

USDA Agricultural Research Service

National Program 107

Human Nutrition

External Panel Retrospective Review: 2018-2022

Executive Summary

The five components of the Human Nutrition National Program 107: 1) Linking Agricultural Practices and Beneficial Health Outcomes, 2) Monitoring Food Composition and Nutrient Intake of the Nation 3) Scientific Basis for Dietary Guidance, 4) Prevention of Obesity and Obesity-related Disease and 5) Life Stage Nutrition and Metabolism were reviewed. Overall, the panel agreed that the NP107 program is a unique program with relevance, quality research and impact. The panelists were impressed with progress made on prescribed goals from the previous action plan and with both the quantity and quality of research products such as high impact publications and resources. *The reviewers unanimously agreed that all components of the Human Nutrition National Program 107 met or exceeded the goals established for the previous 5-year period and had direct relevance to high priority national health needs.* The panel recognizes that the ARS is a leader in nutrition research with a unique focus on prevention and translation. The program is able to leverage expertise, cutting edge methodologies and technologies across its program to inform the Dietary Guidelines for Americans (DGA) and nutrition programs and policies and impact the health of the nation. The program is unique in its ability to understand nutrition across the entire lifecourse from childhood/early life nutrition to older adults. It is one of the few programs across the nation that can leverage access to populations across the country to collect real-world data to inform policy and guidance, and translate these data and outcomes to provide a strong evidence base. These outputs inform dietary guidance, help improve research linking the DGA to health benefits, and facilitate dissemination of this work through databases and other resources that are valued by the scientific community and general public alike. It is noteworthy that the various sites complement each other with different technical expertise, varied strengths and access to diverse populations, and strongly benefit from using multidisciplinary approaches. Many of the sites leverage additional resources through affiliation with academic or medical institutions which amplifies their work for mutual benefit to both ARS and the partnering institutions. Ultimately, this panel concluded that the National Program 107 is a successful program that continues to be an innovator and leader in food and nutrition research. Through its focus on advancing nutrition and human health, the program continues to address key priorities related to the health of our nation and strives to improve nutrition across the lifespan using the food to population approach.

The panel acknowledges challenges in making meaningful progress and establishing measures of impact and success within the ARS framework given the need to align with the broader mission of the organization, the prescribed nature of action plans and research agendas, and need to follow congressional mandates and priorities. The panel notes the NP107 program reaches its goals and impacts health, in ways far beyond publication and citation records. Indeed, much of the translation and dissemination activities of NP107 have high impact, are key

resources for stakeholders, and address national needs in nutrition and health without traditional publication and citation records. The panel encourages the program to consider other metrics of impact in the future. Other measures could include examples of how ARS activities influence policy and dietary guidance, use by stakeholders and how programs at a national level influence the importance of food, nutrition and related-activities in the US. Regardless, panel members were impressed with the productivity, quantity, and quality of high impact publications in each of the five components of the NP107.

Overall, the panel was very satisfied with the metrics provided and progress made on goals of the previous action plan. In particular, the panel was pleased with new programs to enable more transdisciplinary work and cross-collaboration across research sites. The panel strongly encourages the continuation and amplification of these efforts to better leverage the complementary expertise and assets of each unit to synergistically address research needs of the nation. The panel also understands the prescribed nature of the research programs, but also recommends the development of mechanisms that allow for flexibility in the research program during the next 5 year period. COVID-19 has had a significant impact on many of the NP107 programs, in terms of pausing research activities, but also offered a unique lens into the nutrition needs of the nation. It would be advantageous for the NP107 to have some flexibility to pivot to emergent needs and opportunities in the nation. Related to this ability to pivot to opportunities, the panelists also suggest implementing a process for interim assessment of progress to facilitate the identification of gaps and emerging needs. For example, with emerging ontology and increased database use as tools evolve, are there additional computer modeling and data sciences expertise needs that will foster more wide use, and help to answer new questions? Inclusion of these mechanisms to allow the flexibility to iterate and foster continuous improvement of programs will ultimately augment and accelerate impact and help the program pivot to emergent opportunities.

As previously mentioned, the panel commends efforts to increase cross-NP107 collaborations and encourages more of this activity. Similarly, the panel acknowledges the strength of the program to leverage both cross-ARS and external collaborations (inter and intra-agency, academia, etc...). To further strengthen cross-agency outputs, the panel recognized an opportunity to increase alignment of communications and definitions across agencies, which would increase consistency and "usability" of resources by external stakeholders. (I.e. align definition of bioactives/antioxidants with FDA and other agencies to ensure consistent communications and ensure resources are usable to a broad audience of stakeholders). The panel also strongly recommends to align and strengthen these intra-, inter- agency and stakeholder collaborations to maximize resources and better leverage expertise in nutrition, physical activity and human health. Related to increasing collaboration and communication with partners, the panel also recommends to examine and develop additional pipelines for stakeholder engagement, opportunities to coproduce knowledge and employ additional mechanisms of bi-directional engagement. An important future area of growth for the program is prioritizing and being more intentional about including an equity lens to the program. Meaningful, bi-directional engagement of stakeholders will be critical in these efforts and will help accelerate development and optimize relevance of priorities.

Finally, the panel also encourages the ARS program to be more proactive in increasing visibility and enthusiasm for USDA programs. Towards goals of continuous improvement, the panel recognized the need to attract new cutting-edge researchers, as well as communicate the impact of programs to a broader audience to increase visibility, as well as help influence funding decisions. There is a strong need to overcome the perception of being "dated" and increase visibility of the positive impact and influence ARS programs have on human health. Effective

communication planning does not only fall to the marketing division of the program. The researchers/trainees/staff are all part of telling the ARS story and amplifying impact. The panelists recommend examining how the program works with researchers and staff to train and mentor internally around communication efforts. This could be an important career development opportunity to assist staff to help weigh both the positive and negative effects of research, and assist in promoting ARS as a cutting edge research program with high impact.

Overall, the reviewers unanimously agreed that all components of the Human Nutrition National Program 107 met or exceeded the goals established for the previous 5-year period and had direct relevance to high priority national health needs. The panel recognizes that the ARS is a leader in nutrition surveillance and nutrition research with a unique focus on prevention and translation. There is strong evidence of innovation, translation of mechanistic studies and testing hypotheses in real life situations, new models and development of analytical techniques. The databases are important trusted resources with high use both nationally and globally, and continued innovation with ontology and broader methods of dissemination will only increase impact of these resources.