objectively, without political interference or

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<sup>1</sup> The Office of Management and Budget designates principal statistical agencies. These statistical agencies subscribe to principles and practices identified by the National Research Council of the National Academies, which relate to the Office of Management and Budget Federal Statistical Policy Directives and the Information Quality Act.

<sup>2</sup> America COMPETES Act, Pub. L. No. 110-69, 121 Stat. 572 (Aug. 9, 2007).

<sup>3</sup> OSTP, *Increasing Access to the Results of Federally Funded Scientific Research* (Feb. 22, 2013). OSTP advises the President and others within the Executive Office of the President on the effects of science and technology on domestic and international affairs.

<sup>4</sup> OSTP, *Scientific Integrity* (Dec. 17, 2010).

<sup>5</sup> USDA DR 1074-001, *Scientific Integrity* (Nov. 18, 2016).



inappropriate influence. Additionally, it is USDA’s policy that scientific findings and products must not be suppressed or altered for political purposes and must not be subjected to inappropriate influence.<sup>6</sup>

## **Congressional Interest**

On June 24, 2019, a formal request, signed by a member of the House of Representatives, was sent to USDA’s Office of Inspector General (OIG) requesting that “OIG investigate the alleged suppression of climate change science at USDA and USDA’s dissemination of climate change research.”<sup>7</sup> In addition, on June 25, 2019, another formal request, signed by 19 Senators, was sent to USDA’s OIG expressing concerns with: (1) the high vacancy rates at all four REE agencies; (2) the new guidance for publishing outside scientific research and the use of disclaimers by Department employees; and (3) reports that USDA was suppressing studies about the impacts of climate change.<sup>8</sup>

## **Objectives**

Our objectives were to: (1) determine how USDA research agencies fulfilled the USDA mission to produce scientific research products; (2) determine whether changes in policy and/or processes impacted the publication of scientific reports, documents, and/or communications during fiscal years (FYs) 2017–2019; and (3) analyze the impact of any changes in resources, staff, and staff experience levels on the publication of research results during this period.

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<sup>6</sup> USDA OIG assessed whether those conducting scientific research in USDA perceived they had, within reason, an unhindered ability to perform and communicate all aspects of their research assignments or projects in Audit Report 50601-0006-31, *Reviewing the Integrity of USDA’s Scientific Research Program*, Feb. 2018. OIG found that about 83 percent of the survey respondents said they feel that their agencies “strongly” or “somewhat” promote a culture of scientific integrity.

<sup>7</sup> Pingree, The Honorable Chellie, Letter to The Honorable Phyllis K. Fong (June 24, 2019).

<sup>8</sup> Hirono, The Honorable Mazie et al., Letter to The Honorable Phyllis K. Fong (June 25, 2019).

## ***Objective 1: How do USDA research agencies fulfill the USDA mission to produce scientific research products?***

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USDA’s REE mission area delivers on USDA’s scientific discovery mission by carrying out research activities and responsibilities through four agencies—ARS, ERS, NASS, and NIFA—and a staff office. While funded by the Office of the Secretary, the Office of the Chief Scientist (OCS) also falls under the REE mission area. The REE mission area has Federal leadership responsibility for advancing scientific knowledge related to agriculture through research, extension, and education. The work of the REE mission area stretches across all of USDA’s strategic goals and applies across the agricultural sector.<sup>9</sup>

ARS is USDA’s chief scientific in-house research agency and conducts research in natural and biological sciences. ARS’ mission is to deliver scientific solutions to national and global agricultural challenges. The agency’s research includes research projects organized under 4 major program areas of 16 national programs.<sup>10</sup> The ARS workforce includes USDA scientists who publish the results of their research as articles in scientific journals and as books or book chapters in the agency’s own publication series. ARS is also responsible for the National Agricultural Library (NAL), which is the Nation’s premier library for collecting, managing, and disseminating agricultural knowledge.

ERS is USDA’s primary source of economic and social science research. ERS’ mission is to anticipate trends and emerging issues in agriculture, food, the environment, and rural America to conduct high-quality, objective economic research to inform and enhance both public and private decision-making. The agency’s intramural research is conducted by a staff of USDA economists and social scientists.<sup>11</sup> ERS provides information to the public through a variety of vehicles, including ERS research reports (such as economic research reports and economic information bulletins) and the ERS website, which serves as a gateway to all publicly available ERS products.

NASS, USDA’s chief statistical agency, has the mission to provide timely, accurate, and useful statistics in service to U.S. agriculture. The agency collects, assembles, and disseminates data about all aspects of U.S. agriculture based on survey, satellite, and administrative information. A majority of staff at NASS are agricultural statisticians, mathematical statisticians, and information technology (IT) specialists. The statistical data provided by NASS is essential—to the public and private sectors—for making effective policy, production, and marketing decisions on a wide range of agricultural commodities.

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<sup>9</sup> *USDA FY 2018–2022 Strategic Plan.*

<sup>10</sup> ARS’ four major program areas are Nutrition, Food Safety/Quality, Animal Production and Protection, Crop Production and Protection, and Natural Resources and Sustainable Agricultural Systems.

<sup>11</sup> “Intramural research” is research conducted by a Federal agency to which funds were appropriated for the purpose of conducting the research.

NIFA is USDA’s primary extramural research, education, and extension funding agency.<sup>12, 13</sup> This agency is responsible for administering the Agriculture and Food Research Initiative, which is the Nation’s leading competitive grants program for agricultural sciences, as well as other competitive and non-competitive grants, chiefly to Federal land-grant colleges and universities and other institutions.<sup>14</sup> NIFA has grants management staff that support research activities by administering grants and providing oversight to grant recipients. NIFA invests in and advances agricultural research, education, and extension activities to help solve national challenges in agriculture, food, the environment, and communities.

OCS is an integral part of USDA leadership, as the office coordinates Department-wide agricultural science, research, education, and economics needs and manages the USDA Science Council.<sup>15</sup> The Chief Scientist advises the Secretary of Agriculture and ensures that research supported by, and scientific advice provided to, the Department and its stakeholders is held to “the highest standards of intellectual rigor and scientific integrity.” OCS also ensures that science performed by the Department is disseminated to decision leaders and that the Department’s work is held to USDA’s scientific integrity standards.<sup>16</sup> Part of this work includes overseeing the implementation of, training on, and compliance with USDA’s scientific integrity policy. Within OCS, the Departmental scientific integrity officer is responsible for providing oversight of, and consultation on, Departmental and agency responses to allegations of compromised scientific integrity. OCS developed USDA’s scientific integrity policy and also recently developed an informational memorandum to provide Departmental policy guidance on the use of disclaimers, disclosures, and acknowledgements in outside scientific publications.<sup>17</sup>

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<sup>12</sup> “Extramural research” is research conducted by any research institution other than the Federal agency to which the funds supporting the research were appropriated.

<sup>13</sup> “Extension” provides non-formal education and learning activities to people throughout the country. It emphasizes taking knowledge gained through research and education and bringing it directly to the people to create changes.

<sup>14</sup> These grants are referred to as formula or capacity grants.

<sup>15</sup> The USDA Science Council advises the Secretary of Agriculture and the Chief Scientist on the priorities for USDA’s science agenda. The Science Council members represent all USDA missions, agencies, and program office heads.

<sup>16</sup> USDA DR 1074-001, *Scientific Integrity* (Nov. 18, 2016). This policy articulates the principles of scientific integrity and the roles and responsibilities of all USDA employees, including career staff and political appointees, in upholding these principles. It helps instill public confidence in USDA research and science-based decisions.

<sup>17</sup> Information Memorandum from the Acting Chief Scientist, *Final Policy Guidance on Disclaimers, Disclosures and Acknowledgements in Outside Scientific Publications and Presentations* (May 8, 2019).

## **Objective 2: Did changes in policies and processes impact the publication of scientific reports, documents, and/or communication of USDA’s research results from FYs 2017–2019?**

OIG did not identify an instance where any change in policies and/or processes impacted the publication of USDA’s research results during FYs 2017–2019. However, we were unable to fully evaluate the impact to USDA-funded research publications because we were unable to identify the complete number of REE publications. We were unable to identify the universe of publications because REE did not implement a mechanism to develop systems that could either report publications for all REE agencies or accurately identify all publications resulting from USDA-funded research in any particular subject area. As a result, REE cannot accurately and timely identify or count the number of scientific publications relevant to its stakeholders.

The U.S. Government Accountability Office’s (GAO) internal control standards note that Federal Government entities not only report to the President and Congress, but also to the general public.<sup>18</sup> In addition, GAO standards note that management should process relevant data from reliable sources into quality information, which is “current, complete, accurate, and provided on a timely basis,” within the entity’s information system and consider the expectations of both internal and external users.<sup>19</sup> In addition to the GAO guidance, an OSTP memorandum directed Federal agencies to develop a plan to facilitate easy public search of and access to peer-reviewed scholarly publications that directly arise from research funded by the Federal Government.<sup>20</sup> The goal of the memorandum was to ensure Federally-funded scientific research, including that of USDA’s research agencies, is made available to and useful for the public, industry, and the scientific community. In response to the OSTP memorandum, USDA developed and adopted an implementation plan to increase access to scholarly publications and digitally formatted scientific data resulting from unclassified research—results supported wholly or in part by USDA funds.<sup>21</sup>

Our review of USDA, REE, and REE agencies’ policies, procedures, and guidance for the publication and communication of their scientific results and research products did not find any changes or revisions in policies and processes that would affect the publication of scientific reports, documents, or communications of USDA’s research results during FYs 2017–2019. In addition, our interviews of a non-statistical sample of ARS and ERS researchers did not reveal any impact on publications from changes in policies or processes during FYs 2017–2019.<sup>22</sup> For example, during the interviews, the sample of researchers did not disclose any additional layers of review, terminology changes, or other procedures that delayed, impeded, or suppressed scientific publications during FYs 2017–2019. Therefore, we found no changes in USDA

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<sup>18</sup> GAO-14-704G, *Standards for Internal Control in the Federal Government* (Sep. 2014).

<sup>19</sup> Within USDA, this is implemented in DR 1110-002, *Management’s Responsibility for Internal Control* (June 17, 2013).

<sup>20</sup> OSTP, *Increasing Access to the Results of Federally Funded Scientific Research* (Feb. 22, 2013).

