

**New Hampshire Agricultural Experiment Station
(NHAES)**

Research Projects Development and Approval Process Manual

for

Hatch, Hatch-Multistate, and McIntire-Stennis Programs

Version 1.13 September 2019

College of Life Sciences and Agriculture
University of New Hampshire
Durham, NH

New Hampshire Agricultural Experiment Station (NHAES)
Research Projects Development and Approval Process Manual

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Updates History

Version 1.0: November 2009

- Initial completion and posting.

Version 1.1: December 2009

- Added requested/required NHAES inclusion in publications acknowledgment section (section III - Expectations).
- Augmented eligibility criteria for Research Development grants (section IV).
- Added integrative group research projects information (section IV).
- Added current USDA-NIFA research guidelines summary (section V).
- Added guidelines for completing CRIS AD-421 form Annual Accomplishments Reports (Appendix K).¹

Version 1.2: December 2009

- Augmented budget table, Appendix D.

Version 1.3: September 2010

- Removed information about Research Development project category – discontinued due to potential for provision of similar funding rates and addition of NHAES GRA Program.
- Updated multiple CRIS forms appendices to reflect anticipated change to REEport-based system.
- Added guidelines and information for completing Results, Outcomes and Impacts statements in proposals and annual reporting (Appendix A)
- Added list of related programs to increase outcomes and impacts of NHAES projects funding. These are described separately and linked via the NHAES website.

Version 1.4: October 2010

- Added information and links to postdoctoral and visiting scientists support programs².

Version 1.5: June 2011

- Clarified project objectives for multistate proposals.
- Added expectation to clearly propose, pursue and report tangible outcomes and impacts.

Version 1.6: August 2011

- Updated information about Hatch-Multistate project end dates, timetable for submission and review.
- Added requirement for nontechnical project abstract.

Version 1.7: August 2012

- Format requirements.
- Added farm, field and greenhouse facilities fee to budget requirements.
- Added information on annual reporting on NIFA outcomes and indicators for planned programs.

Version 1.8: August 2013

- Required internal review every three years for participants in multistate project.
- Acknowledging NHAES support in oral and poster presentations as well in manuscripts.
- Updates to transition from CRIS web forms to REEport system: revised appendices.
 - o terminology changes
 - o “Outcomes” now referred to as “Accomplishments,” “Outputs” now “Products”

Version 1.9 August 2014

- Deleted Visiting Scientist and Multiple Investigator awards.

¹ CRIS reports have been superseded by REEport, Research, Education, & Extension Project Online Reporting Tool

² The visiting scientist program has been discontinued.

- Added NHAES project is limited to one principle investigator at any one time.
- Updated UNH logos for acknowledging NHAES support in presentations and posters.
- Timeline and Process for Annual Progress Report updated.
- Updates to REEport systems appendices to align with the new REEport Guide for Project Directors (NIFA Fall 2014).
- Templates for Progress and Final reports added to Appendix I

Version 1.10 August 2015

- Added McIntire-Stennis proposal essentials as Appendix E; reordered other appendices.
- Added new wording for acknowledgements of NHAES support for books, papers, posters, etc. per instructions of National Institute of Food and Agriculture.
- Directions added for Classification Of Instruction (CIP) code to Appendix J

Version 1.11, January 2016

- Updated URLs to match UNH's website upgrade and to match new federal URLs
- Update McIntire-Stennis priorities from 2015 Request for applications

Version 1.12, August 2017

- Updated URLs to match NHAES URLs and new NIFA REEport manual
- New wording for publication cost-sharing for manuscripts submitted with NHAES scientific contribution numbers and NIFA acknowledgement.
- Proposal format instructions revised.

Version 1.13, September 2018, September 2019

- Only one research support position (GRA, postdoc) will be funded for any PI at a time.
- Summer GRA support is eligible only for PIs who do not currently have NHAES funded research support personnel (annual GRA or Postdoc).
- Support for NHAES GRAs and Postdocs personnel is competitive and numbers are limited by available capacity funding; *going forward Project Directors may receive one-two rounds of personnel funding (2 years each), followed by a gap of at least two years.* No Project Directors will qualify for continuous personnel funding.
- For Federal Fiscal Years 2020 and 2021, all available McIntire Stennis funds are encumbered through project awards, and thus there will be no RFP for new GRA or Postdoc awards within McIntire Stennis program.
- Anticipated project budgets for FFY21 and beyond will be capped at \$20,000 per year except under special circumstances. (This does not including GRA or Postdoc awards). Some NHAES support budgets may be lower, e.g. for projects not considered to require as much supplies or as result of NHAES funding constraints.

Policies and Procedures

This manual describes the objectives, policies, procedures, and timelines associated with proposing and undertaking research projects that are funded and managed through the New Hampshire Agricultural Experiment Station (NHAES). The information and procedures included in this manual address funding through Hatch, Hatch-Multistate, and McIntire-Stennis formula funds. The information provided by this manual is updated on a yearly basis in response to changes in funding requirements, and facilitates the work of investigators focusing on new and continuing projects.

I. Background

The core mission of NHAES is to support high-quality research activities related to agriculture (including aquaculture) as well as forests and associated natural resources that directly or indirectly contribute to the interests of New Hampshire.

NHAES is housed within the College of Life Sciences and Agriculture (COLSA) at the University of New Hampshire (UNH) in Durham, NH. When the state of New Hampshire accepted the provisions of the federal Hatch Act in 1887, it created NHAES. It receives combined federal and state funds under the provisions of the federal Hatch and McIntire-Stennis Acts. These appropriations specify that the state must match the federal award dollars before the Experiment Station is eligible to receive the federal funding.

The provisions of the Hatch and McIntire-Stennis Acts rely on the concept that the individual State Experiment Stations are in the best position to identify and address the research necessary to serve their respective states. The NHAES Director's Office takes very seriously the responsibility of carefully managing and leveraging the federal and state taxpayer funding in order to maximize the relevance, quality, productivity, outputs, and outcomes of the projects we fund. We strive to support the strongest research activities proposed that have relevance to the governing statutes. This includes research activities that may have expected outcomes with longer or shorter time frames. The proposal evaluation and funding process explained in this manual outlines a competitive process to address this goal explicitly.

II. NHAES Commitment to Civil Rights

The New Hampshire Agricultural Experiment Station is a public institution with a firm and longstanding commitment to equal opportunity for all. It is the policy of NHAES to abide by all United States and New Hampshire laws and University System of New Hampshire/University of New Hampshire policies applicable to discrimination and harassment. NHAES does not discriminate based on race, color, religion, sex, national origin, age, veteran's status, gender identity or expression, sexual orientation, marital status, or disability in admission or access to, or treatment or employment in its programs, services, or activities.

As a unit within the University of New Hampshire, we follow institutional policies, procedures, protocols related to the civil rights of faculty, staff, students, and others associated with the university and its activities. These policies may be found on the Affirmative Action and Equity Office website at <http://www.unh.edu/affirmativeaction/policies.html>.

All inquiries regarding discriminatory harassment should be directed to Donna Marie Sorrentino, Director of Affirmative Action and Equity, Room 305 Thompson Hall, 105 Main Street, Durham, NH 03824, phone (603) 862-2930 (Voice/TTY), fax (603) 862-2936.

III. Eligibility and Expectations

Eligibility

The NHAES research projects program is available to all COLSA tenure-track, research, and joint AES/Extension faculty members³. Some components of the program, which include graduate research assistant (GRA) support, are open only to members of the graduate faculty. A limited amount of funding is available to faculty outside COLSA, generally only when they work as co-PIs with COLSA faculty. No COLSA faculty is eligible to receive funding more than for a single NHAES research project, at any one time, and only through the competitive review and evaluation process.

Expectations

1. **Productivity:** Funding through the NHAES competitive grants program comes with baseline research productivity expectations, including consistent peer-reviewed publication of outcomes; mentoring of postdocs, graduate, and/or undergraduate students; and timely and substantive contributions to the annual NHAES reporting requirements (Research, Extension, and Education Project Online Reporting Tool [REEport] ; NHAES REEport Survey Data [<https://nhaes-reeport-data.sr.unh.edu/user/>]).
2. **Outcomes and Impacts:** All projects must clearly state and earnestly seek to accomplish tangible outcomes and impacts that have significant relevance to appropriate stakeholders of the state Agricultural Experiment Stations. “Additional definitions of impacts include the economic, social, health or environmental consequences derived as benefits for the intended users. These are usually quantitatively measured either directly or indirectly as indicators of benefits. (An example of an impact would be improved human nutrition for so many individuals through genetically engineering rice to contain the precursors to vitamin A.)”⁴ See **Appendix A** for more information.
3. **Acknowledgment:** Publications arising from partial NHAES support should cite the New Hampshire Agricultural Experiment Station in the Acknowledgments section, the NHAES scientific contribution number and the federal accession number of the originating AES project. These include, at minimum, those publications reported in the annual Progress reports (see **Appendix J** for categories). The Manuscript Approval Form, which is to be used to request cost-sharing for publication, including in peer reviewed open access journals, is found on the NHAES website (<https://colsa.unh.edu/nhaes/manuscript-approval-form>).

Presentations, workshops, websites and other activities supported by NHAES project funds should also acknowledge funding. The simple way to do this is to incorporate the UNH logo for the NHAES and the NIFA logo, which may be downloaded from <https://colsa.unh.edu/nhaes/forms-and-logos>

4. **Leveraging:** Researchers must to seek opportunities for grants, contracts, cooperative agreements, and other sources of external funding to help support their research projects.
5. **Objectivity:** All research must be conducted and reported in an unbiased and objective manner, consistent with broadly accepted scientific standards and research ethics.

³ Emeriti faculty are not normally eligible for funding

⁴ National Multistate Guidelines”

Continued funding is contingent on these aspects, as well as on federal and state capacity (formula) funds appropriation levels and NHAES priorities.

Funding Cycles

Research project funding cycles are based on the federal fiscal year of October 1 through September 30. Approved standard Hatch (with or without a Multistate component) and McIntire-Stennis projects will generally have a three-year funding cycle. At the federal level, Multistate projects are approved for five years; however, NHAES project directors must undergo internal NHAES review, including submitting a proposal before joining a Multistate project and at least every three years thereafter. Specific projects and/or investigators may be approved for up to a four-year funding cycle when they are identified by the NHAES Internal Review Committee and Director's Office as representing consistently strong levels of productivity, impacts, and leveraging of resources. There is no maximum limit to the overall length of time for which funded investigators may maintain a consecutive or intermittent series of funded projects, if new proposals are continually approved through the competitive review and evaluation process.

Under compelling and unavoidable circumstances, a project director (PD) may request a one-year extension for an active project. Information concerning the required justification and process is provided in **Appendix M**.

IV. Categories and Scope of Research

NHAES manages and expends a mixture of federal and state funds provided through the Hatch and McIntire-Stennis mechanisms. Some Hatch proposals may be folded into Hatch-Multistate projects (see below). All types of projects are awarded on a competitive basis and in accordance with available resources. Please note that anticipated project support budgets for FFY20 and beyond will be \$20,000 per year (not including GRA or Postdoc awards). Some NHAES support budgets may be lower, for projects not requiring as much financial support or as result of NHAES funding constraints.

A. Hatch

The Administrative Manual for Hatch funding specifies that “The scope of agricultural research which may be conducted under the Hatch Act ... includes research on all aspects of agriculture, including: soil and water conservation and use; plant and animal production, protection, and health; processing, distributing, safety, marketing, and utilization of food and agricultural products; forestry, including range management and range products, multiple use of forest and rangelands, and urban forestry; aquaculture; home economics and family life; human nutrition; rural and community development; sustainable agriculture; molecular biology and biotechnology applied to agriculture. Research may be conducted on problems of local, state, regional, or national concern.”

Further, directives from USDA-NIFA specify, “*Every Hatch research project must have clear and documented relevance as part of the project to agricultural science. Thus, **in your project initiation, relevance to agricultural science needs to be evident or explicit.**”*

The Hatch program is our largest source of research support funding, with more than three times the direct research support expenditures (not counting those of the farms/facilities, staff, etc.) than for the McIntire-Stennis program.

B. Hatch-Multistate

Faculty participation in Hatch-Multistate Research Projects is an excellent way to enhance collaboration with disciplinary peers from other states. USDA also requires NHAES

participation in the Hatch-Multistate program when NHAES accepts Hatch funds. Hatch-Multistate funds can be used only for cooperative research involving two or more State Agricultural Experiment Stations (SAES). The formal Multistate research program facilitates collaborative research on high-priority topics among the SAES in partnership with the USDA, other research institutions and agencies, and the Cooperative Extension Service. Opportunities and problem-solving activities that concern more than one state, but which are beyond the scope of a single SAES, can thereby be approached in a more efficient and comprehensive manner.

Faculty participants must participate annual meetings of the Multistate project to work with, learn about, and get to know national peers who have explicit interest in similar topical areas. These colleagues will likely populate competitive grant review panels and serve in other important roles related to UNH faculty career activities or as potential professional references (e.g., tenure and promotion), etc. Therefore, there is significant professional value and opportunity in developing relationships and routinely sharing research activities and results with scientific peer networks through these Hatch-Multistate research projects.

Multistate research projects are administratively supported through the four regional State Experiment Station Director associations (Northeast, North Central, Southern and Western). Approved faculty scientists in each region are encouraged to participate in the administration of projects that are managed by any of these regions. There is no expectation (quite the opposite) that a Northeast project will be made up entirely or even primarily of researchers from the Northeast region.

Any PI who is interested in participating in a Multistate research project should discuss the project and procedures with the NHAES Faculty Fellow. Lists of current Hatch-Multistate research projects are at www.nimss.org. Links to the *National Multistate Guidelines* and the *Northeastern Supplement to the National Multistate Guidelines* are available on the Northeastern Regional Association of State Agricultural Experiment Station Directors (NERA) website: <http://nerasaes.org> .

Note that there are several types of Multistate projects. In addition to the Multistate research category, Multistate extension and research administration (ERA), and Multistate Advisory Committee (AC), Coordinating committee (CC) and development committee (DC⁵) projects also exist. These ((AC, CC, DC⁶) **do not** count toward our required Multistate participation and **are not** eligible for NHAES funding. *Therefore, only the Multistate research projects that qualify for NHAES funding are addressed in this manual.*

- Prospective PIs must submit individual research proposals to NHAES annual competition. The proposal should explicitly **focus on his/her own intended individual research activities, analyses, impacts and outcomes** and include references to how their research will contribute to the approved Multistate research committee/project (e.g., NE#####, W#####, etc.), rather than reiterating the approved Multistate research project proposal itself. The NHAES competitive review process will evaluate the project director's proposed activities and demonstrated qualifications, not that of the Multistate committee/project.
- Also note that, while the regional (national) Multistate projects have five-year renewable terms, provision of individual PI funding by NHAES to participate in an

⁵ These other types of multistate activities are designated by region, type and then number, i.e. NCERA200 Management strategies to control major soybean virus diseases in the North Central Region

active Multistate project is subject to the standard periodic review and approval process described in this manual (i.e., typically three years). Further, once the regional/national Multistate project terminates, or is revised for another five-year period, the research objectives will have changed. Any NHAES project tied to the Multistate project that is expiring must also terminate. A new proposal must be submitted for participation in the revised Multistate project. *The proposal should be submitted a year in advance of project termination to accommodate the one-year lag in project approval.* All NHAES Hatch-Multistate projects will therefore be approved for three years or the end date of the NE/NC/S/W project to which it is tied (whichever comes sooner).

- Faculty investigators are eligible and encouraged to participate in approved Multistate activities. The *proposed objectives* must be taken *verbatim* from the Multistate Project (e.g., NE1038, etc.); the PD's individual proposal may include some or all Multistate project objectives, but *no additional objectives* may be included.

C. McIntire-Stennis Cooperative Forestry

The scope of research that covered by the McIntire-Stennis Cooperative Forestry Act includes:

- (1) the reforestation and management of land for the production of timber and other related products of the forest;
- (2) management of forest and related watershed lands to improve conditions of water flow and to protect resources against floods and erosion;
- (3) management of forest and related rangeland for production of forage for domestic livestock and game as well as improvement of food and habitat for wildlife;
- (4) management of forest lands for outdoor recreation;
- (5) the protection of the forest and its resources against fire, insects, diseases, or other destructive agents;
- (6) utilization of wood and other forest products;
- (7) development of sound policies for the management of forest lands and the harvesting and marketing of forest products;
- (8) such other studies as may be necessary to obtain the fullest and most effective use of forest resources. (See Appendix E)

In addition to the eligible forestry research topics described above, the updated MS Strategic Plan, "Sustaining Healthy and Productive Forests: An Investment in America's Competitive Position in the Global Marketplace," stresses the following high-priority areas: (1) science of integration; (2) forest ecosystem services; (3) human attitudes and behaviors; (4) conflict, uncertainty, and decision making; (5) technological advancements, productivity, and forest applications; (6) agroforestry; and (7) urban ecosystems and NIFA's societal challenge on Changing Climate. The MS Strategic Plan can be accessed as follows:

http://naufnp.forest.mtu.edu/wp-content/uploads/2016/10/Mac_Stennis_StrategicPlan16PRINT.pdf⁷

Related Programs to Increase NHAES Research Outcomes & Impacts

The following programs, designed to complement approved research projects, are part of NHAES' goal to enhance the productivity and impacts of funded research, strengthen the abilities of faculty, and help train the next generation of scientists. **Only one personnel position will be funded in a PD's lab at any time.** The personnel program has become very popular. Support for NHAES GRAs and

⁷ http://naufnp.forest.mtu.edu/wp-content/uploads/2016/10/Mac_Stennis_StrategicPlan16PRINT.pdf

postdocs personnel are competitive and restricted by available capacity funding. **Going forward, Project Directors may receive one-two rounds of personnel funding (2 years each), followed by a gap, but will not qualify for continuous personnel funding.** For established investigators, evidence of his/her ability to leverage NHAES personnel support with external funding will be considered as an important evaluation criteria. More detailed information on the programs along with application procedures, is available on the NHAES website: <http://www.colsa.unh.edu/nhaes/awards>

A. NHAES Graduate Research Assistantship (GRA) Support Program

NHAES will provide funding on a competitive basis to support 12-month, 0.5-time stipend plus tuition and health fees for doctoral (strongly preferred) students who are working on active NHAES projects. NHAES will cover the full cost of two years with the expectation that the PD covers the remainder of the student's full program costs (stipend/tuition/fees/operations) with his or her own extramural funding. Internal resources, including a teaching assistantship, are not to be used to pay for these expenses, as one key goal of the initial NHAES funding is to stimulate graduate student support through extramural funds. GRA Support Program awards are available to faculty who are engaged in active NHAES projects. **Priority for funding will be given to project directors who are tenured or tenure-track faculty within COLSA and students in graduate programs within COLSA.** Proposals are submitted by and awards made to individual faculty members, rather than to student applicants.

Information and application instructions for the NHAES GRA program are available on the NHAES website at <http://www.colsa.unh.edu/nhaes/nhaes-graduate-research-assistantship-support-program>

B. Faculty and Staff Professional Development Support

We have allocated a modest pool of funds to support NHAES-supported faculty and benefitted NHAES staff members to participate in key professional development opportunities, including site visits, training, meetings/conferences (the latter primarily for staff, as faculty should cover costs from project funds), grant-writing workshops, etc. Please email written requests to the NHAES Faculty Fellow well in advance of the potential event. This should include information about the specific professional development opportunity, expected cost (and requested amount, if cost-shared), and expected long-term benefits to the faculty or staff member.

NHAES Role in Research Projects Funding and Management

NHAES has some flexibility and autonomy within the statutory frameworks mentioned above, but there are provisions with which we must comply to continue to receive federal funding. Also, the 1996 Farm Bill, known as the Agricultural Research, Extension, and Education Reform Act (AREERA), imposed additional requirements.

Within this context, the Experiment Station relies upon the creativity and quality of our faculty scientists to develop high-quality research projects and programs that address state, regional, and national priorities. The NHAES Internal Review Committee and the Director's Office undertake central roles in conducting the scientific peer review and the competitive evaluation of proposals submitted for funding consideration. The Internal Review Committee consists of six faculty, two from Agriculture, Nutrition and Food Systems (ANFS), two from Natural Resources and the Environment (NREN) and one each from Biological Sciences (DBS) and Molecular Cellular and Biomedical Sciences (MCBS) departments. Whenever possible either one research or extension faculty will be a member of the internal peer review committee. The NHAES Director's Office is

statutorily charged with ultimate authority and responsibility to productively manage and discharge the Hatch, Hatch-Multistate, and McIntire-Stennis programs within New Hampshire. The NHAES Director's Office includes the Dean of COLSA & Director of NHAES, the NHAES Faculty Fellow, and the NHAES Communications Manager (see Section X: NHAES Contacts). Administrative support for the project evaluation and funding process comes through the NHAES Office of the Experiment Station.

V. NHAES Funding Priorities

Project funding through the Hatch, McIntire-Stennis, and Multistate programs represents an investment of taxpayer dollars in targeted, high-quality, productive research. Programmatic funding is not an entitlement, and our available resources are not sufficient to fund all requests for support. As such, the NHAES will uphold our fiscal mandate to ensure that expenditures are applied and leveraged to produce maximum outcomes. Consistent with maximizing outcomes is the continual building of our research capabilities; therefore, a significant portion of support will be directed to efforts that will enhance the long-term research capacity and competitiveness of supported investigators.

It will be the goal of NHAES to provide sufficient seed and baseline funding amounts, in combination with additional resources leveraged by the PI from outside sources, to enable researchers to initiate significant and substantive research activities. We will strive to increase the magnitude of funded project awards, which may necessarily come at the expense of fewer total funded projects.

The federal entity that provides the capacity funding (along with the required state match) through which the NHAES exists, is the USDA-National Institute for Food and Agriculture (NIFA). In November 2018, the Director of NIFA communicated that, for overall agency expenditures, activities sponsored by NIFA should relate to critical issues for food, agriculture, forestry and natural resources, appropriate to the state, region and country. For New Hampshire, the critical issues agree upon by NHAES and the University of New Hampshire Cooperative Extension:

- Bring focus to formula (capacity) funds.
- Be of the highest quality with value for dollar.
- Focus on one of these critical issues
 - Climate change and sustaining natural resources
 - Obesity and health
 - Agriculture
 - Food safety
 - Rural community and economic development
 - McIntire-Stennis mandates (see pg. 5)
- Place emphasis on attracting a new generation of scientists to the work of agriculture and forestry.

NHAES funding priorities are fully consistent with these NIFA guidelines.

The New Hampshire Agricultural Experiment Station invests substantial amounts of money toward personnel, operations, and direct infrastructure support to operate the several research farms, greenhouses, and ancillary facilities in order to foster the research productivity of COLSA and other scientists. We intend to work towards providing the highest-quality agricultural research facilities possible within our resource constraints, and it is critical that faculty scholars translate this effort into highly productive research that generates new knowledge and technologies. We therefore value

research projects that meaningfully utilize the NHAES research facilities to conduct disciplinary and integrated multidisciplinary research.

The internal and external proposal review process will give primary consideration to high-quality science that has core relevance to the NHAES mission. Some added consideration will be given to proposals that gainfully take advantage of the field resources (farms/dairies/greenhouses). This does not imply that high-quality and relevant proposals that do not utilize these facilities will not be funded, as we clearly recognize the value of other venues and resources. Our intent is to leverage NHAES ongoing investment in research infrastructure.

Identifying Potential Research Topics

The fundamental mission and purpose of NHAES should be kept in mind when considering potential research topics. Because of finite resources there is a need to prioritize supported projects. Therefore, it is recommended that faculty consult with their department chair, the NHAES Director's office, regional and national peers, and stakeholder or clientele groups, when considering potential research ideas. While this process is intended to increase efficiency and effectiveness of faculty effort, please remember that relevance and interest do not in themselves guarantee that a proposal will ultimately be funded within the competitive environment.

The following non-comprehensive list is provided to assist faculty in identifying and prioritizing potential research ideas. Proposed research topics should have:

- Relevance to the overarching Hatch and McIntire-Stennis statutes and the related needs and priorities of New Hampshire, New England, and the United States.
- Scientific feasibility and the probability that successful completion of the project will lead to important new scientific information and/or useful technology.
- Current, state-of-the-art investigation within the problem area, based on a thorough literature review and a search of the USDA Current Research Information Service (CRIS) database <http://cris.nifa.usda.gov/>.
- Potential for significant impact of results on scientific peers and stakeholders.
- Likelihood of leveraging resources through external funding sources.
- Likelihood for publication of results to scientific peers and other appropriate audiences.
- Ability to measure or evaluate impacts and outcomes from the proposed project (see **Appendix A**).
- An expectation for the availability of required resources (facilities and equipment, graduate or undergraduate students, technical assistance, required collaborators, etc.).
- Opportunities for interdisciplinary and/or regional or national collaboration.
- The possibility of participating in a Multistate research project.
- Opportunities to effectively integrate research with extension and outreach activities.
- Relevance to the needs of underserved individuals, groups, or communities in the state, region, and nation.