<sup>21</sup> USDA, *Implementation Plan to Increase Public Access to USDA-funded Scientific Research* (Nov. 7, 2014). This plan is consistent with all policies and requirements set forth in the OSTP memorandum dated February 22, 2013.

<sup>22</sup> We interviewed a non-statistical sample of 21 researchers (18 from ARS and 3 from ERS) to determine if policies or procedures for publishing scientific products or communications changed during our scope period.

guidance on the use of terminology related to climate change, and found no instances of suppression or alteration of any REE communication.

However, in order to fully evaluate whether there was any impact on the publication of REE’s research results from FYs 2017–2019, OIG attempted to determine the number of scientific research publications for three REE agencies—ARS, ERS, and NIFA—for FYs 2016–2019.<sup>23</sup> NASS was not included in this objective because NASS reports are not scientific; rather they are informational reports that include statistical information. We found that REE relies on several sources to provide data on USDA publications, including the Current Research Information System (CRIS)—which provides documentation and reporting of ongoing research, education, and extension activities supported by Federal funds—and ARS’ Agricultural Research Information System (ARIS).<sup>24, 25</sup> However, we found that, when reporting to Congress on the number of USDA-funded climate change publications, REE relied on external sources and REE agencies relied on a combination of internal and external sources. For example:

- REE relied on external sources, such as Scopus and Google Scholar, to determine the number of scientific publications resulting from USDA-funded research.<sup>26, 27</sup> For example, the Deputy Under Secretary for REE testified before Congress that Google Scholar was used to identify the climate change publications from NIFA grantees.<sup>28</sup> When we discussed the testimony with a NIFA official, the official said that, because not all articles published in journals are in CRIS, Google Scholar would capture more publications. However, we found that the number of search results Google Scholar provides is only an estimate, as the search provided results unrelated to NIFA funding. Additionally, a NIFA official noted that Google Scholar is not conclusive, but that it was the best the agency could do without “a lot of work.” Therefore, we concluded that Google Scholar is not reliable for accurately identifying the number of USDA-funded climate change publications.

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<sup>23</sup> While the scope of our inspection was FYs 2017–2019, we attempted to determine the number of research publications for FY 2016 to provide us with a baseline so that we could observe any changes to the numbers during our defined scope.

<sup>24</sup> CRIS is an information system used to document the research and education activities of the USDA/State agricultural research and education system for various reporting purposes, as well as to provide ready access to information. CRIS is intended to provide information dissemination and access to the general public on a webpage without requiring user identification.

<sup>25</sup> ARIS is an ARS-only internal information system. It is the project documentation and retrieval system that contains information on all in-house research, including projects, funding levels, and publications, as well as all extramural research and projects in cooperation and collaboration with outside institutions.

<sup>26</sup> Scopus, a commercial science database that requires a subscription, is the largest abstract and citation database of peer-reviewed literature and features tools to track, analyze, and visualize research.

<sup>27</sup> Google Scholar (<https://scholar.google.com>), which is accessible to the public, provides a simple way to broadly search for scholarly literature, as relevant scholarly research can be found through searches across many disciplines and sources.

<sup>28</sup> During his July 18, 2019, testimony before the U.S. Senate Committee on Agriculture, Nutrition, and Forestry hearing, *Agricultural Research and 2018 Farm Bill Implementation*, Dr. Scott Hutchins mentioned that NIFA used Google Scholar to identify climate change publications.

- ARS used staff from NAL to determine the number of climate change publications to answer a Congressional request, rather than using ARIS.<sup>29</sup> A team of trained NAL librarians used Scopus, a commercial science database, to search for the number of USDA climate change publications, which was provided to Congress in September 2019. NAL officials stated that the Scopus search number is “accurate,” but that it might “not be as accurate” as aggregating information directly from other data sources at ARS, NIFA, or major commercial products. NAL also pointed out that ARIS provides a limited search interface for ARS-authored content and that searching the database for “climate change” produces USDA publications not found in Scopus. In addition, NAL pointed out that search capabilities for CRIS are limited.

We determined that REE agencies used multiple external sources to identify their publications because USDA’s REE information systems lack the timely, complete, and reliable data needed to accurately identify scientific publications related to USDA-funded research across all REE agencies. We identified weaknesses in both CRIS and ARIS that prevented us from using the data from these systems to identify the number and topic of publications associated with USDA-funded research at NIFA and ARS. Specifically, ARIS has limited search and reporting capabilities, and projects in CRIS may have missing data or may not always accurately reflect the subject matter of publications. For example, while NIFA uses CRIS to track projects from its grantees, we found instances where data entered into the publications field within the system were either missing entries in the field or had multiple entries in the field. In addition, we found several ARS projects with “climate change” in the project title and objectives directly related to climate change but that were not coded in CRIS under the “Weather and Climate” knowledge area.<sup>30</sup> Therefore, REE could not provide a reliable number of publications from its information systems.

When we informed REE officials that we could not determine the number of REE publications resulting from USDA-funded research, an ARS official stated that the agency can identify the number of publications, as its programmers can pull the information from ARIS after receiving a clearly defined request. This official noted that the agency has used ARIS to provide the number of peer-reviewed journal articles produced by ARS in response to Congressional requests, using certain codes that are not reported in CRIS to identify climate change-related publications. However, ARIS is an internal system that is not available to the public. In addition, as noted by the ARS official, it would require a substantial commitment of time and resources by ARS to obtain a list of publications from ARIS.

In lieu of using the number of *publications*, we reviewed the number of research *projects* for ARS and NIFA to determine whether changes in policies and processes impacted the number of projects funded by each agency. We also reviewed the number of publications for two types of ERS research reports, as ERS identifies its publications on the agency’s own website.<sup>31</sup>

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<sup>29</sup> In July 2019, members of NAL met with Congressional staffers to gain an understanding of the request “to compile a list of USDA authored and collaborated research publications, articles, and other materials on climate and weather related topics that have been published since January 21, 2017.”

<sup>30</sup> Knowledge area 132, Weather and Climate, identifies research on the impact of weather and climate on agriculture and natural resources.

<sup>31</sup> Economic research reports and economic information bulletins.

We identified the number of all ARS and NIFA research projects started in calendar years 2016 through 2019. There were fluctuations in the number of research projects started from year to year for both ARS and NIFA, with both agencies having the most projects started in 2018 (see Figure 1). In 2019, NIFA’s total started research projects had increased from their 2016 total by almost 13 percent, while ARS’ total started research projects had decreased from their 2016 total by almost 20 percent.

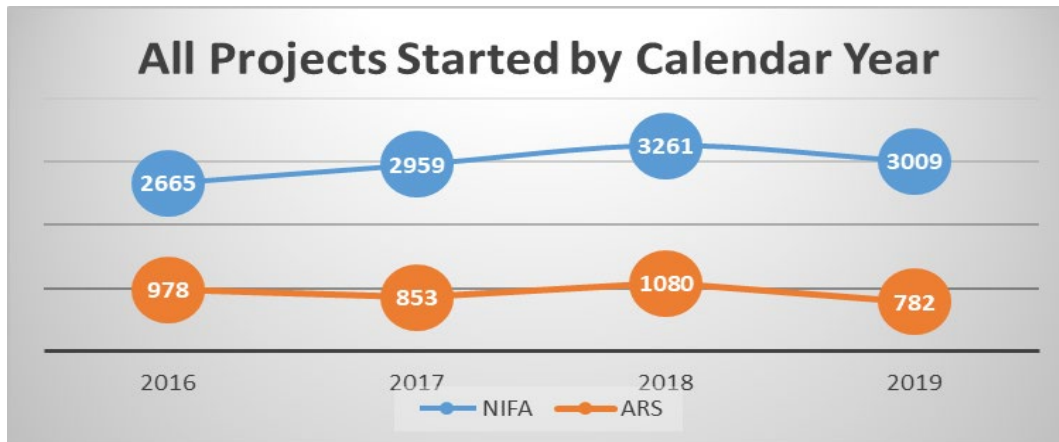


Figure 1: All ARS and NIFA Research Projects Started by Calendar Year for 2016–2019

We also determined that there were fluctuations in the number of climate change projects started for each fiscal year for both ARS and NIFA. ARS started the highest number of climate change projects in FY 2019 and NIFA started the highest number of climate change projects in FY 2017 (see Figure 2).

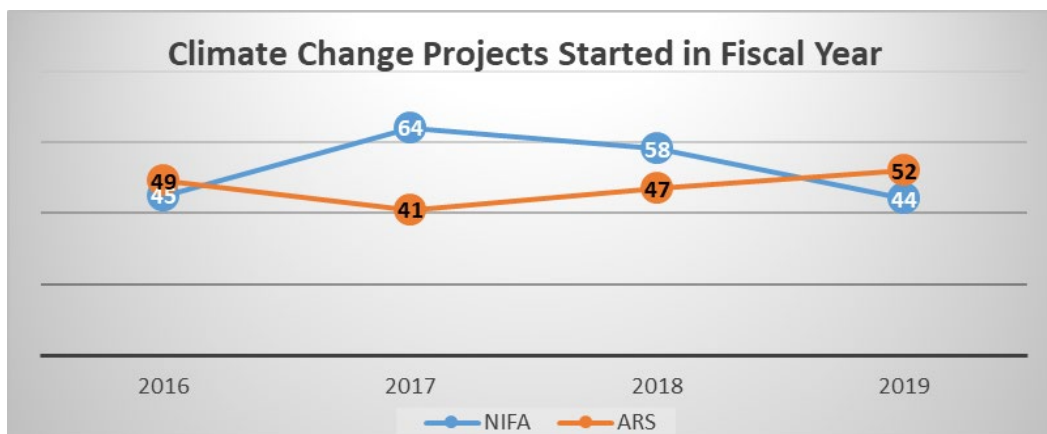


Figure 2: ARS and NIFA Climate Change Projects Started by Fiscal Year for 2016–2019

REE officials informed OIG that REE currently provides public access to all research through open access publications of USDA-funded research in CRIS, NAL, and other REE sources but acknowledged that a single database may have the potential to enhance access. REE officials further noted that a recent Departmental policy to include explicit acknowledgement of USDA funding of research in publications also enhances the public’s ability to identify USDA-funded

research.<sup>32</sup> While this policy might help identify a publication resulting from USDA-funded research, the publication still needs to be stored and identifiable by agencies and the public at a later date. OIG contends that REE needs a mechanism or strategy in place across all REE agencies to allow USDA and the public to identify publications from USDA-funded research by subject area. Doing so will align with OSTP’s public access policy requirements and allow REE to provide quality information to both internal and external stakeholders.