Project Funding and Allowable Expenditures

NHAES federal project funds may be expended on research supplies, domestic travel, hourly labor, and graduate or undergraduate student stipend (but not tuition or fees). Purchase of general office supplies (e.g., pens, paper) is not allowed per our federal funding statutes. Tenure-track faculty salary is not funded in project budgets except under specific or unusual circumstances (e.g., Faculty Buyout Program). Any expenditures for faculty pay, foreign travel, equipment, and status labor (i.e., with benefits) must have the prior written approval of the NHAES Director. Unallowable expenditures will necessarily be moved to an alternate PI funding source, such as startup, PI overhead return funds, or personal funds.

A requirement of Hatch-Multistate projects funding is for the PI to participate in the annual meetings, as this is a primary mechanism through which the multistate, multi-institution, multi-investigator goals can be achieved. *Therefore, funded PIs must attend the annual meeting in order to expend Multistate research funds. Any variance to this requirement must be approved in advance by the Faculty Fellow.*

VI. Project Proposal Format

Some guidance to help complete each section of the proposal is provided below. Proposals do not have a prescribed length; they should be well-written and sufficiently comprehensive to enable internal and USDA-NIFA reviewers to make informed decisions concerning approval or disapproval of funding. This generally means that at least 8-10 pages of description are required to provide sufficient rigor in addressing items 2 through 9 immediately below. However, proposals that are very long (text greater than 12 pages for parts 2 through 6), use excessive discipline-specific technical jargon, or are missing required sections will be returned for immediate revision. *A one week extension will allowed for corrections.*

Funding of proposals is not automatic and will be determined based on the outcome of the review process. USDA-NIFA has final approval authority over those recommended by NHAES. These national Hatch, McIntire-Stennis, and Multistate research funding programs are expected to be competitive processes and should be considered an opportunity to display and hone your competitive grant proposal writing skills.

Use a standard (i.e. Arial, Times New Roman) 11-point font size or larger, with one-inch margins, single-spaced text with double spacing after headings. Number all pages. Citations should be presented in APA⁸ standard format and correctly recorded in the reference section.

A suggested model for NHAES projects is that of an “umbrella⁹ project” that is sufficiently broad so as to encompass all anticipated research undertaken by the PI that is relevant to the overarching statutes (Hatch, McIntire-Stennis), but is not limited to the funds provided by NHAES. (That is, to incorporate research conducted through combined NHAES and external funding, through provision of appropriate objectives and accompanying information.) This is an effective means of leveraging resources and maximizing research accomplishments during the project period.

Closely follow the specified format when completing proposals. Proposals not complying with format requirements will be returned without review.

1. Title Page

Complete all fields as shown in the example template (**Appendix B**). The title should be concise, clear, and specific; it is limited to 140 characters, including spaces. Avoid unnecessary phrases such as “Investigation of ...” Leave the Accession number field blank.

For McIntire-Stennis projects only, the line after the title should list by number the federal mandate the proposed research will address: <http://nifa.usda.gov/program/mcintire-stennis-capacity-grant> (see Sec.7)

2. Problem and Justification

⁸ <https://www.mendeley.com/guides/apa-citation-guide>

⁹ However you should not use the term “umbrella” in describing your research

Begin a new page. Briefly describe the problem to be addressed. Write clearly and compellingly, including the importance of the research as it relates to agriculture or forestry and New Hampshire, regional, national and international priorities as relevant to the particular funding source (Hatch, McIntire-Stennis), as well as to the state of the scientific discipline. **This section should be no longer than 1 page, and should not contain figures or graphs.**

You must explain the needs to be satisfied, the problem to be solved, and the importance of doing the work at the present time and location. Provide a brief summary of previous and current work on the problem, and the additional knowledge that the project is expected to provide. Specify the ways in which public welfare and/or scientific knowledge will be advanced. Indicate the likelihood of achieving the goals in the specified length of time. You should convincingly “sell” the research to other NHAES peer scientists (biologists but not specialists in your field), NHAES administrators, USDA-CSREES reviewers (Cooperative State Research and Extension Service), and *elected officials* who will read and review it. Your own previous accomplishments, particularly those funded by NHAES awards, or preliminary information justifying continued effort, are highly appropriate and should be succinctly documented. Any citations are to be listed in the Literature Cited section. Additional information for McIntire-Stennis proposals are in Appendix E.

3. Literature Review

Summarize the literature that represents the state of knowledge relevant to the proposed project, provide critical background information, and explore key research methods and/or techniques related to the problem elucidated in the previous section. Focus on the most important and more recent literature; if recent literature is lacking in this area, justify why it remains a compelling area for inquiry (e.g., significant new topics lacking information rather than those lacking scientific importance). Provide references for all citations in the Literature Review section. You should double check that all citations have references, and that all references are cited before submitting the proposal.

4. Previous Project Evaluation

For continuing projects or new projects by investigators who have completed previous projects, summarize the information and metrics for the current (past) project. This should include the project objectives that were met, significant findings, project objectives not met and an explanation why, and a brief summary of the integration of research and extension or engagement activities (if appropriate) that occurred within the project. Publications arising from the project should be listed under proposal section 12 below. *Investigators new to NHAES funding or returning after multiple years without NHAES funding*, should use this section to summarize briefly professional experience that prepares you to undertake the proposed research.

5. Objectives

For Hatch and McIntire-Stennis proposals, first state your overarching goal(s) for this research, that is, a broad perspective of the purpose or achievements you expect. Then, list specific objectives for your project either in a numbered list or in paragraph format.

“Objectives are measurable, whereas goals are broad, general, and difficult to measure.”¹⁰

Provide consecutively numbered, clear, concise, and logically arranged statements of specific research objectives attainable within the duration of the project. Use one sentence for each objective. Keep the number of objectives to a reasonable amount. Too many objectives are difficult to address without significant (extramural) funding. Too few objectives may be limiting and nonspecific. Keep in mind that your research will be evaluated based on demonstrable

¹⁰ The Research, Extension and Education Project Online Reporting Tool <https://nifa.usda.gov/tool/reepport>, project initiation Goals

accomplishments per these objectives within the project duration. Do not confuse objectives with goals. For example, a goal might be to find out how increasingly variable weather patterns resulting from global warming might impact soil nitrogen status. An objective could be to evaluate the impacts of soil heating on microbial-mediated nutrient cycles.

For Hatch-Multistate projects only: Include one or more objectives verbatim from the approved Multistate research project (e.g., NE1031) proposal. Copy and paste to ensure the use of exact language, including punctuation.

6. Procedures

Describe the methods and procedures to be used for each individual objective in the order the objectives were stated. Use the Objectives verbatim as subheadings. Provide sufficient detail so that a competent professional in a biological science field can determine the appropriateness of the methods to address the problems outlined. **Define all acronyms and explain the purpose of discipline specific experiments and techniques. Describe how results will be analyzed.** Where appropriate, provide information concerning experimental design and statistical analyses. Specify any cooperative arrangements, in terms of who will be responsible for completing specific components of the proposed work. Cite any references in the Literature Review section.

7. Probable Duration and Timetable.

Provide estimates of the maximum time expected to complete significant subcomponents of the project and to publish results. For example: “Complete Objective 1 - April 1, 2020”; “Publish results from Objective 1 – November, 2021,” etc. The suggested format is to provide a list of major activities and objectives, and key intermediate milestones with their corresponding time of completion, in tabular format. An example template (Gantt chart) is provided in **Appendix C**.

8. Project summary with broader impacts

NHAES is required to submit annually a rolling Plan of Work (POW) to NIFA. We will use the PIs project summaries to help produce the POW. Provide a project summary of expected outcomes, including their potential broader impacts beyond the scientific community. ***The latter is critically important.*** Identify the problem, then describe and discuss the anticipated **results, outcomes, and impacts (ROI)** from your project. Outcomes are the actual benefits or changes that result from the project. Impacts are the specific benefits a taxpayer or stakeholder could ultimately receive in return for the federal investment in each funded research project. Be succinct; this section should be no more than half a page in length.

Example project summary with broader impacts:

“The *Brassica* vegetables are among the richest sources of nutritional phytochemicals in our diets that promote disease prevention. Epidemiological studies and clinical trials indicate that phytochemicals including isothiocyanates, carotenoids, tocopherols, flavonoids, and other compounds abundant in the *Brassica* vegetables can act as health-promoting antioxidants and anticancer agents. Substantial variation in the chemical form, concentration, and bioactivity of these compounds occurs within and between *Brassica oleracea* subspecies. This project will investigate methods to modify health-promoting phytochemical profiles in *Brassica* vegetables by plant breeding, spray application of plant growth regulators, and cultural practices. This information will be used in a breeding program to develop *Brassica* vegetable germplasm with enhanced phytochemical profiles. New germplasm will be evaluated for their anti-cancer and anti-inflammatory potential. Modifying *Brassica oleracea* vegetables (subspecies/morphotypes include broccoli, Brussels sprouts, cabbage, cauliflower, kale, collards and kohlrabi) will provide a one-

stop source of optimal, bioavailable nutrients with particular importance to low-income communities.”¹¹

Additional definitions of “impact”

*The quantifiable difference a land-grant program makes in the quality of life for its clients and general citizenry. Supplementing that brief statement is also the definition of an impact statement: A succinct account that describes the social, environmental, and/or economic difference that your research, teaching, or extension efforts have made on the public. Specifically, it states your accomplishments and the potential payoff to society.*¹²

See other examples in Appendix A

9. Nontechnical summary

All investigators must also provide a **nontechnical summary** of the project and its expected outcomes. The nontechnical abstract should be framed clearly and simply using three parts:

1. What issue or problem will you address and why is it critical?
2. How will you address the problem?
3. What are the anticipated impacts and/or outcomes?

This section should be a **maximum of three to five sentences**. If it is longer, the proposal will be returned to you for revision prior to review. Translate any technical jargon to plain English. An example adapted from a successful NHAES proposal is below:

“Changes in the forest products industry, land use change, and disturbances are evident in forests of the northeastern United States, while changing public expectations have broadened expectations of the goods, services, and benefits forests will provide. This project focuses on improved tools for assessing those benefits and their dynamics at the individual tree, stand, and landscape to regional scales. The new tools will support landowners, foresters, and other resource managers in making informed, cost-effective decisions about silviculture and forest management.”¹³

See additional examples in Appendix A.

10. Literature Cited

List all citations from all sections of the proposal; do not cite literature not referenced in the text. For all citations, follow the format of a major journal in your discipline to include a full list of authors, title, year published, journal, and page numbers. Check all citations for consistency of format.

11. Financial Support

Provide a concise **budget table** that lists the actual expected costs of carrying out your multi-year research project. NHAES will be able to cover only a portion of the proposed work, and the PD must seek external grant funds to leverage NHAES project funding. Also, list any existing resources that will contribute to the project. See **Appendix D** for an example. Please be aware that the NHAES funding amount provided is not based on your request, but rather on the conventional

¹¹ Modified from CRIS <http://cris.csrees.usda.gov> August 2011

¹² Source: National Impact Statement Writing Team.

¹³ Modified from Ducey 2019

range of project support funds allocated to NHAES research projects, and what is available from Federal and State matching funds. The budget table is intended to provide reviewers with confidence that you are aware of the total cost of your proposed research and have identified (and/or will seek) additional funds to cover these costs. Note that Hatch and McIntire-Stennis funds may not be used for graduate student tuition and fees; other university or external funds will be required to cover these specific expenses.

Going forward (FFY20), the anticipated average NHAES support budgets will be limited to \$20,000 per year, not including any personnel. Some NHAES support budgets may be less for projects not requiring as much resources (i.e. meta-analyses of prior research).

List all **current or pending grants and contracts** that would directly help to support the proposed research, using the following format:

PD/co-PD and co-Investigator names; Title; Amount; Duration (e.g., Federal Fiscal Year 2018-2020); Funding Entity; Date Awarded or, if pending, Date Submitted (specify which).

For Example: Lennon, J., P. McCartney, and G. Harrison. Rapid screening of selected functional characteristics in *Cucurbita moschata* using broad-array genomics. \$238,495. 2019-2022. USDA-AFRI, Awarded August 12, 2019.

Other significant financial or other resources should also be included if relevant.