## **Recommendation 1**

USDA REE needs to identify and implement a standard mechanism across all REE agencies to enhance both USDA’s and the public’s ability to identify REE agencies’ publications from USDA-funded research by subject areas.

### **Agency Response**

In its November 19, 2020, response, OCS stated:

REE will continue to coordinate with the four REE agencies to identify the sources (both intramural and extramural) and publishers of USDA-funded research publications as well as the existing mechanisms and databases containing records of these publications. OCS will organize and convene a strategic planning session with the four agencies, their publishing staff, and NAL staff to identify the strengths and weakness of the existing mechanisms as well as scoping the requirements of a mechanism to include all agency USDA-funded research publications (estimated completion FY 2021).

After the evaluation phase, the mechanisms, that are fit for purpose, will be reviewed in a cost-benefit analysis and a single mechanism will be identified for development to enhance the public’s ability to identify REE agencies’ publications by subject area through a standard mechanism while harmonizing with other efforts underway across the department and the needs of stakeholders. Identification of necessary and enabling processes, policies and procedures will be part of the cost-benefit analysis in this phase (estimated completion FY 2022).

Recognizing that this mechanism will likely require budgetary expenditure and/or policy guidance to the agencies, implementation of any mechanism will be dependent on the provision of budgetary authority sufficient to cover such purpose in the President’s budget. REE will develop policy guidance to the agencies to facilitate implementation. When such budgetary authority is provided, REE will implement the identified standard mechanism to enhance both USDA’s and the public’s ability to identify USDA-funded research publications by subject area (estimated completion FY 2024).

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<sup>32</sup> This policy, *Final Policy Guidance on Disclaimers, Disclosures and Acknowledgements in Outside Scientific Publications and Presentations*, was issued by the Acting Chief Scientist on May 8, 2019. It states that “All outside publications and presentations should continue to acknowledge the public funding of the published work by USDA (and any other sources of funding).”



In OCS' subsequent email, on November 24, 2020, an official stated that the goal dates listed in its response should be understood as the last day of the respective fiscal year, i.e. September 30.

### **OIG Position**

We accept management decision for this recommendation.

**Objective 3: Did the change in resources, staff, and staff experience levels have any impact on the publication of research results during this period?**

OIG could not determine the full impact of the changes in resources, staff, and staff experience levels on the publication of REE research results during FYs 2017–2019 because we were unable to identify a complete universe of publications across all REE agencies (see Objective 2). However, we found that the number of ERS’ economic research reports substantially declined during FYs 2017–2019, and declined at a greater rate in the early part of FY 2020. An ERS official acknowledged that the decline in economic research reports was due to staffing losses but could not determine the full impact of this change.

ERS is unique among the REE agencies because, while it does not report its publications in CRIS, it publishes all of its publicly available research—including its two most numerous research report types, economic research reports and economic information bulletins—on its own website. By reviewing the data reported on ERS’ website, we were able to identify the number of publications for economic research reports and economic information bulletins for FYs 2016–2020 (as of May 31, 2020).

As shown in the graphs below, we found that there was a drop in the number of publications between FY 2018 and FY 2019 for both economic research reports (see Figure 3) and economic information bulletins (see Figure 4).

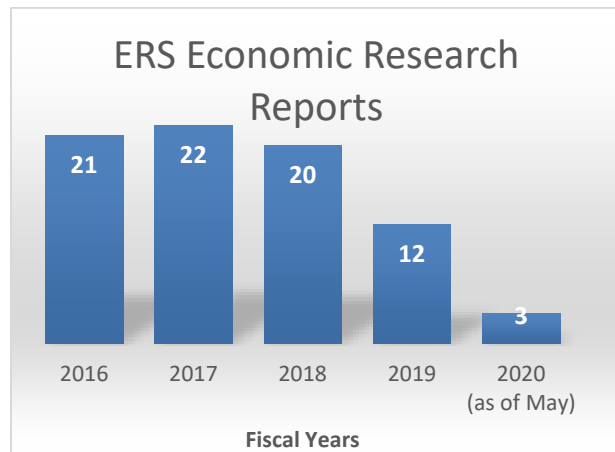


Figure 3: Count of Economic Research Reports

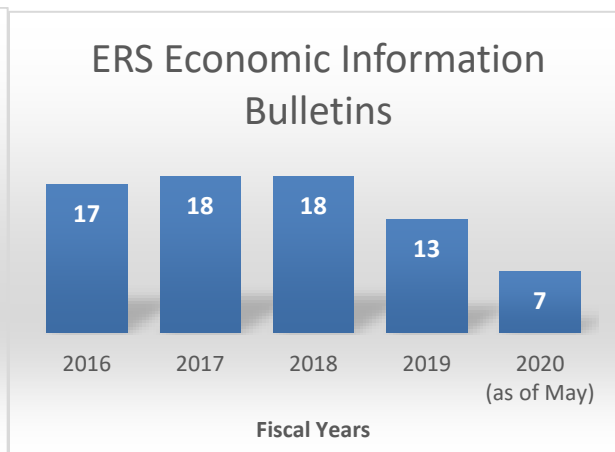


Figure 4: Count of Economic Information Bulletins

When asked about the reason for the decreased number of economic research reports publications, an ERS official noted that every division within ERS had sustained staffing losses since the agency’s relocation from Washington, D.C., to Kansas City, Missouri. The official acknowledged that the decrease in the publication of economic research reports between FY 2018 and FY 2020 was the result of the staffing reduction, but did not know what the future impact of the staffing reduction would be. Additionally, we were unable to determine what the future impact of the staffing losses would be.

While we could not determine the full impact of resource and staffing changes on the publication of all REE agency research results, these are our general observations:

- From FY 2016 through FY 2019, the budget for each of the four REE agencies generally remained constant or increased (see Exhibit A).<sup>33</sup>
- For FY 2017 through FY 2020, staffing levels at each of the four agencies generally decreased, with both ERS and NIFA experiencing overall agency-wide staffing losses in excess of 40 percent (see Exhibit B).<sup>34</sup>
- We identified the key occupational series at ERS and NIFA as economist and grants management, respectively.
  - “Economist” is a key occupational series at ERS because it is the primary occupational series employed by ERS and is responsible for informing policy decision-makers on current and emerging issues.
    - At the beginning of FY 2017, there were 203 economists at ERS.
    - At the beginning of FY 2020, there were 116 economists at ERS.
  - “Grants management,” while not directly responsible for research at NIFA, is a key occupational series because this occupational series supports research activities by providing support and guidance to grant recipients during all four phases (pre-award, award, post-award, and closeout) of the grant lifecycle.
    - At the beginning of FY 2017, there were 30 grants management staff at NIFA.
    - At the beginning of FY 2020, there were four grants management staff at NIFA.
- The ERS economist and NIFA grants management occupational series showed decreases in staffing levels with overall losses of 42 percent and 86 percent, respectively. We also saw decreases in levels of experience, as measured by length of service with the Federal Government, grade level, and education level (see Exhibits C and D).<sup>35</sup>
  - The number of General Schedule (GS)-14 economists at ERS fell from 42, as of October 27, 2018, to 21, as of February 15, 2020, a decrease of 50 percent. Similarly, the number of GS-13 economists at ERS fell from 45 to 19 during the same timeframe, a decrease of approximately 58 percent. (See Exhibit C, Economist by Grade Level).
  - The number of ERS economists with doctoral degrees fell from 105, as of October 27, 2018, to 65, as of February 15, 2020, a decrease of 38 percent. (See Exhibit C, ERS Economist Staffing by Education Level).
  - The number of grants management staff at NIFA with 10 or more years of experience with the Federal Government fell from 24, as of October 27, 2018, to 4, as of February 15, 2020, a decrease of 83 percent. The number of grants management staff with less than 1 year of experience with the Federal

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<sup>33</sup> Although our scope was FYs 2017–2019, we included FY 2016 budget information to provide a baseline for any subsequent changes.

<sup>34</sup> Staffing levels were reported for each fiscal year as follows: FY 2017 as of October 15, 2016; FY 2018 as of October 14, 2017; FY 2019 as of October 27, 2018; and FY 2020 as of October 26, 2019.

<sup>35</sup> The grade level for each job is based on the level of difficulty, responsibility, and qualifications required for a position. Employees may advance to higher grades by promotion. Thus, generally, higher grade levels indicate higher levels of experience.

Government rose from none to eight during the same time frame.<sup>36</sup> (See Exhibit D, NIFA Grants Management Staffing Level, (occupational series 1109), for Washington, D.C., and Kansas City, Missouri, only).

Despite these observations, because we were unable to determine the number of publications resulting from USDA-funded research at ARS and NIFA (as discussed in Objective 2), we could not determine the full impact of the changes in resources, staff, and staff experience levels on the research results and publications for these two agencies, or for REE as a whole, during FYs 2017–2019.<sup>37</sup>

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<sup>36</sup> This count includes only the staffing located in Washington, D.C., and Kansas City, Missouri, to coincide with the values in the graph. However, the complete data (for all locations) shows a total of nine employees in the grants management occupational series at NIFA as of February 15, 2020. All other values in this example were the same when including all locations.

<sup>37</sup> NASS was not included in this objective because NASS reports are not scientific research reports. Rather, they are informational reports that include statistical information.

## Scope and Methodology

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Our inspection scope covered the activities of REE research agencies—ARS, ERS, NASS, and NIFA—and OCS from FYs 2017–2019. In certain instances, we expanded our scope to provide baseline information for comparative purposes or provide more current information when particular events that could have an impact on our findings occurred toward the end of our scope. For example, we included the human resources data through pay period 03 in 2020 (February 15, 2020) in order to show the impact on staffing after the relocation of ERS and NIFA outside the National Capital Region. We also determined the number of research projects for ARS and NIFA for FY 2016 for the purpose of trend analysis and included the ERS publications for FY 2016 and FY 2020 (as of May 31, 2020) to be able to determine publication trends across time. We conducted our fieldwork from November 2019 through July 2020.

To accomplish our objective(s), we:

- Reviewed the organizational structures of REE, the four REE agencies, and OCS in order to determine the staff responsible for supervising the publication of scientific reports, documents, and communications for REE and each REE agency, along with these officials' oversight responsibilities for publishing and communicating research results.
- Reviewed applicable laws, policies, procedures, and regulations pertaining to the publication and communication of scientific research results, along with any revisions that have been made since the beginning of FY 2017.
- Interviewed applicable OCS, REE, ARS, ERS, NASS, and NIFA officials to discuss scientific integrity within USDA and REE, the communication of REE's research results, and the research capacity of REE agencies. This included interviews with the Departmental scientific integrity officer and the agency scientific integrity officers for ARS, ERS, NASS, and NIFA.
- Identified and documented the purposes of the computer-based systems that were used to analyze USDA's scientific reporting activities related to research, such as publication tracking.
- Interviewed a non-statistical sample of 21 researchers, 18 from ARS and 3 from ERS, to determine if policies for publishing scientific products or communications have changed and whether procedures changed for reporting or communicating scientific results, such as additional layers of review, terminology changes, or other procedures that may delay, impede, or suppress publications.<sup>38</sup>

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<sup>38</sup> We non-statistically selected 25 researchers (20 from ARS and 5 from ERS) that worked on climate change-related projects to interview. For ARS, the researchers were selected from each of the five ARS regions for the climate change projects they worked on in FYs 2017, 2018, and 2019. For ERS, the researchers were selected based on the ERS website identifying they had a climate change publication. We interviewed 21 of the 25 researchers from our sample (18 from ARS and 3 from ERS), as the other 4 researchers did not respond to our interview requests.

- Reviewed REE agencies’ website pages related to climate change for any changes since FY 2017, and determined whether REE or any REE agency made any changes to the terminology used for climate change during the scope period.
- Reviewed REE’s human resource data, which was provided and validated by OIG’s Office of Analytics and Innovation, to determine the total number of staff and staff experience levels, which included years of service with the Federal Government and educational levels, for each REE agency from October 14, 2017, to February 15, 2020.<sup>39</sup>
- Reviewed the ARIS and CRIS databases in order to determine the total number of research projects, and those projects specifically related to climate change, for FYs 2016–2019.<sup>40</sup> We also reviewed the ERS website in order to determine the number of research reports for two types of ERS publications for FYs 2016–2020 (as of May 31, 2020).<sup>41</sup>

During the course of our inspection, we assessed the reliability of scientific publication data from REE agencies’ systems by reviewing existing information about the data and the systems that produced them and interviewing agency officials knowledgeable about the data and systems. We determined that the scientific publication data contained in CRIS and ARIS was not sufficiently reliable to identify all REE publications. As a result, we were unable to evaluate the impact of any changes in policy, staffing levels, or experience on the number of scientific publications, as described in Objectives 2 and 3.

We conducted this inspection in accordance with the Council of the Inspectors General on Integrity and Efficiency’s *Quality Standards for Inspection and Evaluation*.<sup>42</sup> Those standards require that we obtain sufficient, competent, and relevant evidence to provide a reasonable basis for our findings, conclusions, and recommendations based on our inspection objectives. We believe that the evidence obtained provides a reasonable basis for our findings, conclusions, and recommendations based on our review.

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<sup>39</sup> The scope of our inspection was FYs 2017–2019; however, we included the human resources data through February 15, 2020, in order to show the impact on staffing after the relocation of ERS and NIFA outside the National Capital Region.

<sup>40</sup> While the scope of our inspection was FYs 2017–2019, we determined the number of research projects for ARS and NIFA for FY 2016 for the purpose of trend analysis.

<sup>41</sup> We determined the number of research publications for ERS’ economic research reports and economic information bulletins, as ERS lists all of its publications on the agency’s website (<https://www.ers.usda.gov/publications>). While the scope of our inspection was FYs 2017–2019, we included the ERS publications from FYs 2016–2020 (October 1, 2015, through May 31, 2020) to be able to determine publication trends across time.

<sup>42</sup> Council of the Inspectors General on Integrity and Efficiency, *Quality Standards for Inspection and Evaluation* (Jan. 2012).

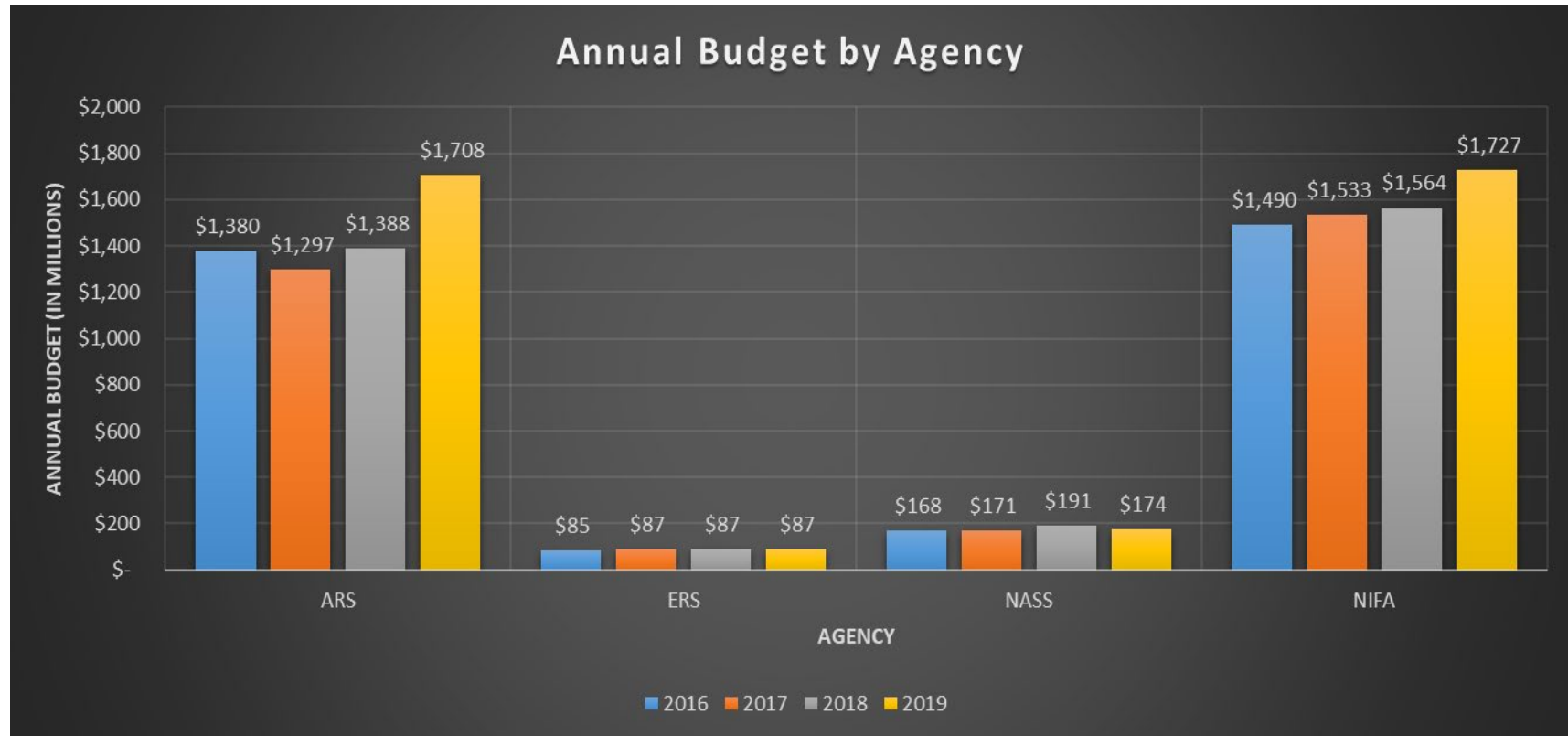
## Abbreviations

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ARIS .....	Agricultural Research Information System
ARS .....	Agricultural Research Service
CRIS.....	Current Research Information System
DR.....	Departmental Regulation
ERS .....	Economic Research Service
FY .....	fiscal year
GAO.....	U.S. Government Accountability Office
GS .....	General Schedule
IT.....	information technology
NAL .....	National Agricultural Library
NASS .....	National Agricultural Statistics Service
NIFA .....	National Institute of Food and Agriculture
OCS.....	Office of the Chief Scientist
OIG .....	Office of Inspector General
OSTP.....	Office of Science and Technology Policy
REE.....	Research, Education, and Economics
USDA.....	U.S. Department of Agriculture

## Exhibit A: USDA REE Budget Levels FY 2016 – FY 2019

This exhibit shows the annual budget for each of the REE agencies—ARS, ERS, NASS, and NIFA—for FYs 2016–2019.



Based on the graph above, we made the following general observations. For FYs 2016–2019, the enacted budget at each REE agency generally remained constant or increased. The graph shows two exceptions. Between FY 2016 and FY 2017, the budget at ARS declined approximately 6 percent and between FY 2018 and FY 2019, the budget at NASS declined approximately 9 percent.