12. Publications and Grant Activity – Last Five Years

Provide a list of **publications over the last five calendar years**, including manuscripts **submitted and in press**. Use the same format as in the *Literature Cited* section. Group the publications under subheadings as **peer reviewed**, **reviewed**, or **popular press**.

List all grant activity over the last five calendar years in two sections:

1. Grants/contracts obtained
2. Grants/contracts proposals submitted but not funded

Use the same format used with the Current or Pending Grants and Contracts section directly above.

VII. Project Evaluation Deadlines and Timetable

August 19th: Request for proposals distributed electronically to eligible faculty

September 3rd -20th: Faculty who wish to discuss potential research project ideas to evaluate their potential relevance to the Hatch or McIntire-Stennis funding programs should schedule a meeting to talk with the NHAES Faculty Fellow before this date. This step is not required nor expected for potential PIs, but rather a means to facilitate discussions with faculty who are unsure of whether particular research themes may potentially fit within the boundaries of the funding mandates.

At least one week prior to the meeting, please email the faculty fellow (Anita.Klein@unh.edu) a one-page pre-proposal that includes a concise, but informative overview of the proposed research project. At the meeting, be prepared to discuss the proposed research, its appropriateness to the Hatch, Hatch-Multistate, or McIntire-Stennis program, the facilities and equipment needed to do the work, the relationship of the proposed project to any ongoing work (yours and/or others), and the potential for leveraging NHAES resources through outside funding. The intent of these discussions

is to help potential PIs evaluate relevance to the AES governing statutes and consider ideas for strengthening the proposed activities, etc. Please understand that encouragement to develop and submit a research proposal does not indicate a preferential likelihood of funding through the competitive review process.

October 20th: The deadline for receipt of complete proposal packages for new projects and renewals, suitable for review. Submit electronically to nhaes.proposals@unh.edu; late submissions will not be considered except in unusual/unavoidable personal or medical circumstances.

November 15th: The deadline for submission of proposals for Graduate Research Assistants or Postdoctoral Scholars. Submit electronically to nhaes.proposals@unh.edu; late submissions will not be accepted except in unusual/unavoidable personal or medical circumstances.

January 31: The target date for completion of the internal review process by the NHAES Review Committee and by the Director's Office.

Project directors (PDs) will be notified of positive or negative outcomes within a few weeks following the final funding recommendations. Going forward, anticipated average NHAES support budgets will be limited to \$20,000 per year (not including personnel). Some NHAES support budgets may be less, for projects not requiring as much resources. The total amount of funding is determined by Federal and State capacity funds available for Hatch, Hatch-Multistate and McIntire-Stennis programs.

Project directors will then need to complete the required project initiation through the REEport system, in order that their proposals are submitted for potential USDA-NIFA approval (See appendix G). Note that we cannot fund projects that have been recommended for funding by NHAES until the new project has also been approved by USDA-NIFA.

VIII. Project Approval Process

Composition of the NHAES Internal Review Committee along with the criteria and review instruments used for proposal evaluation may be found in **Appendix F**.

The following procedure is used for project evaluation and approval:

1. The NHAES office will notify current and potential project directors (PDs) of the opportunity to participate via email. The Faculty Fellow will also invite any new faculty members to begin the process of developing a NHAES proposal. These notifications and invitations are usually distributed at the beginning of the Academic Year. Note that in the case of terminating projects, this process begins about one year prior to the actual termination of the current project to provide time for preparation, evaluation, and potential approval of a new project. This means that for a project that terminates on September 30, 2020, the PI would need to submit a new proposal during the fall of 2019.
2. Proposals must be submitted by October 20th. After checking proposals for correct format, the proposals are assigned to reviewers, and made available to all members of the NHAES Internal Review Committee, plus the NHAES Faculty Fellow and the Director. The committee members and the NHAES Faculty Fellow read and evaluate each proposal. In January, the Faculty Fellow will schedule a meeting for the committee members and the Director's Office to discuss the merits of each proposal, to consider committee

recommendations to fund or not fund, and to develop a relative ranking to be considered in the case of insufficient resources available to cover all recommended requests. For project evaluations, the content of all written and oral peer reviews and related discussions will remain strictly confidential to assure rigor and validity of the review process.

3. The Director's Office will make a final evaluation of all the revised proposals, taking into consideration the full suite of listed funding criteria, the recommendations of the Internal Review Committee, the NHAES' goals and priorities, and the resources available for allocation. Faculty will be notified of the funding **recommendation** by a letter sent via email from the NHAES Faculty Fellow. **Going forward NHAES funding levels will be \$20,000 per year or less. Anticipated funding will be communicated with the recommendation, but actual funding that will be available depends on Federal and State budgets when the project is active.** Again, note NIFA must approve each project via a project initiation before its funding starts.
4. For those Hatch, Hatch-Multistate or McIntire-Stennis proposals recommended for funding, the PD must complete Project Initiation, using the REEport system. (<http://portal.nifa.usda.gov/reeport/>). Project Initiations should be completed as soon as possible during the spring semester. Project initiations are reviewed by the Faculty Fellow, before submission to the USDA-National Institute of Food and Agriculture (NIFA) for final approval. *The NHAES Faculty Fellow will assign each Hatch and Multistate projects to a "critical issue" (see pg.7), prior to submission to NIFA.* Detailed instructions are included in **Appendix H**. *It may take up 30-60 days for the NIFA National Program Leader (NPL) to complete the final review. No money can be allocated to the project until the NPL has approved the project; this prohibition impacts any GRA or Postdoctoral associate that may be associated with a new project.*
5. Multistate Projects: *Final approval is a multi-step process.*
 - a. Once a Multistate project proposal is recommended for funding by the AES Director, the Project Director must complete and submit the online version National Information Management and Support System (**NIMSS**; <http://nimss.org>) of the Appendix E – Format for Reporting Projected Participation in a National or Regional Activity' form to the USDA. The Faculty Fellow can assist with this, and instructions may be found in **Appendix I** of this manual. The NIMSS Appendix E must be approved first by the Hatch-Multistate Administrative Director.
 - b. The PD must complete Project Initiation, using the REEport system. (<http://portal.nifa.usda.gov/reeport/>). The Faculty Fellow reviews each project initiation before submission to the USDA- NIFA for final approval. *It may take up 30-60 days for the NIFA National Program Leader (NPL) to complete the final review. No money can be allocated to the project until the NPL has approved the project, and this prohibition impacts any GRA or postdoctoral research associate who may be associated with a new project.*
 - c. When the entire Hatch-Multistate project is up for renewal (every fifth year), that comprehensive project must first be approved by the regional Agricultural Experiment Station Directors at their annual meetings, and then by NIFA's NPL, before individual Project Directors can fill out the Project Initiation Forms in REEport. *Again, new project funding cannot start until completion of approvals at all levels.*

6. Once the NIFA NPL has approved, deferred or rejected the new project, notification will be sent to both NHAES and Project Director (PD). For approved proposal documents, no further action is needed, and the project will begin the following Oct. 1. If a project is deferred or has not yet been approved before Oct. 1, the PD should consult with the Faculty Fellow concerning the next steps to undertake.

IX. Annual Progress Reporting

All ongoing Experiment Station projects require yearly progress reports through the REEport system <http://portal.nifa.usda.gov> and additional quantitative information in the nhaes-reeport-data.sr.unh.edu PDs having active projects will be notified in the fall along with instructions for submitting reports via the internet. The **submission deadline will be early in December** of each year. These reports summarize the progress, products, and publications for each project for a given federal fiscal year, or a summary for the entire project in the case of projects that have just terminated. The information is entered into the REEport database. Information from REEport will be downloaded into the Current Research Information System (CRIS). USDA research agencies, state research institutions, and scientists use the CRIS data system to help prevent duplication, access up-to-date information in their areas of expertise, make contacts with other scientists doing similar research, and answer Congressional and other legislative requests. The technical database is available for online access (<http://cris.nifa.usda.gov/>).

Detailed instructions for using **REEport**, and links to online training are provided in the Appendix J. *The webpage in REEport has a short description of the information you should provide and a longer explanation of NIFA's preferred response under the link **more**.* It is recommended that you draft the progress report in the WORD template provided in the Appendices and then copy and paste sections as appropriate into REEport. Use WORD tools to catch common misspellings and grammatical errors. The Faculty Fellow will review each progress report or final report, and may ask for changes to better match NIFA reporting goals. After any edits or revisions of the REEport Progress or Final Report, the report is submitted to NIFA At the same time PD's fill out progress reports in REEport, s/he will be asked to provide additional numeric data in the nhaes-reeport-data.sr.unh.edu Your cooperation in the annual reporting cycle is essential to maintaining State Experiment Station capacity funds.

X. NHAES Contacts

Additional information about the research projects funding process covered in this manual, as well as about the goals, operations, research, and outreach activities under the New Hampshire Agricultural Experiment Station may be obtained from the following sources:

NH Agricultural Experiment Station
46 College Road Rudman Hall
University of New Hampshire
Durham, NH 03824
Telephone: (603) 862-1452
Fax (603) 862-1096

Dr. Jon M. Wraith
Dean of COLSA
Director of NHAES
(603) 862-1453
Jon.Wraith@unh.edu

Dr. Anita S. Klein
NHAES Faculty Fellow
Spaulding Hall 238
(603)862-2809
anita.klein@unh.edu

Ms. Lori Wright
Communications Manager
Keener Dairy Research Building
(603) 862-1452
Lori.Wright@unh.edu

Appendices

APPENDIX A

Results, Outcomes, Impacts, Project Summary and Nontechnical Abstract

The NHAES and UNH Cooperative Extension are required to submit combined annual summary reports to NIFA: the Annual Report of Research Accomplishments, and the Research Plan of Work/Institutional Profile, we are required to clearly present compelling **Results, Outcomes, and Impacts (ROI)** from our funded projects.

- A well-written Project Summary that describes the anticipated **Results, Outcomes and Impacts** must be included in all research proposals. Those ROIs realized or in progress are described during the annual reporting process.
- Concise statements are important. Distilling the elements of your proposed research activities into a brief and coherent statement is evidence of your well-thought out approach.
- Limit the use of technical jargon and define essential acronyms when you first use them. The Annual Report and Plan of Work are used not only by USDA administrators, but are also read by Congressional Staff and Legislators. Keep it simple so nonscientific readers will understand the short and long-term value of your work!

There is a fundamental difference between **products** (outputs) and **outcomes**. **Products** include the number of publications, databases, plant varieties, patents, or presentations generated from a project. Other outputs may be activities, events, services, or information that reach people: audio or video clips, databases, physical collections, germplasm, etc. **Outcomes lead to impacts:** these are the actual measurable benefits or changes that result from your research. **Outcomes** are a primary aspect of annual reporting that USDA-NIFA requires. Outcomes might be related to specific **changes in knowledge** as a result of project activities, **changes in action** or **behavior of those affected, or changes in societal condition**. In the **Project Summary**, you must communicate potential benefits a taxpayer could ultimately receive in return for the federal investment in each funded research project. These are termed ‘impacts.’ Outcomes and Impacts may be realized or expected in the short-, medium- or long-term.

Examples of well-written Project Summaries¹⁴:

- “The combination of high-yielding fermentation processes (lactic acid) with selective catalytic processes provides new routes for the production of chemicals from renewable carbohydrates derived from corn and other starch containing agricultural products [**Issue**]. Such a catalytic process would allow production of acrylic acids and acrylates at costs that would be competitive with existing processes that utilize non-renewable petrochemicals [**Outcome**]. We will investigate and develop new catalysts for selective dehydration of lactic acid and its esters to produce valuable acrylic acid and acrylates. We plan to develop an understanding of the fundamental catalytic chemistry of the conversion of lactic acid and esters of lactic acid over solid acid catalysts based on sodium-modified phosphates and sulfates in order to use this understanding as we develop more selective dehydration catalysts

¹⁴ Adapted from http://www.nifa.usda.gov/about/strat_plan_partners_cris.html August 2011 [URL no longer available 8_21_2017}

[Results]. These experimental studies will be followed by design and economic analyses of catalytic processes for the production of acrylic acid and acrylates from fermentation-derived lactic acid. The results of this work will impact the ability to make selective catalysts for the dehydration of organic acids derived from the fermentation of agro-based renewable resources. **[Impact]**”

- “Michigan's Great Lakes fishery resources are intensively managed, with future benefits depending critically upon this ongoing management. Fishery management agencies influence Great Lakes fish populations and ecosystems through regulations that influence harvest, the number of hatchery-reared fish that are stocked into the lakes, and control efforts for parasitic sea lamprey **[Issue]**. Achieving stated objectives requires the balancing of necessary trade-offs (e.g., yield versus standing stock sizes and ecological role) and an ability to predict the likely consequences of management choices. Stochastic population and community models provide one means of making such probabilistic predictions, and can form critical components of more expansive ecosystem models. Given the extensive resources, rapid changes to the ecosystem, and high levels of uncertainty, much is to be gained by developing new assessment models, improving methods, and updating existing assessments and evaluations of policies **[Outcomes]**. This project proposes to develop and parameterize population and community models relevant to selected Great Lakes fish populations; explore the performance of methods for fitting the models; and, based on these assessment results, improve the performance of alternative management strategies **[Results]**. The results will be useful to the Michigan Department of Natural Resources, other state and federal agencies through the Great Lakes Fishery Commission mediated Lake Committee process, and tribal fishery management agencies (e.g., the Chippewa-Ottawa Resource Authority) in their ongoing management of Great Lakes fisheries **[Impacts]**. Results will also provide general guidance for fishery managers in other regions.”