## Exhibit B: USDA REE Staffing Levels FY 2017 – FY 2020

The following four graphs show the employee counts of all employees at ARS, ERS, NASS, and NIFA for FYs 2017–2020, with the exception of the 2210 occupational series.<sup>43, 44</sup>

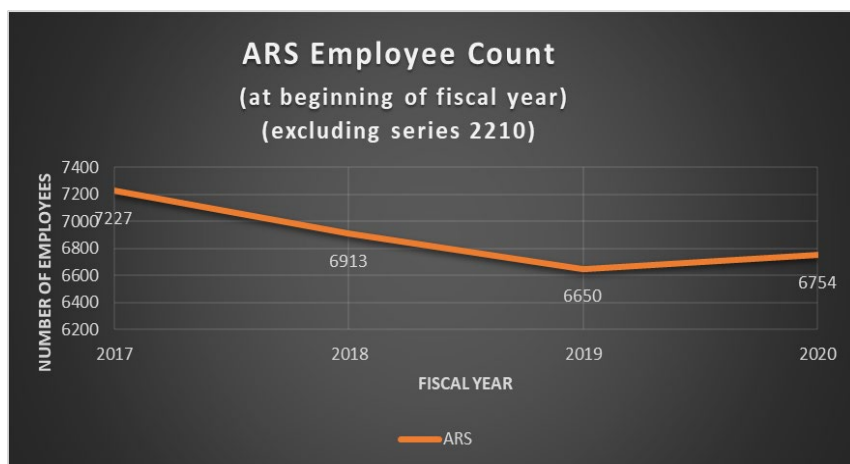


Exhibit B-1: ARS Employee Count for FYs 2017–2020

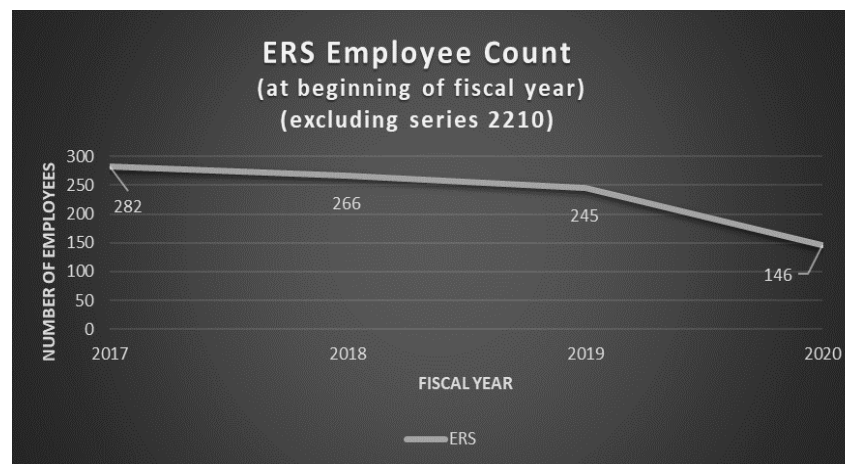


Exhibit B-2: ERS Employee Count for FYs 2017–2020

We made the following general observations. ARS saw a decline of approximately 9 percent in overall staffing for FYs 2017–2019, but saw a staffing increase from FY 2019 to FY 2020 of approximately 3 percent. Whereas, ERS saw a decline in overall staffing, from FY 2017–FY 2020, of approximately 48 percent.

<sup>43</sup> The staffing levels are reported as of the last day of the first pay period occurring entirely within each fiscal year. As a result, for FY 2017, the staffing level is as of 2016 pay period 20, which is the 14-day pay period ending October 15, 2016; for FY 2018 it is for 2017 pay period 20, which ended October 14, 2017; for FY 2019 it is for 2018 pay period 21, which ended October 27, 2018; and for FY 2020 it is for 2019 pay period 21, which ended October 26, 2019.

<sup>44</sup> The 2210 occupational series is the information technology management series. In FY 2019, the REE agencies experienced a re-alignment of staff within this series that would have shown a staffing loss of employees within this series, where there was no effective change in the operations of each agency. For example, some of the 2210 staff at NASS were transferred to ARS, but these employees were still responsible for the IT operations at NASS. Thus, to maintain comparability over the years, we excluded this series from our staffing level analysis to focus on the staffing losses that may operationally impact the agencies.

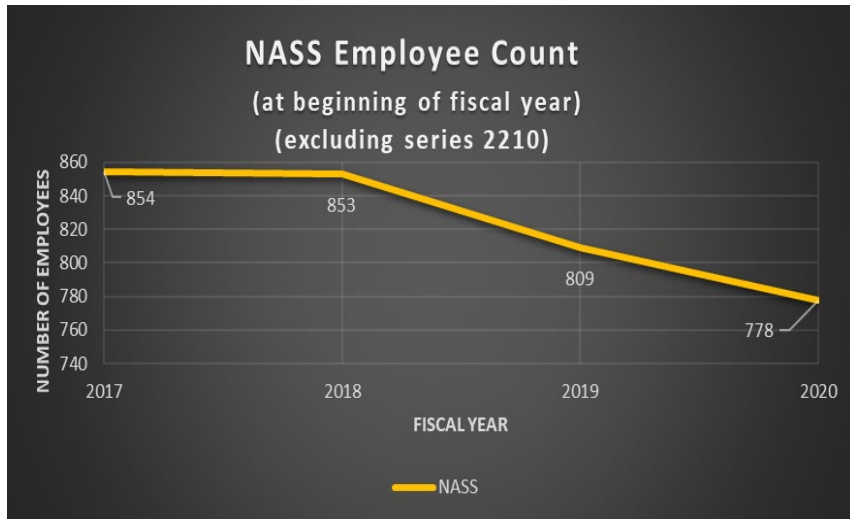


Exhibit B-3: NASS Employee Count for FYs 2017–2020

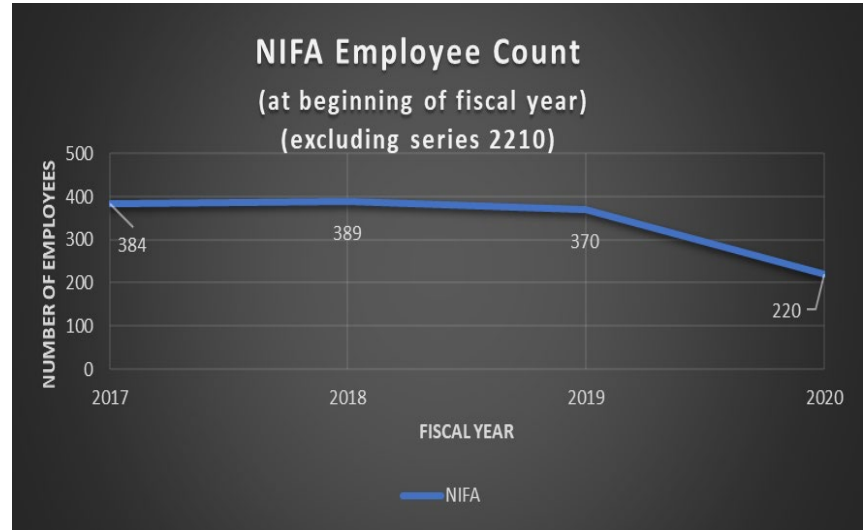


Exhibit B-4: NIFA Employee Count for FYs 2017-2020

NASS and NIFA both saw a decline in overall staffing, from FYs 2017–FY 2020, of approximately 9 percent and 43 percent, respectively.

## **Exhibit C: Staffing Level Trends for REE Economist Occupational Series**

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The three graphs in this exhibit show the staffing level trends at ERS for the economist occupational series from the beginning of FY 2019, using data for the first full pay period of the FY—which was 2018 pay period 21—through the 2020 pay period 03, which was the most recent data we were able to obtain when this engagement began.<sup>45, 46</sup> We looked at staffing levels based on the length of Federal service, grade level, and education level of the employee to identify areas where there may have been changes in experience levels, as measured using these indicators of experience.

The following graph shows the staffing level for the ERS economist occupational series both by date (pay period) and location based on the length of service as a Federal employee.<sup>47</sup> In June 2019, USDA announced that it planned to move ERS’ primary office from Washington, D.C., to Kansas City, Missouri.<sup>48</sup> When we examined the length of service of employees, we looked at the staffing levels in each of these two cities to see whether more experienced employees made the transition to Kansas City, Missouri. The official date of the relocation was to be September 30, 2019.<sup>49</sup> Additionally, this graph includes a category called “reired annuitant,” which is an employee who has retired from Federal employment, but has agreed to work for the Federal Government as a part-time employee, generally for the purpose of helping fill staffing needs. However, the employee may only work as a reired annuitant for a period of 1 year. The employee counts presented in this exhibit make no distinction between permanent and temporary employees.

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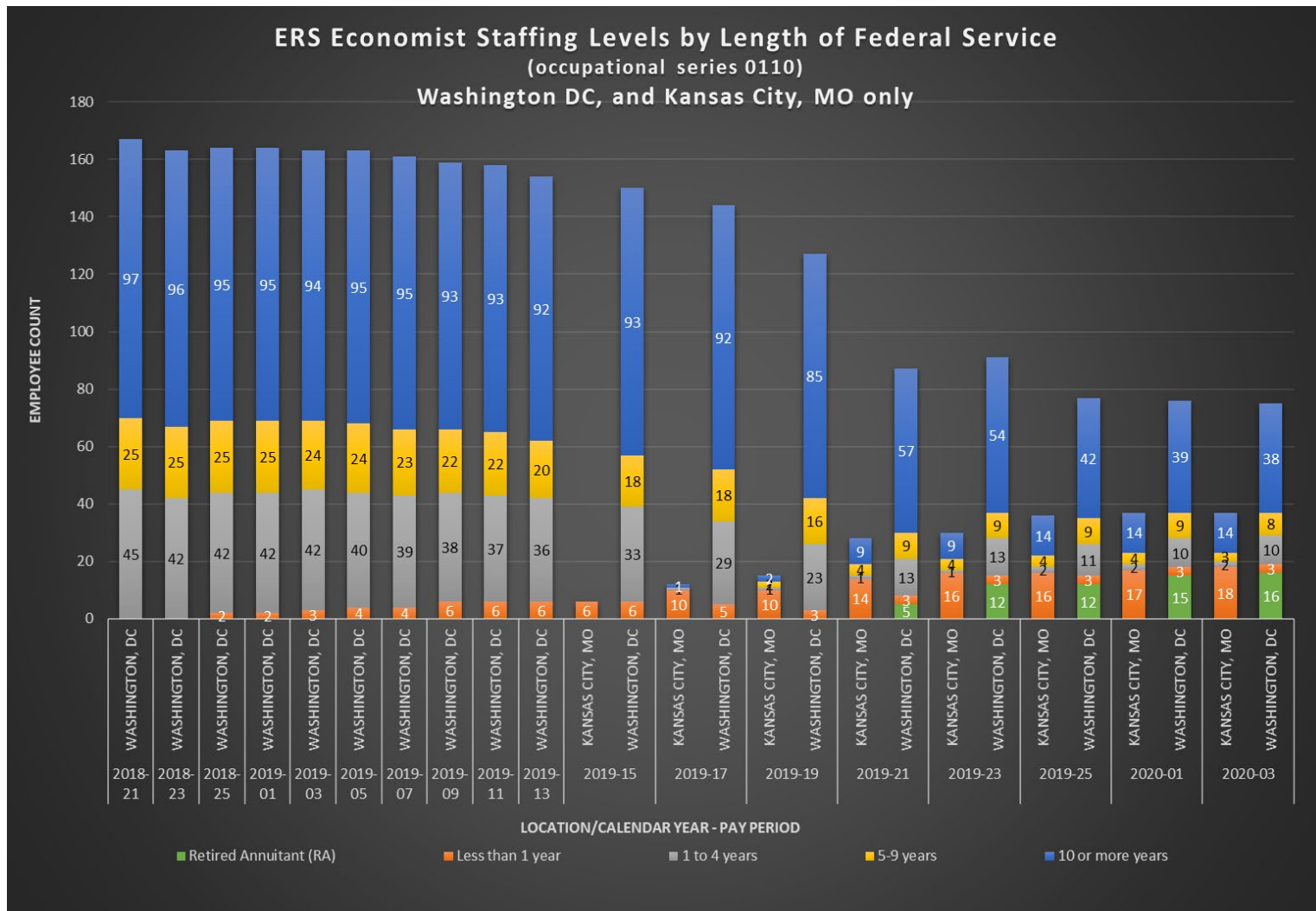
<sup>45</sup> 2018 pay period 21 was the 14-day pay period that ended on October 27, 2018.

<sup>46</sup> 2020 pay period 03 was the 14-day pay period that ended on February 15, 2020.

<sup>47</sup> While there were employees at locations other than Washington, D.C., and Kansas City, Missouri, the total number of employees at these other locations were minor and did not vary significantly over the time period. As a result, employees in locations other than Washington, D.C., and Kansas City, Missouri, were not included in the graph, but were included in the general observations that follow.

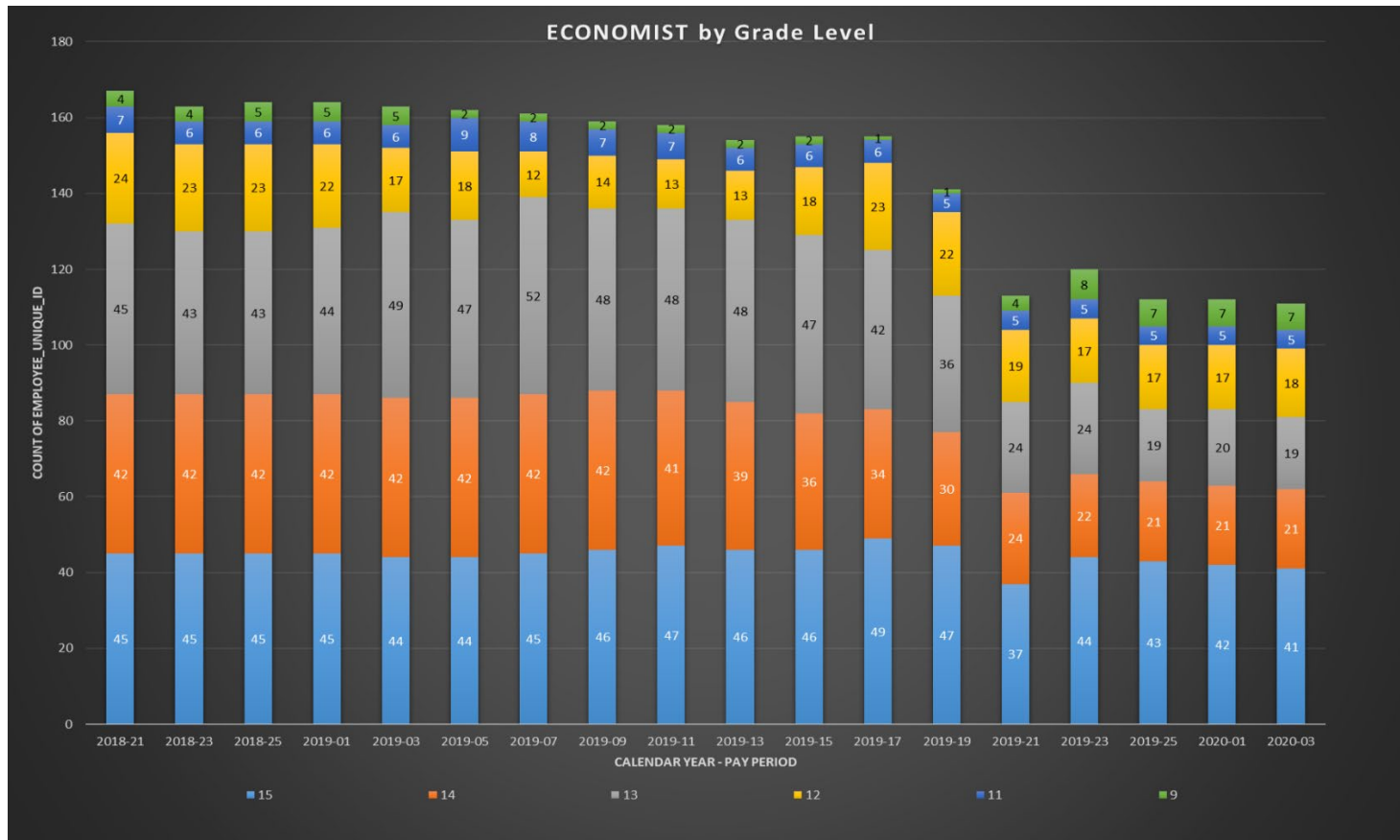
<sup>48</sup> This communication was made during 2019 pay period 12.

<sup>49</sup> This move was scheduled to occur during 2019 pay period 20.



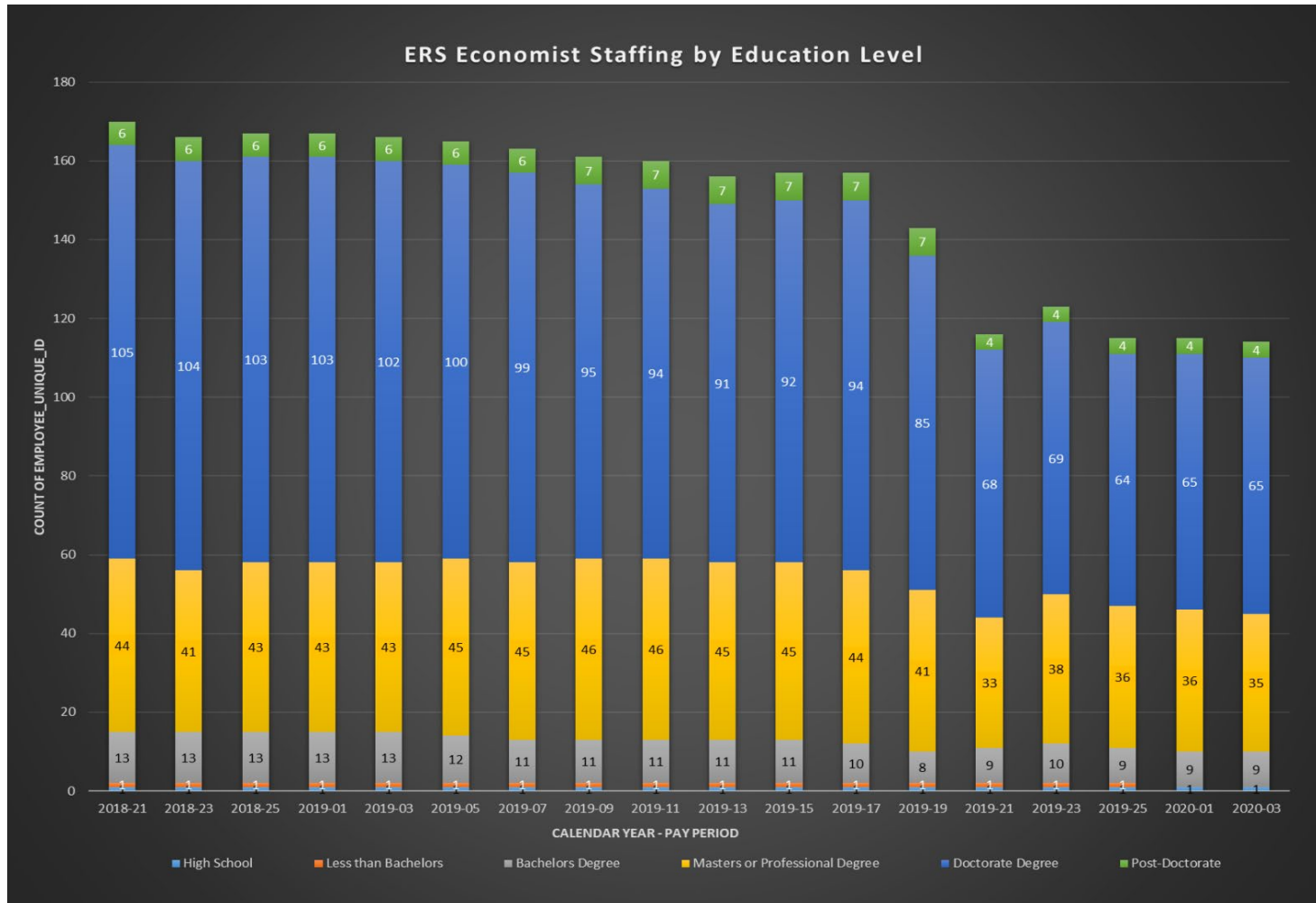
We made the following general observations regarding ERS staffing levels based on length of Federal service. From 2018 pay period 21 through 2020 pay period 03, the number of economists with 10 or more years of Federal service fell from 98 to 53. There was an increase in economists with less than 1 year of Federal service from none to 21 over that same time.

In the following graph, the staffing level for the ERS economist occupational series is shown by date (pay period) based on grade level. Because responsibilities vary by grade level, loss of staff at a particular grade level, especially higher grade levels, may affect an organization’s ability to perform its required functions. As such, we used employee grade level as a measure of experience.



We made the following general observations based on the graph above. From 2018 pay period 21 through 2020 pay period 03, the number of GS-14 economists at ERS declined from 42 to 21. Similarly, during the same time period, the number of GS-13 economists at ERS declined from 45 to 19. Conversely, the number of GS-9 economists showed an increase from four to seven during this timeframe.