What does a Quality, Nontechnical Abstract Look Like?

The following is an actual nontechnical abstract gleaned and rewritten from an experiment station's Annual Report. Importantly, it answers the question ‘so what?’ The abstract is broken down into component sections to illustrate the flow of information:

Issue: stakeholders including producers, seedsmen, grain merchandisers, processors, crop consultants, plant breeders, and extension staff are interested in new cultivars that bring them increased revenue.

What will be done (products): new, improved varieties of pinto beans and non-transgenic soybeans will be developed with improved adaptability to the region and higher yield and disease resistance/tolerance.

Results/Impacts: the estimated value of these crops to the Northern Plains in 2007 was \$241 million. New improved cultivars will support continued high yield. Moreover, because of best management practices developed by research and extension, economic losses will be significantly reduced through use of better varieties and the decreased use of fungicides.

Additional examples of nontechnical abstracts¹⁵: Use these to help you think about how you might effectively state your own accomplishments.

- “The aquaculture of eastern oysters provides a means to offset declines in the wild fishery, sustain a vital oyster industry in the northeast, and generate a product that is superior to wild-caught oysters. The proposed project will use selective breeding to develop lines of oysters well suited to culture conditions in Maine, focusing on improved growth in the relatively cold water temperatures, resistance to Roseovarius Oyster Disease (ROD), and hybrid vigor and will seek to identify genes involved in growth and disease resistance. It is hoped that such information will help accelerate the gains realized by Maine’s oyster selective breeding program.”
- “Maine's Aquaculture industry is under constant change and challenge. However, the industry is comprised of many small companies that do not have in-house engineering and/or cannot afford to hire consultants to respond to these issues. This project will provide engineering R&D to meet this need and help ensure the sustainability of an industry that has become a controversial, but integral part of Maine's economy.”
- “Infectious agents in poultry reduce productivity, increase production costs, and some have the potential to serve as trade barriers. Several infectious agents are food safety concerns and may impede consumer acceptance and marketing of poultry products; and are important causes of human food-borne illness. Once the agent(s) responsible for Poultry Enteritis Mortality Syndrome (PEMS) are identified, research efforts will focus on the development of efficient diagnostic tools. These diseases are being studied because of their economic importance to the poultry industry.”

¹⁵ Ibid.

APPENDIX B

Title Page Format NEW HAMPSHIRE AGRICULTURAL EXPERIMENT STATION UNIVERSITY OF NEW HAMPSHIRE

(Replace example text with appropriate information.)

Delete all blue font instructions/comments before proposal submission)

Project Number: Hatch ### (or) McIntire-Stennis ###
(Project number will be assigned by NHAES when project is approved)

Accession Number: ##### (leave blank; number assigned by NIFA)

Project Title: Quantifying Nutrient and Energy Budgets for a New England Organic Dairy Farm ¹⁶

Organizing Department: Molecular, Cellular and Biomedical Sciences

Project Leader(s): Robert L. Frost (faculty PI name)

Cooperating Personnel and Departments: Faculty A (NREN, UNH)
Faculty B (BIOL, UNH)
Faculty C (University of Wisconsin, Madison)
Scientist D (USDA-ARS, Beltsville, MD)
(Cooperating but non-funded colleagues contributing to the project. Do not list technical/professional staff, postdocs, graduate students, etc.)

Date of This Initiation: October 20, 2019
(Date of this proposal, effective start date October 1, 2020)

Tentative Approval Period: October 1, 2020 - September 30, 2023
(Typically 3 years for Standard projects)

Location: University of New Hampshire, Durham, NH

Type of Project: Hatch (and/or) Hatch-Multistate (or) McIntire-Stennis
(check with the Faculty Fellow if unsure)

RECOMMENDED:

NH Agricultural Experiment Station

Date

¹⁶ For McIntire-Stennis Projects only, list by number, the federally mandated research area this project will address. See page 5 or see <http://www.nifa.usda.gov/about/offices/legis/mcintirestennis.html> section 7.

APPENDIX C

Timetable for Project Accomplishments

The timetable can be in either graphical or tabulated (text) form for it to be useful for progress monitoring. The procedures should correspond to the objectives, rather than specify overarching general procedures. For example, you might state the objective, the procedures to achieve that specific objective, and the specific statistical analysis to test its significance.

Example of a Graphical Timetable format (Gantt chart); you can modify to suit your specific needs:

7. Probable Duration and Timetable:

Establishment, data collection and analysis will occur starting during the fall of 2021, FFY2020 Manuscript preparation and submission is scheduled for FFY2022 and during FFY2023. Project completion reports will be submitted prior to December 1, 2023.

Activity	FY2020 ¹⁷	FY2021	FY2022
Establish and instrument field locations	completed		
Secure supported graduate student			
Initiate replicated treatments – Obj.1			
Data collection and analysis (see tabular description in proposal body)			
Initiate replicated treatments – Obj. 2, 3			
Data collection and analysis (see tabular description in proposal body)			
Presentations at professional meetings			
Initiate activities for Obj 4	As funding becomes available.		
Proposals for external funding			
Manuscript preparation & submission			
Graduate student prepare thesis results			
Project completion report			

¹⁷ Based on the Federal Fiscal Year Oct.1- Sept. 30th

APPENDIX D

Example Format - Requested Budget for NHAES Research Project Proposal (Categories and amounts for illustration purposes only)

Overall Budget Needs (including all sources, not just NHAES funds)

NHAES will be able to cover only a portion of the proposed work, generally \$20,000 per year. The PD is expected to obtain additional external grant funds that leverage NHAES project funding. Also, list any existing resources that will contribute to the project.

	Year 1	Year 2	Year 3
Research Technician (0.5)	31,000	32,000	33,000
FY Graduate Student ¹⁸	23,912	25,107	26,899
FY Grad Student Tuition & Fees ¹⁹	16,688	17,521	18,398
Undergraduate Student Labor	3,500	3,500	3,500
Operations and Supplies	6,000	6,000	6,000
Travel	1,500	900	2,000
TOTAL	82,600	85,120	89,797

Resources Available

Current Grants Having Compatible Research Objectives

	2020-21	2021-22	2022-23	
INRA	6,000	6,000	6,000	(Supplies)
USDA-AFRI	60,500	62,425	61,500	(Personnel, supplies)
USDA-AFRI	8,600	8,900	9,200	(PI summer salary)
TOTAL:	74,100	77,325	76,700	

Submitted Grant Proposals Having Compatible Research Objectives

	2021-22	2022-23	2023-24
NSF-Plant Genome	78,600	69,000	74,450
NE-SARE	6,500	2,425	1,200
TOTAL:	85,100	71,425	75,650

Available from other Sources: Indirect Cost Return \$50,000

¹⁸ <http://www.unh.edu/grad-catalog/gi.cfm?thisid=164&masterid=127&headingid=127#164>

¹⁹ Tuition and Fees must come from sources outside the NHAES.

APPENDIX E ESSENTIALS OF A MCINTIRE STENNIS PROJECT PROPOSAL²⁰

Update June 2018

ESSENTIALS OF A PROJECT PROPOSAL

When submitting project proposals to the McIntire-Stennis program you must insure that it is written in the format to include all the items below. This guideline is a revised version of the Appendix F- “Essentials of a Project Proposal” from the administrative manual for M-S. The purpose of this guideline is to help eligible institutions and NIFA in the preparation, review and approval of project proposals.

Cover Page.

Title. A brief description of the subject of the research. The title should reflect the objectives and scope of the project.

Indicate under the proposal title the legislatively mandated forestry research area (s) that your project is addressing.

The current legislatively mandated areas for the M-S program are:

- 1) Reforestation and management of land for the production of crops of timber and other related products of the forest;
- 2) Management of forest and related watershed lands to improve conditions of water flow and to protect resources against floods and erosion;
- 3) Management of forest and related rangeland for production of forage for domestic livestock and game and improvement of food and habitat for wildlife;
- 4) Management of forest lands for outdoor recreation;
- 5) Protection of forest land and resources against fire, insects, diseases, or other destructive agents;
- 6) Utilization of wood and other forest products;
- 7) Development of sound policies for the management of forest lands and the harvesting and marketing of forest products.

Justification. Present the (1) importance of the problem to agriculture, forestry and rural life of the State or region; (2) reasons for doing the work (such as the needs the project will fill) and doing it at this time; and (3) ways in which public welfare or scientific knowledge will be advanced. In addition to the legislatively mandated forestry research areas, align the project to any of the following high priority issues: 1) science of integration; 2) forest ecosystem services; 3) human attitudes and behaviors; 4) conflict, uncertainty, and decision-making; 5) technological advancements, productivity, and forest applications; and 6) urban ecosystems.

Also, address any of the three critical goals for strengthening the M-S Program as described in the current M-S Strategic Plan: “The McIntire-Stennis Cooperative Forestry Research Program 2017 Strategic Plan” 1) create the future generation of forestry educators, scientists, and practitioners through graduate education; 2) build and sustain strategic relationships that enhance overall program effectiveness and support; 3) Communicate and educate the importance, impact, and successes of the McIntire-Stennis Program.

The M-S Strategic Plan can be accessed as follows: http://naufpr.forest.mtu.edu/wp-content/uploads/2016/10/Mac_Stennis_StrategicPlan16PRINT.pdf.

²⁰ <https://nifa.usda.gov/sites/default/files/resource/essentials-of-a-project-proposal-appendix-f-revised-june-2018.pdf>

McIntire-Stennis aligns with the USDA Strategic Goals FYs 2018-2022 <https://www.usda.gov/our-agency/aboutusda/strategic-goals>; specifically Goal 5 ‘Strengthen the stewardship of private lands through technology and research’. Include how you are addressing stakeholders’ input. What may be the benefits of the proposed activity? How will your project enhance the infrastructure of research, education and extension? Previous Work and Present Outlook. A brief summary of previous research (citing important and relevant publications/literature); status of current research; and the additional knowledge needed which the project is expected to provide. What are the knowledge gaps being addressed? How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? Provide evidence of the efforts made to avoid duplication of research. Applicants should consider the likelihood that the research is currently undertaken elsewhere, and if so, make every effort to ensure they are aware of, and not duplicating such research. If your new project is associated to previously funded projects, describe what was accomplished in the original funded project and how this application will advance the accomplishments of the previously funded project. The CRIS Database (<http://cris.nifa.usda.gov/>) may assist you in this search and help you identify duplicative work. (Literature citations are listed at the end of the project proposal.)

Objectives. A clear, concise, complete, and logically arranged statement of the specific results to be achieved by the project.

Procedure: A statement of the essential working plans and methods to be used in attaining each of the stated objectives. Procedures should correspond to the objectives and follow the same order. Phases of the work to be undertaken currently should be designated. Location of the work and the facilities and equipment needed should be indicated. Wherever appropriate, the procedure should produce data suitable for statistical analysis. The procedure should reflect careful planning and should provide flexibility for changes if changes became necessary.

Duration and Timetable. An estimate of the maximum time required to complete the project and publish results. For the timetable, list major activities and/or objectives and their corresponding time of completion. For example: Objective 1 will be realized in 7 months’ time (Jan. 1 - July 31, 20XX). Projects are limited to a maximum of 5 years. If major changes in the objectives occur, it is advisable that a new or revised project proposal be prepared and submitted. A major change in procedure will require a revision of the project proposal.