The following graph shows the staffing level for ERS' economists occupational series by date (pay period) based on education level.



Based on the graph above, we made the following general observations. Between 2018 pay period 21 and 2020 pay period 03, ERS experienced significant losses of economists, with varying degrees of higher education—i.e., employees with a bachelor’s degree or above. For example, we noted that employees with a:

- post-doctoral degree decreased by more than 33 percent,
- doctoral degree decreased by more than 38 percent,
- master’s or professional degree decreased by more than 20 percent, and
- bachelor’s degree decreased by more than 30 percent.

## **Exhibit D: Staffing Level Trends for NIFA Grants Management Occupational Series**

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The three graphs in this exhibit show the staffing level trends at NIFA for the grants management occupational series from the beginning of FY 2019, using data for the first full pay period of the FY—which was 2018 pay period 21—through the 2020 pay period 03, which was the most recent data we were able to obtain when this engagement began. We looked at staffing levels based on the length of Federal service, grade level, and education level of the employee to identify areas where there may have been changes in experience levels, as measured, using these indicators of experience. The employee counts presented in this exhibit make no distinction between permanent and temporary employees.

In the following graph, the staffing level for the NIFA grants management occupational series is shown both by date (pay period) and location based on the length of service as a Federal employee.<sup>50</sup> In June 2019, USDA announced that it planned to move NIFA’s primary office from Washington, D.C., to Kansas City, Missouri.<sup>51</sup> When we examined the length of service of employees, we looked at the staffing levels in each of these two cities to see whether more experienced employees made the transition to Kansas City, Missouri. The official date of relocation was to be September 30, 2019.<sup>52</sup>

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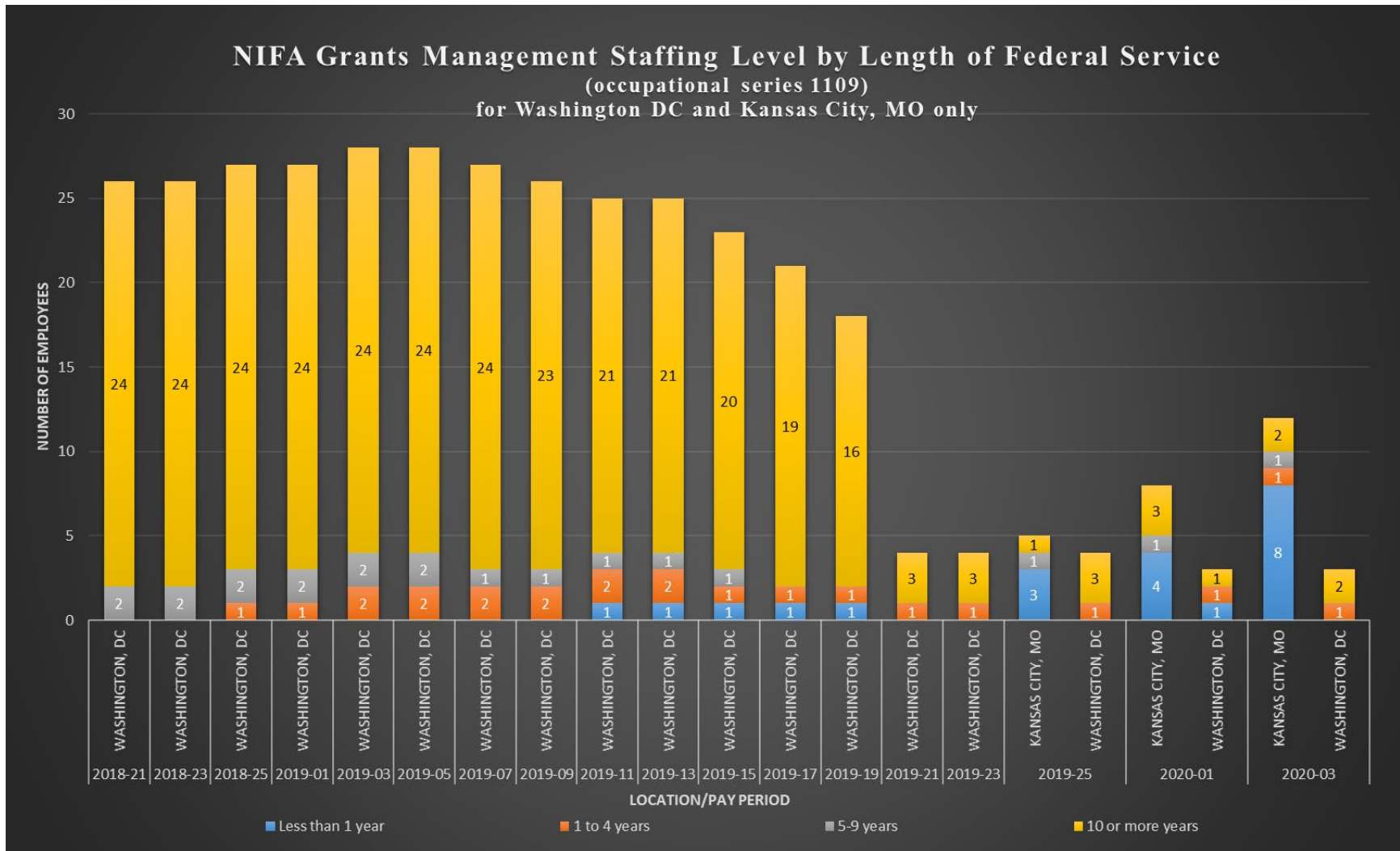
<sup>50</sup> While there were employees at locations other than Washington, D.C., and Kansas City, Missouri, the total number of employees at these other locations were minor and did not vary significantly over the time period. As a result, employees in locations other than Washington, D.C., and Kansas City, Missouri, were not included in the graph, but were included in the general observations that follow.

<sup>51</sup> This communication was made during 2019 pay period 12.

<sup>52</sup> This move was scheduled to occur during 2019 pay period 20.

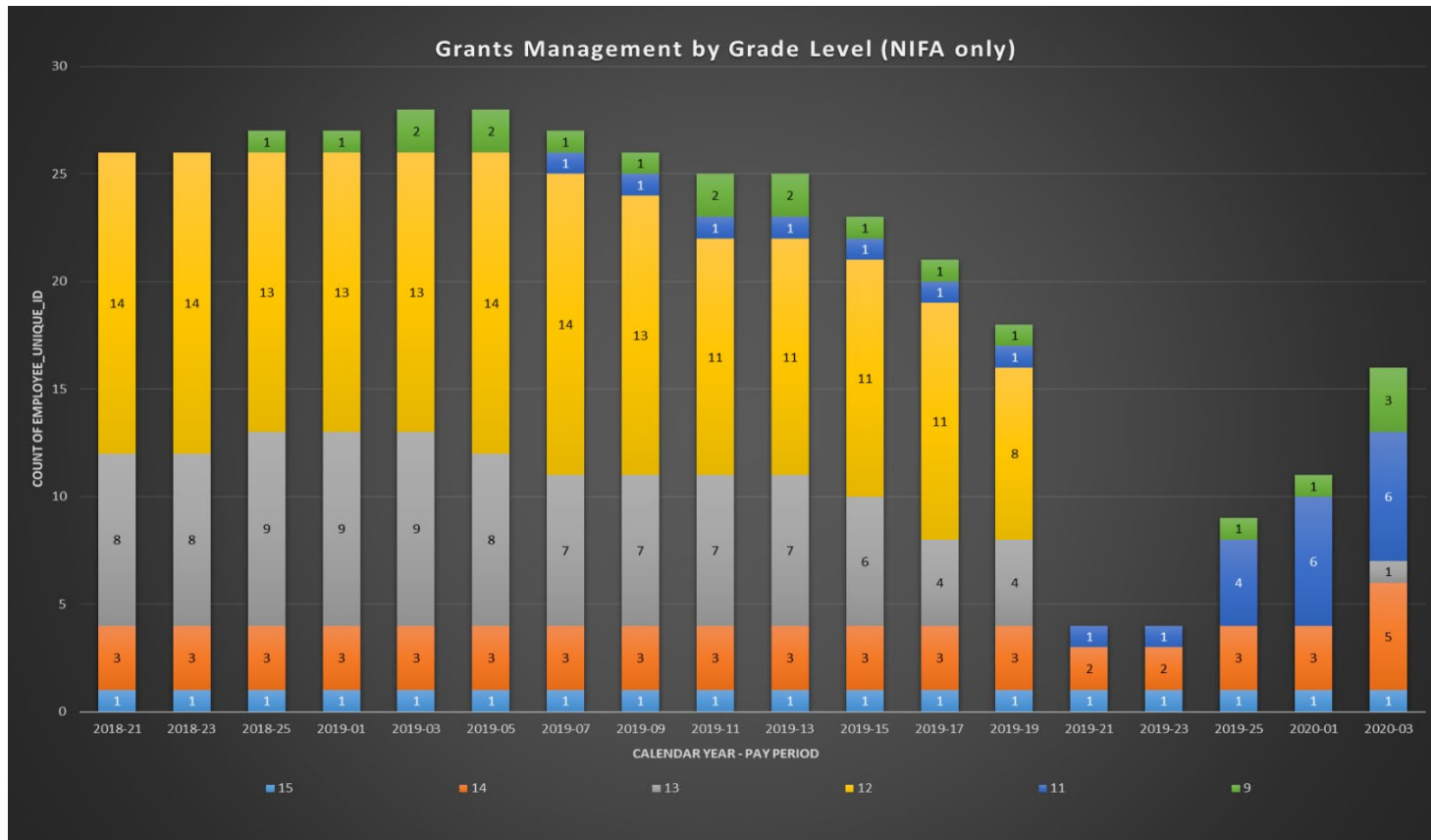


### NIFA Grants Management Staffing Level by Length of Federal Service (occupational series 1109) for Washington DC and Kansas City, MO only



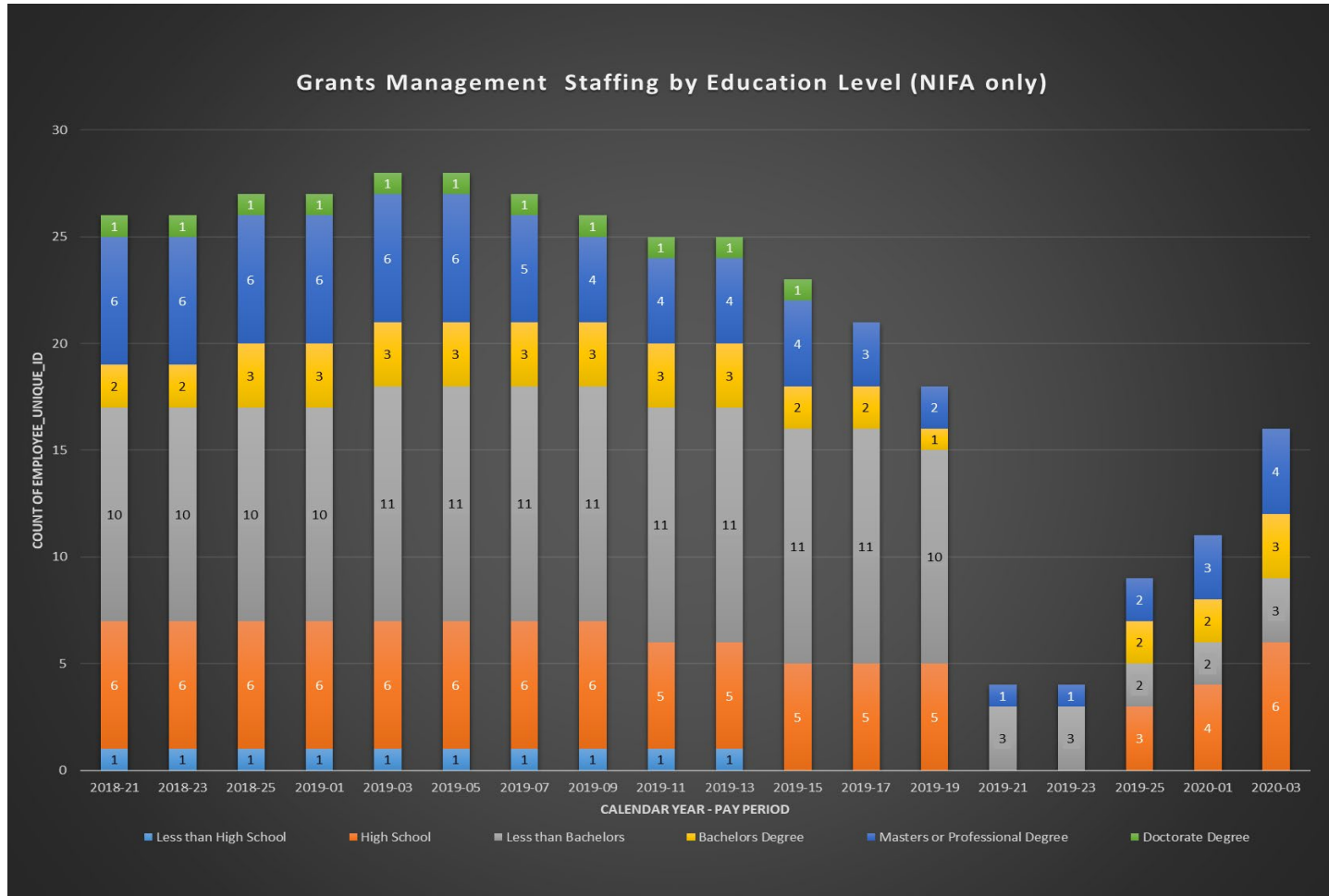
Based on the graph above, we made the following general observations. From 2018 pay period 21 through 2020 pay period 03, the number of grants management staff with 10 or more years of Federal service fell from 24 to 4. Conversely, during the same timeframe the number of staff in this occupational series with less than 1 year of Federal service grew from none to nine.

In the following graph, the staffing level for the NIFA grants management occupational series is shown by date (pay period) based on grade level. Because responsibilities vary by grade level, loss of staff at a particular grade level, especially higher grade levels, may affect an organization’s ability to perform its required functions. As such, we used employee grade level as a measure of experience.



We made the following general observations based on the graph above. From 2018 pay period 21 through 2020 pay period 03, NIFA saw a decline in the number of GS-13 grants management employees from eight to one. NIFA also saw a decline in the number of GS-12 grants management employees from 14 to 0 during the same time frame. Conversely, NIFA saw an increase in the number of GS-11 grants management employees from none to six during the same time period.

The following graph shows the staffing level for NIFA’s grants management occupational series by date (pay period) based on education level.



Based on the graph above, we made the following general observations. Between 2018 pay period 21 and 2020 pay period 03, the number of employees with varying degrees of higher education—i.e., employees with a bachelor’s degree or above—generally declined, as did the number of employees that did not have a higher education. For example, we noted that employees with a:

- doctoral degree decreased from one to none,
- master's or professional degree decreased from six to four, and
- less than a bachelor's degree decreased from 10 to 3.



**Office of Chief Scientist's  
Response to Inspection  
Report**





United States  
Department of  
Agriculture

Research  
Education  
Economics

Office  
of the Under  
Secretary

Room 216W  
Jamie L. Whitten Building  
Washington, DC 20250-0110

**DATE:** November 19<sup>th</sup>, 2020

**INSPECTION**

**NUMBER:** 84801-0001-22

**TO:** Gil H. Harden  
Assistant Inspector General for Audit

**ATTN:** William Trenkle, Ph.D.  
Departmental Scientific Integrity Officer, USDA

**FROM:** Dionne Toombs, Ph.D. /s/  
Director  
Office of the Chief Scientist, USDA

**SUBJECT:** Office of the Inspector General (OIG) Official Draft Inspection Report – “USDA Research Integrity and Capacity”

USDA’s Chief Scientist and the Office of the Chief Scientist (OCS) appreciate the opportunity to review and comment on this official draft report. We have reviewed the report and have responded to the recommendation.

We were pleased to note in the report that the OIG inspection did not identify any instance where any change in USDA, Research, Education, and Economics Mission area (REE), or REE agencies’ policy, procedure or guidance impacted the publication of scientific reports, documents or communications of USDA research during fiscal years (FYs) 2017-2019. Further, the report states OIG interviews of a non-statistical sample of Agricultural Research Service (ARS) and Economic Research Service researchers did not reveal any impact on publications from changes in policies or processes during those years. The report states “we found no changes in USDA guidance on the use of terminology related to climate change, and found no instances of suppression or alteration of any REE communication.”

USDA provides leadership on food, agriculture, natural resources, rural development, nutrition, related issues based on public policy, the best available science, and effective management. We are committed to informing our stakeholders and the American people of the impact of our science. We also assiduously follow the direction of the 2013 Memorandum for the Heads of Executive Departments and Agencies, issued from the Office of Science and Technology Policy. The subject of this Memorandum is "Increasing Access to the Results of Federally Funded Scientific Research," and it states " ... the direct results of federally funded scientific research are made available to and useful for the public, industry, and the scientific community. Such results include peer-reviewed publications and digital data."

Our commitment to scientific integrity has been recognized in the recent Government Accountability Office (GAO) report on "Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research," which reviewed nine agencies that have large intramural research programs, including the ARS. The GAO made 10 recommendations to 6 agencies to address specific issues



related to educating staff, providing oversight, monitoring and evaluating policy implementation, and developing procedures to identify and address policy violations. GAO did not make any recommendations that USDA needed to address issues presumably because we are educating our staff on the SIP, providing oversight (through the appointment of a Departmental Scientific Integrity Officer who is the primary point of contact for allegations of compromised scientific integrity) and monitoring and evaluating our policies, which includes ensuring that USDA maintains a culture of scientific integrity and protects whistleblowers.

REE continues to provide the public with access to all research publications (through open access publications of USDA funded research in *PubAG*, *CRIS*, the National Agriculture Library (NAL) and other online REE sources), but acknowledges that a single mechanism may have the potential to enhance access. The recent Departmental policy directive (issued by the Chief Scientist, “Final Policy Guidance on Disclaimers, Disclosures and Acknowledgements in Outside Scientific Publications and Presentations” May 8, 2019) to include explicit acknowledgement of USDA funding of research in scientific publications and presentations also enhances the public’s ability to identify USDA-funded research by creating a common “search string” that enables search engines to identify USDA-funded publications.

REE respectfully disagrees with the negative characterization of *Google Scholar* in the report. REE notes that *Google Scholar* is commonly used by the public and researchers as a tool to identify diverse publications on a multitude of topics at no cost to the public. A 2019 published study of eight (8) research literature databases (using agriculture search terms) has reported that *Google Scholar* compared favorably with other databases, near the mid-top of all databases for precision and recall while identifying more unique and relevant content than other databases. REE also notes that *Google Scholar* interfaces with *PubAG* and identifies articles present in the *PubAG* collection.

### **Recommendation:**

OIG recommends that REE identify and implement a standard mechanism across all REE agencies to enhance both USDA’s and the public’s ability to identify REE agencies’ publications from USDA-funded research by subject areas.

### **REE Response:**

We appreciate OIG’s recommendations and will implement them as proposed in our responses below.

REE will continue to coordinate with the four (4) REE agencies to identify the sources (both intramural and extramural) and publishers of USDA-funded research publications as well as the existing mechanisms and databases containing records of these publications. OCS will organize and convene a strategic planning session with the four (4) agencies, their publishing staff, and NAL staff to identify the strengths and weakness of the existing mechanisms as well as scoping the requirements of a mechanism to include all agency USDA-funded research publications. (estimated completion FY2021)

After the evaluation phase, the mechanisms, that are fit for purpose, will be reviewed in a cost-benefit analysis and a single mechanism will be identified for development to enhance the public’s ability to identify REE agencies’ publications by subject area through a standard mechanism while harmonizing with other efforts underway across the department and the needs of stakeholders.

Identification of necessary and enabling processes, policies and procedures will be part of the cost-benefit analysis in this phase (estimated completion FY2022)

Recognizing that this mechanism will likely require budgetary expenditure and/or policy guidance to the agencies, implementation of any mechanism will be dependent on the provision of budgetary authority sufficient to cover such purpose in the President's budget. REE will develop policy guidance to the agencies to facilitate implementation. When such budgetary authority is provided, REE will implement the identified standard mechanism to enhance both USDA's and the public's ability to identify USDA-funded research publications by subject area. (estimated completion FY2024)



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