Financial Support (Budget). Estimated annual allotments (by funds) to (1) salaries, and (2) maintenance, based on analysis of requirements for labor, equipment, supplies, travel, and other operating expenses. Please indicate total of federal funds and of non- federal funds allotted to the project. Indication of allotment by year is recommended but not required. See example below:

Budget item	Year 1	Year 2	Year 3	Total
salaries				
Supplies				

Personnel. The leader(s) and other technical workers assigned to the project must include a brief resume’ (no more than a page). Past accomplishments and how these relate to the current research should be indicated. Each subject-matter unit in the agricultural experiment station and any other units of the institution contributing essential services or facilities should be identified and the responsibilities of each should be indicated. If there is an advisory, coordinating, or directing committee for the project, the official title of the committee should be listed. The percent of time

committed for concurrent projects must not exceed 100%. Cooperation/Collaboration. A statement listing the U.S. Department of Agriculture or other station, institutions, or agencies expected to cooperate formally or informally on the project. If project is part of a Regional Project, list Regional Research Project Number.

Literature Cited. Include a list of all literature cited on the body of the project proposal.

Brief Curriculum Vitae including

Refereed publications in the last five year

Non-refereed publications in the last five year

Proposals submitted for external funding in the last five year; *note clearly those that have been funded.*

Graduate students supervised in the last five years; note those who have completed his/her degree.

APPENDIX F

Internal Review Committee and Review Criteria

The NHAES Internal Advisory Committee (Committee) is composed of six-eight faculty members from the college, i.e. one -two from each of the four academic departments. Whenever possible, one of the committee representatives holds an Extension or Research Faculty appointment. Because the NHAES does not have sufficient resources to fund all the proposals received, nor will it fund those deemed outside or peripheral to the NIFA funding statutes, the members of this committee will serve as the internal review panel and will recommend those proposals to be funded. The committee recommendations are advisory to the Director's Office through the NHAES Faculty Fellow, who will read and evaluate all submitted project proposals and will participate in the committee meetings. Committee members serve staggered terms and cannot consider their own projects during their term on the committee. During their term on the advisory committee, members must recuse themselves from all discussion and deliberation of their own proposal.

Using the criteria below, the panel will independently evaluate all proposals based upon their merits and the PI's research accomplishments and potential as evidenced by the materials presented.

Evaluation Criteria

The following criteria will be used in evaluating research proposals:

- Relationship to the Hatch, Hatch-Multistate, and/or McIntire-Stennis programs, and to NHAES mission and strategic priorities. For McIntire-Stennis proposals, the project rationale and justification should be clearly linked to one the seven program mandates.
- Scientific and technical merit.
- Soundness of approach, procedures, and methodology.
- Likelihood of significant contributions and/or innovative advances.
- Previous and current research productivity and accomplishments [or for new PDs, their research potential].
- Likelihood of significant outputs and outcomes from the funded research program.

PDs must develop and convey a convincing case in all the above aspects.

Each committee member will provide the Faculty Fellow a concise written summary of their recommendation and justification thereof for each proposal.

Recommendation for Funding

The NHAES funding decision will be conveyed in writing to each PD by the Faculty Fellow, with copy to his/her department chair. The NHAES office will assist the PDs to submit his/her initiation and associated federal forms to the appropriate USDA-NIFA office. NIFA has final authority for project approval.

Prospective PDs must complete all required sections in the REEport project initiation forms well in advance of deadlines for NHAES to release funds to individual projects. NHAES is not allowed to provide funding to projects until we receive notification of their approval by USDA-NIFA.

APPENDIX G

NHAES Project Internal Peer Review Form

Project Director: _____

Reviewer Name: _____

Review Date: _____

Please rigorously evaluate the proposal relative to the following stated criteria. In your review address the quality of proposed work, likelihood for success, the PD's record of productivity and of obtaining additional funds to carry out the research, and other relevant factors. Review comments are to remain confidential and will not be shared outside the NHAES Internal Review Committee, plus NHAES Faculty Fellow Klein and Dean Wraith.

1. Relationship to the Hatch, Hatch-Multistate, and/or McIntire-Stennis programs, and to the NHAES mission and research priorities; or McIntire-Stennis proposals, the project rationale and justification should be clearly linked to one or more of the seven project mandates (<http://nifa.usda.gov/resource/mcintire-stennis-project-proposal-essentials>):
2. Scientific and technical merit:
3. Soundness of approach, procedures and methodology:
4. Likelihood of significant contributions and/or innovative advances:
5. Previous and current research productivity and accomplishments [or for new PDs potential]:
6. Relevance and/or Importance to New Hampshire or New England:
7. Other comments:
8. Do you recommend that the project be funded?

APPENDIX H

Project Initiation

REEport uses a menu driven process, with various modules for the entire life cycle of your formula-funded project(s). Start by logging into the REEport web site (<http://portal.nifa.usda.gov>). The interface works well in Mozilla Firefox on the PC side. If you are new to REEport, your name and email will be added to the system as a Project Director (PD). You need to respond to the REEport email that provides a link to the REEport page where you set your own password.

For additional details see

https://nifa.usda.gov/sites/default/files/resource/REEport%20Guide%20for%20Project%20Directors%20-%202006152017_0.pdf

Essential steps for the project initiation process are listed below. Detailed descriptions of each step in project initiation are available in the online manual, (<http://nifa.usda.gov/resource/reeport-guide-project-directors>). For the description below, the text and images were adapted from the guide. Brief video tutorials are also available at <http://nifa.usda.gov/reeport-resources-land-grant-partners>. You must have QuickTime (<http://www.apple.com/quicktime/download/>) installed on your computer to watch these videos.

If you need further assistance, contact Anita Klein (anita.klein@unh.edu)

1. Log in to REEport: <http://portal.nifa.usda.gov>



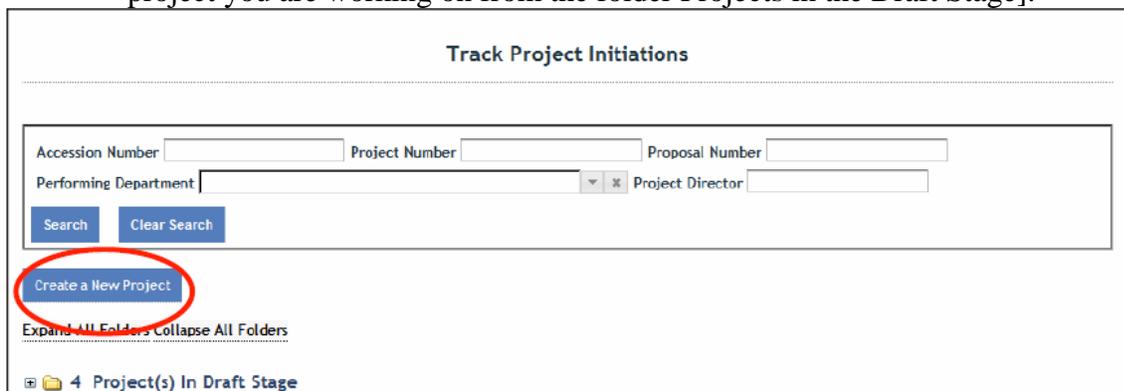
2. Click on **project initiation**, in the green and gray bar below “Welcome” to enter the project initiation module.

Within each module, projects are organized in a series of folders: Draft Stage, Pending Submission, Submitted to NIFA, Declined projects, Active projects, Changed Project, Completed Projects and Projects with overdue final reports.

Most text boxes have help buttons [blue square marked (?) or more]. Each text box is limited to 8000 characters.

No matter what module you are in, you may click on the top menu bar to return to the home page or another module. However, when you enter data on a page you **MUST** click on one of the navigation buttons at the top or bottom of the page **to save** your work.

- a. Click on the **“Create a New Project”** button. [If you return to this step later, select the project you are working on from the folder Projects in the Draft Stage].



- b. **Select a funding source** from the drop down menu (Hatch, Hatch/Multistate, or McIntire Stennis)
If you choose the multistate funding source, you will be given a second drop down menu:
Select the multistate project that has previously been approved in the National Information Management and Support System (NIMSS).

Before completing this screen, check the box that says “ I understand that Funding type and/or Multistate Number selected on this screen cannot be changed after clicking “Next”. [It is not possible to delete mistakes].

2. Fill in the fields in the Cover Page

a. Project title

If you are part of a multistate project use the title approved in NIMSS

b. Performing department (drop down menu)

c. Project number (assigned in the NHAES proposal recommendation letter).

d. Collaborating/Partnering States, Collaborating/Partnering Organizations or Countries (leave blank if appropriate). *For multistate projects, list only those partnering states/organizations that you work with on individual project objectives.*

e. Select **Start date. Use calendar: unless otherwise noted in your recommendation letter, your project will start on October 1 of of the current calendar year; and end 3 years later on September 30th.**

You cannot backdate the start date.

f. Select project director from the drop down menu

When you complete this page click the radio button for next.

3. Fill in the Participants page

a. List any co-Project Director.

b. Estimated FTEs over the length of the project.

i. **NHAES projects have a standard of 0.2 FTE/year for COLSA tenure-track faculty or extension faculty.** For a three year project, estimated FTE for the project director are 0.6. If the project director has a large number of external grants, then the FTE commitment should be reduced to 0.1 FTE/year or 0.3 FTE for the life of the project.

- ii. PDs from other colleges, institutes or research faculty should not list FTE unless s/he has prior commitment that the NHAES will provide one month of salary for PDs who are not tenure-track or extension faculty in COLSA.
- iii. Do not list FTEs for others (GRAs, Undergraduates, Postdocs, technicians, farm managers) unless you have an received NHAES funding for a graduate research assistant or a postdoc (2 years at a time). NHAES GRAs should be listed at 0.5 FTEs per year; NHAES Postdocs are 1.0 FTEs per year.

Use a WORD Document Template to draft text sections (4-9 below) using spell check and grammar check to avoid typos. Avoid technical jargon and define acronyms in each different section of text.

4. Complete Goals/objectives text box.

Describe in layman's terms the overarching goal of your project, and briefly state why taxpayers should care.

Paste in the objectives from your proposal.

- i. If you are part of a multistate project, only list those research goals/objectives that you will carry out.
- ii. REEport allows you to use bold, italics, superscripts and subscripts and symbols.
- iii. *Do not use bullet points to separate objectives. Your project initiation will be imported into two other federal databases: The Current Research Information System (CRIS) and the Research, Education, and Economics Information System (REEIS); neither database can handle bullet points.*

5. Complete the "Products" text box

The format for this section should be a list. For the purpose of Project Initiation you should include all products/outputs that are expected/estimated to result from the duration of this project.

NIFA defines products/outputs as: activities, events, services, and journal articles that have a positive impact on people (see pg. 21 of the REEport manual for a more detailed definition).

Examples of products include publications, patents and plant variety protection. More examples are listed in the REEport guide for Project Directors.

6. Complete the "Expected" Outcomes text box

The format for this should be a list. NIFA considers terms "outcomes" and "accomplishments" equivalents. "An outcome is defined as a measureable and documented change in knowledge, action, or condition as a result of the project. Outcomes should relate directly to the project objectives." These should be succinct statements with "phrases indicating the occurrence of change" of knowledge (scientific research), number of individuals demonstrating significant gain in understanding (education or extension), change in action/behavior, or a change in condition (see REEport manual pg. 21).

7. Complete the Target Audience box

This should include all the audiences you will reach over the life of the project: professional groups, students, market segments or communities. Where appropriate identify racial and ethnic minorities or others who are socially, economically or educationally disadvantages, *but for most research projects, outreach to minorities or disadvantaged is not a primary goal.* Briefly describe the activities that will deliver science-based knowledge to the target audience (classes, internships,

informal learning opportunities, extension and outreach) or under-served groups (*such activities are primarily for extension projects*).

8. Describe the Methods for this project:

Paste in the methods from your proposal. These should include both efforts/activities and how experimental outputs will be evaluated for impact on the intended audience (see REEport manual pg. 25-26). There is an 8000 character limit so you may need to trim your methods description.

9. Complete Non-Technical Summary Section

Paste this section from your NHAES proposal. See pg. 26-27 of the REEport guide for Project Directors for an explanation of what constitutes a good non-technical summary. *“This non-technical summary may be the most important section of your report. This will be accessed by legislators who make decisions about funding allocations, general public, community leaders, and taxpayers as well as government staff and other scientists.”*

“The summary is your opportunity to clarify the importance of your project in non-technical terms that people without scientific backgrounds. A good non-technical summary is composed of 1-2 succinct paragraphs that cover three main points. In addressing these points, make sure to provide enough detail so that you are touching upon the main purpose of the project, the expected accomplishments, and anticipated benefits of the research.

1. What is the current issue or problem that the research addresses and why does it need to be researched? When answering this question consider a perspective that is understood and valued by the general public beyond the target audience regarding the science you are conducting. A clear statement of relevance should be included that describes this value. Why is this topic important to the general public?

2. What methods and approaches will be used to collect and produce data/results and subsequently inform target audiences? This should be different from your objectives list. Do NOT include duplicate text from other sections. This section should explain, in plain, non-technical language what you intend to do.

3. Through the methods mentioned above, what ultimate goals does the project hope to achieve and what is the general impact expected to be if this goal is met? What societal benefits may be realized? (e.g., overall decrease in energy consumption, children eating healthier, a more sustainable use of agricultural land).”²¹

²¹ REEport guide for Project Directors

10. Add Keywords and Keyword Phrases.

Include term(s) for the general level, class or category, and specific entry. *Each term should be on a separate line. To add another line use “+”.* Order terms as general concept, class or category of research, and specific subject/item of research. See pg. 26-27 of the REEport guide for Project Directors.

11. Complete Project Classification USDA identifies different research areas by a three-part classification system. (<http://cris.crees.usda.gov/manualvii.pdf>)

- a. Forestry Component: Primarily McIntire-Stennis research, but also some environmental/ecology research.
- b. Animal Health Component: Estimate what if any part of your research pertains to health of agricultural animals; if none, fill in 0%.
- c. AREERA Integrated Activity: “An integrated activity is defined as a jointly planned, funded, and integrated activity between research and extension to solve a problem; this includes the generation of knowledge and the transfer of information and technology.” Check yes if the project is a Hatch or Hatch Multistate that is being supported both by Hatch funds and other funding that supports extension. Most Hatch Multistate projects have an extension component.
- d. Activities: “Once you enter any percentage for the “research” category, additional data fields will appear up on the page asking you to classify the type of research (basic, applied, developmental) into percentages. The percentages on each section must always add up to 100%.”
- e. Select the appropriate federal Knowledge Area (KA), Subject Of Investigation (SOI), and Field of Science (FOS). You must assign a % effort to each; none should be less than 10%. *Although multiple knowledge areas are permitted, fewer are better!*
- f. The Agricultural Research, Extension, and Education Reform Act (AREERA) stresses the importance of integrated research and extension activities. Hatch Multistate projects generally include an extension component, but Hatch and McIntire-Stennis projects may have a dedicated extension component only if the PD has a cooperative extension appointment or a collaborator or Co-PI has a cooperative extension appointment. Activities – once the % for each research activity is specified, additional % box fields will appear. Use these to classify what portion of the activity is basic, applied, or developmental.
- g. Associated Planned Programs/Critical interests: NHAES assigns each project Hatch or Multistate Projects to one of several critical including: Rural and Community Development; Agriculture; Food Safety; Obesity and Health; Climate Change and Sustaining Natural Resources; and Youth and Family. (The last category is specific for UNH Cooperative Extension only). The NIFA critical issue to which your project will be specified in the NHAES recommendation for award letter; *the Faculty Fellow will add this element to the classification section and assign your contribution to the planned program at 100%*. For more details see pgs. 27-29 of REEport guide for Project Directors.

12. Assurance Statements

All Project Directors must answer parts 1 and 2 of the Assurance Statements; the default answer is **no** (no human subjects, no vertebrate animals).

- a. If your project uses human subjects you must have approval from the Institution Research Board (IRB) to complete this section, or at least have submitted a protocol for review. If the latter, indicate the expected review date. If approved enter the UNH Human Subject Assurance number (<http://www.unh.edu/research/unh-identification-and-assurances>).

b. If your project uses vertebrate animals you need approval from the Institution Animal Care and Use Committee (IACUC) to complete this section, you must have submitted your experimental protocol for review and it must be approved. Enter the UNH Animal (Vertebrate) Assurance Number (<http://www.unh.edu/research/unh-identification-and-assurances>).

13. **Upload the pdf of your proposal** (this step is required for Hatch and McIntire Stennis projects but not for Multistate proposals.) See pg. 30 of the REEport guide for Project directors.

When you have completed all sections of the project initiation module, you must submit the project to the institutional site for review. Please email the faculty fellow you have submitted your project initiation for institutional review.

If there are missing or incorrect data fields in the project, a list of red correction items will show up on the Submit screen; each item needing to be fixed is a clickable link for easy access to that particular section. When this is completed, the header on your screen should say:



The Faculty Fellow will review your project initiation and either make minor changes or send it back to you for further changes. Once this internal review project is complete, the project will be sent to NIFA for final review. *This may take several weeks or even months. NHAES funding cannot start before NIFA approves your individual project!*

APPENDIX I

Format for Reporting Projected Participation in a National or Regional Activity

(Multistate Project Participants Only)

An investigator who wishes to join a Multistate Research project must complete the online version of Appendix E form with the National Information Management and Support System (NIMSS; www.nimss.org/appendix_e/create) to provide project participation information (See pdf version on the next page). The NHAES Faculty Fellow will assist you in filling out the form online. The NHAES Faculty Fellow is approves the Appendix E and then submits electronically for the NHAES Director's office via the National Information Management and Support System (NIMSS).

When Multistate projects are under revision, the PD will have to submit a new Appendix E to participate in revising the project. When the new Multistate is approved, the PD will be assigned a new NHAES accession number and must submit a project initiation in REEport (see Appendix G). *List the specific objectives that will be addressed in your research, not all the objectives of the multistate project.*

Project Number: **Note:** Please enter a project number or parts of a project name in the text box below and then select a specific project from the list provided.

User: **Note:** Please enter the first name of the user you would like to assign in the text box below and then select a specific user from the list provided.

Official Representative(?)

Objectives

Select a project above to choose objectives.

Research Commitments

Scientist Year (?)

Professional Year (?)

Technician Year (?)

Research

KA - Knowledge Area ([Find CRIS Code](#))

SOI - Subject of Investigation ([Find SOI Code](#))

FOS - Field of Science ([Find FOS Code](#))

APPENDIX J

REReport Progress and Final Report Guidelines

An Annual Progress Report **must** be submitted for all active NHAES projects through the federal REReport system. For formula funded projects (Hatch, Multistate, McIntire-Stennis) the reporting period generally covers the preceding federal fiscal year of October 1 through September 30. When a project is complete or discontinued, a final summary report, covering the life of the project, should be submitted in lieu of an annual accomplishments report.

Below is brief description for how to fill out the Progress Report. Detailed instructions are also available in the REReport guide (<http://nifa.usda.gov/resource/reepreport-guide-project-directors>); the corresponding pages are noted below in parentheses. A web tutorial for Progress and Final Report modules is available online <http://nifa.usda.gov/reepreport-resources-land-grant-partners> (scroll down to videos).

1. **Login** into the REReport web site (<http://portal.nifa.usda.gov>). Your name has been added to the REReport system; you must respond to a REReport email which provides a link where you set your own password.

On the home page **select** the Progress Report Tab. See page 35 of the REReport guide for Project Directors.

No matter which module you are in, you may click on the top menu bar to return to the home page or another module. However, when you enter data on a page you **MUST** click on one of the navigation buttons (**Previous, Save, Next**) at the top or bottom of the page **to save** your work.

Progress Report Home Page

Home Project Initiation **Progress Report** Financial Report Reports Project Change Final Report Site Administration

Track Progress Reports

Accession Number Project Number Proposal Number

Performing Department Project Director

Search Clear Search

For every complete year of the project, REReport generates a draft shell for the Progress report. Select your draft progress report from the folder labeled Progress Report(s) in Draft. These are identified by the anniversary date. **Do not use the shell for the final report until your project has ended. Do not use the progress report shell when you need to file your final report.**

You are encouraged to prepare the text in your favorite Word Processing program and then cut and paste each text section into REReport. First, this will provide basic proofreading; 2nd if the REReport system crashes while you are filling out your progress report, you will not lose all your work. Crashes are not uncommon.

When writing for REEport, follow these guidelines:

- *Keep it short and simple!*
 - *Translate acronyms; avoid technical jargon in favor of plain English.*
 - *Know your audience! Your readers are not technical specialists in your disciplines. They may be policymakers, congressional aides, journalists, or members of the public. Each year, make a concerted effort to explain broader significance of your work during the reporting period.*
2. **Cover page:** the cover page is prepopulated with information entered during project initiation. (REEport guide for Project Directors pg. 37)
Click next.
3. **Complete the boxes in the Participants Page** (REEport guide pgs. 38-39)
- *NHAES projects have a standard of 0.2 FTE²² for COLSA tenure-track faculty or % NHAES appointment of extension faculty. PDs from other colleges, institutes or research faculty typically do not assign FTE to their own position, as NHAES does not provide their salary. If in doubt contact the Faculty Fellow, Anita Klein.*
 - FTEs for undergraduates, graduate students, or postdocs:
 - Only undergraduates who are **paid** from NHAES funds to work on the project should be counted. For example an undergraduate working for full time in the field for the summer would be considered 0.20 FTE; numbers must be rounded to the nearest tenth of an FTE.
 - Graduate students: list FTEs only for those students who are compensated by the project or the NHAES. 0.1 FTE for summer NHAES GRA, or 0.5 FTE for year long NHAES GRA). Do not add FTE for graduate students who are supported only as TAs.
 - Postdocs are credited 1 FTE for the whole year; prorate FTEs for individuals who have worked less than a full fiscal year (FFY).
 - Do not fill in FTEs for Technical or Administrative or other staff.
 - Enter the Classification of Instruction (CIP) code for all undergraduates, graduate students and postdocs participating in the project, whether or not s/he is paid by the project. (For example an undergraduate funded on a Summer Undergrad Fellowship, from UNH, is counted as “1” for the purpose of CIP classification) Each student or postdoc is considered a separate individual (rather than a partial FTE in the first section) Codes are available at <http://nces.ed.gov/ipeds/cipcode> .
4. **Identify the target audience** (REEport Guide for Project Directors pg. 40)
On this and every successive page, there are tabs you may use to either view past Progress reports or View Project Proposal! If you do not remember what you said last year and want to be consistent, look it up!
- a. Option: check the box nothing new to report
 - b. Preferred option: Identify the subset of all the original target audiences served during the progress report period. (for example, if you gave a demonstration to

²² A PD who has multiple federal grants should reduce the FTE to 0.1.

undergraduates about your NHAES project, you would list the course by name, number and enrollment).

5. **Identify any products produced** (REEport Guide for Project Directors pg. 41-42)
 - a. **Publications:** list publications only from the reporting year (Oct.1 to Sept. 30) and identify status (accepted, awaiting publication, submitted, published, or under review).
 - i. This category of products includes: Book chapters, Books, Conference papers and presentations (abstracts), theses/dissertations, journal articles. Other types of products and outputs, such as newsletters, workshops, webpages, etc., will be reported on in the "Other Products" section.
 - ii. You may type, or cut and paste the citation directly into this section. Do not use bold, italics or symbols.
 1. List all authors, the title, journal, volume pages, and date, or where appropriate the url.
 2. Indicate whether NIFA support was acknowledged.
 - iii. **To add each new item click the blue “+” button at the end of the section.**
 - b. **Patent(s) and Plant variety protections (PVP):** file by application # and application filling date
6. **Other products:** Choose type from the drop down menu. Includes activities, events, services, or resources (i.e. curricula, audio/video, databases, germplasm, collections, software, websites, etc.) See REEport Guide for Project Directors pg. 42
7. **Describe accomplishments over the reporting period, as these relate to the major goals/objectives initially proposed.** (REEport Guide for Project Directors pg. 43- 46)
 - a. The major goals of the project, from your project initiation, will show up at the top of this section.
 - b. **What was accomplished under these goals?** “This field/box should include the details on the work done towards each objective and a description of the impact this project has had during this reporting period. To help frame your accomplishments for this PROGRESS REPORT, work through the following questions. After doing so, you should be able to put your answers together to form a succinct IMPACT DESCRIPTION that describes your accomplishments during the reporting period
 - i. In one sentence, what is the issue or problem that your project addresses (i.e.; what are you trying to help solve, fix, mitigate, improve?)

- ii. Who or what will be most immediately helped by your work, and how? (Hint: What audience did you originally intend for your work to impact?)
- iii. For each goal and objective listed in your project initiation form (shown at the top of the screen), describe for this reporting period:
- iv. Major activities completed / experiments conducted
- v. Data collected
- vi. Summary statistics and discussion of results. *<8000 characters including spaces*

Note: most people who will read your PROGRESS REPORT are not technically trained or educated in your field of expertise, so write it in a manner that is meaningful to readers, stakeholders, USDA administration, and Congress.

An Example of a well written accomplishment statements

The regenerating seedlings and saplings of economically important native trees and may slow the growth of established trees in the forest canopy and subcanopy. Precise measurement of these inhibitory effects will allow more effective targetting and prioritization of control efforts, and development of simple, cost-effective control measures should allow inhibitory effects to be minimized inexpensively.

Objective 1. INHIBITORY EFFECTS OF INVASIVE BUCKTHORN ON CANOPY TREES: Increment cores have been removed from canopy eastern white pine trees in areas where invasive glossy buckthorn has been removed from the understory (via cutting or burning) and areas where buckthorn has been left intact. On each of these cores, wood ring widths for each of the last 8-10 years have been measured. Data are now being analyzed to see if removal of buckthorn resulted in increased ring width (radial growth).

Objective 2. EFFECTS OF CUTTING AND BURNING ON BUCKTHORN SUCCESS AND PINE REGERNERATION: Last year we showed that repeated cutting or burning of glossy buckthorn prior to logging reduced glossy buckthorn density substantially (by ca. 85%) but not completely. We wanted to know if the remaining buckthorn individuals were plants that had survived our cutting/burning

treatments or were from newly germinated seeds. This year we excavated and aged buckthorn plants on cut and burned sites and found that 30-55% of plants had survived our cutting/burning treatments. This result suggests that even the extreme, replicated cutting/burning treatments we applied were not sufficient to fully control buckthorn. Thus, additional buckthorn control treatments may be needed to limit buckthorn regrowth. We also completed a second buckthorn control experiment. This experiment differed from the first in that buckthorn was cut three years after the forest canopy had been removed. In this experiment, buckthorn was cut to near ground level once, thrice, or four times in a single season. Multiple cuts of buckthorn in a single growing season had little if any effect on buckthorn survival, but reduced buckthorn height (75%) and cover (50%) relative to uncut controls. Multiple cuts of buckthorn in a single growing season reduced competition with native seedlings, increasing relative height growth of 3-yr old eastern white pine seedlings. After cutting, however, buckthorn re-grew at rates exceeding that of white pine, suggesting once again that repeated treatment of buckthorn will be required to liberate white pine from competition with buckthorn.

CHANGE IN KNOWLEDGE: Collectively, these data suggest that effective buckthorn control with manual cutting and burning, either pre- or post-canopy removal, will not free regenerating white pine seedlings from buckthorn competition²³.

8. Describe opportunities for training and professional development (REEport guide for Project Directors pg.45)

- a. Option: nothing to report (check this box if the research does not provide these options).
- b. Briefly describe training activities or professional development.

9. How have the results been disseminated to communities of interest (REEport guide for Project Directors pg. 45)

- a. Option: check box nothing to report
- b. Or describe how results have been disseminated, Include any outreach activities that have been undertaken to reach members of communities who are not usually aware of these research activities for the purpose of enhancing public understanding (i.e.

presentation at a research field day or NH Farm and Forest)

²³ From NREN Emeritus Professor Tom Lee

10. What do you plan to do during the next reporting period to accomplish the goals?

- a. Option: nothing to report (*you shouldn't check this box unless you expect your funding will be terminated early*)
- b. Describe briefly what you plan to do during the next reporting period to accomplish the projects goals and specific objectives.

11. Changes/Problems (REReport guide for Project Directors pg. 47)

- a. Option: check box nothing to report
- b. Or briefly describe major changes/problems in approach and reason for these changes (i.e. crop failure due to extreme weather, substituting a new technology, adding a new objective tied to research results).

12. The final step is to submit your Progress Report for review.

- a. You may view the report in PDF format.
- b. If there are missing or incorrect data fields in the project, a list of red correction items will show up on the Submit screen; each item needing to be fixed is a clickable link for easy access to that particular section.
- c. When your progress is completed, the header on your screen should indicate that the progress report has been submitted for institutional review.
- d. The Faculty Fellow will review your progress report and either make minor changes or send it back to you for more extensive changes. Once the internal review project is complete, the project will be submitted to NIFA by the site administrator, under the Director's electronic signature.

Final Report Template

If your project ended on September 30, 2019; do not use the Progress Report Template. Instead, use the Final Report Template! Draft the text section of your report here. Make use of Microsoft WORD's spell check and grammar check. Limit technical jargon and define all acronyms.

Cover page: *no changes needed*

Participants: *table to fill in online; See NHAES Research Manual Appendix I for detailed instructions*

Target audiences: *Provide a description of the target audience(s) reached by your efforts during this reporting period only. Include workshops, twilight meetings, NH Farm or Forest, etc., community workshops, etc. List any classes you have taught where you have incorporated your research in teaching.*

The boxes shown below can be expanded. However, keep your report succinct; a maximum of <8000 characters including spaces are permitted for each text box.

Products: *Fill this out online.*

Publications: *From the pull-down menu select type: Book, Book chapter, conference papers or presentations, Journal Articles, Theses/Dissertations, and Websites.*

For the final report, include publications that have been submitted for review and any publications not included in previous progress reports.

Provide complete citation, and indicate whether NIFA Support was acknowledged

For each additional citation, check the blue + box

Patent(s) and Plant Variety Protection(s) PVP *Fill in online*

Other Products: *includes activities (experiments or surveys) events, services, databases, curricula, germplasm, genetic maps, software, etc. For each item open a separate block with the blue “+”*

Accomplishments: *“At the beginning of this box, before information on specific goals and objectives, include a statement of 1 to 2 paragraphs describing the IMPACT of your project.” This statement will be a primary tool for briefing leadership and legislators about what has been accomplished with the public funding invested in grant programs. Refer back to the non-technical summary you provided at the outset of your project.” For detailed guidance check the blue box labeled “?”*

Translate those results into broader outcomes in the real world. Engage your peripheral vision in order to remember how the work you are doing is important to the bigger picture and then explain that simply and directly.” (NIFA REEport instructions)”²⁴

An example of a good impact statement in a final report:

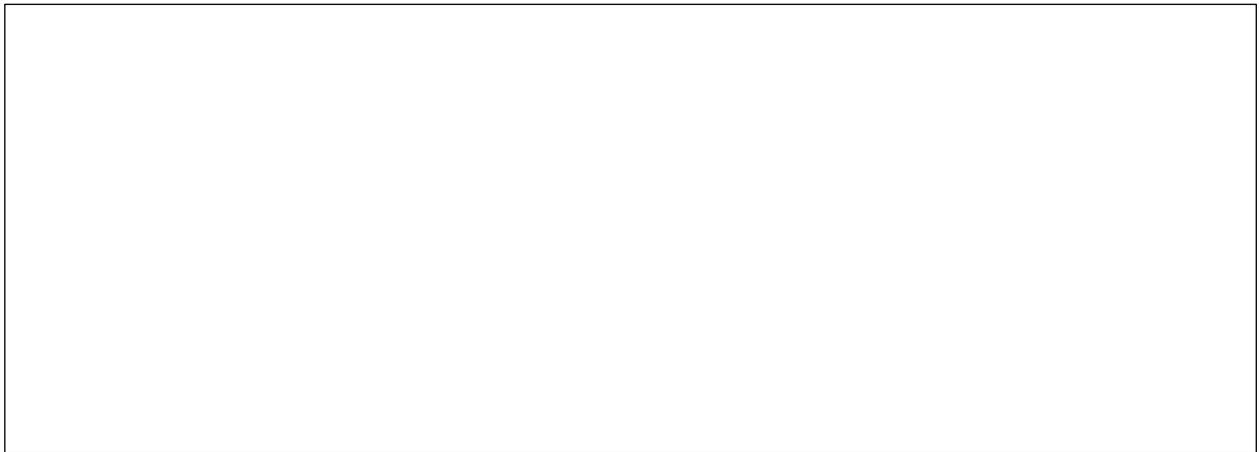
“The cucurbit breeding program at the University of New Hampshire, largely funded by the NHAES, represents the longest continuous squash and pumpkin breeding program in North America. The 54 varieties of melons, squash, gourds and ornamental pumpkin released by the University of New Hampshire (UNH) during the past 15 years have had a major impact on agriculture in the Northeast. This past year, the wholesale value of cucurbit seed marketed from varieties with UNH parentage was over two million dollars. The value of farm produce derived from those varieties would be several fold that of seed sales. In addition to breeding improved varieties as replacements for existing varieties, many of our new introductions represent novel varieties that were not in previous existence, and thus, may expand vegetable acreage and provide new sources of income for growers. Examples are Goblin, a multicolored egg gourd mix grown on productive bush plants; Owls Eye, a light yellow pumpkin; Moonshine, the first large white pumpkin in the *Cucurbita pepo* species with a robust stem; and Sunlight, a darker, small yellow pumpkin being introduced this fall. Stems of ornamental pumpkins in the larger size categories frequently do not hold up well during harvest and transport, and stems often shrivel within a few weeks of harvest, reducing their market value. As a result of breeding research at UNH and collaboration with several seed companies, at least six new pumpkin varieties will be released in the next two years with improved stem strength and integrity along with having powdery mildew resistance (PMR).”

²⁴ <http://nifa.usda.gov/resource/reeport-guide-project-directors>

Use spellcheck and grammar check! <8000 characters!



What opportunities for training and professional development has the project provided? *i.e.* for undergraduates, graduate students, and postdocs; activities: mentoring, workshops, conferences, etc.



How have the results been disseminated to communities of interest? *“Describe how the results have been disseminated to communities of interest. Include any outreach activities that have been undertaken to reach members of communities who are not usually aware of these research activities for the purpose of enhancing public understanding..”*

What do you plan to do during the next reporting period to accomplish the goals of your project?

In the final report check the Box “nothing to report”

Changes/Problems:

Major changes include: major problems or delays that may have a significant impact on the rate of expenditure; significant deviations from research schedule or goals; unexpected outcomes; or changes in approved protocols for the use or care of animals, human subjects, and/or biohazards encountered during the reporting period.



Appendix K NHAES REEport data

The [NHAES-reeport-data.sr.unh.edu](http://nhaes-reeport-data.sr.unh.edu) is a 2nd component in reporting cycle. for your Hatch, Multi-state or McIntire-Stennis project. This online survey should be completed after you fill out your annual Progress Report or Final Report using the REEport web site (<https://portal.nifa.usd.gov>)

The 2nd reporting component is set up as a web-based survey; it should take each project director no more than 15 minutes to complete. Each question needs a numeric answer. Your responses will be aggregated to be included in the NHAES/UNHCE Annual Report to NIFA. You should review the questions before you login.

(<http://colsa.unh.edu/nhaes/sites/colsa.unh.edu.nhaes/files/media/nhaesmanual.pdf>; Appendix M).

Step by step directions

- Login to [NHAES-reeport-data.sr.unh.edu](http://nhaes-reeport-data.sr.unh.edu) with your UNH AD account name and password. Project Directors will have to fill out their own survey; the task cannot be delegated to a lab manager or postdoc although you can ask your lab manager to collect this information in advance for you to enter.

- Select your name from the first drop down menu.

- Your project ID (title) will be listed in the next text block. Three users have two or more projects*; these individuals must select the project by its title. *administrative or specialty projects

- The first set of questions refers to participants, websites and interactions with stakeholders. All answers should be reported as numbers. If you do not have a response for one or more of the questions, i.e. numbers of graduate students on your project, simply fill in “0” The categories include:

i) Number of participants

ii) Number of graduate students

iii) Number of undergrad students

iv) Number of other students (high school)

v) Website views (*does your lab have one or more website where you post project data*)

vi) Number of Direct Contacts with Youth

vii) Number of Indirect Contacts with Youth

viii) Number of Direct Contacts with Adults

ix) Number of Indirect Contact with Adults

Notes:

- Interactions with stakeholders are estimates. For example, i) your graduate student presented a poster at a regional meeting. Roughly, how many people viewed your poster and discussed with you. In addition, ii) you gave a talk about the research

project at national meeting. Approximately how many people were in audience? Add (i) and (ii) to answer the question direct contacts with adults.

- Perhaps your lab hosted students from the local high school at your field site. The number of high school students who visited your lab or field site, count as direct contact with youth.
- Indirect contact: The distribution of information and resources including mass communication, public events, and material distribution.
- The second category of questions is '**Indicators and Outcomes**'. Many of your projects have been classified in one of six Associated Planned Programs or critical issues, representing priority research areas for NIFA capacity funding. If you project is assigned to an Associated Plan Program you will have a specific set of questions to answer. If you have a McIntire Stennis project or a Supporting Rural Economies, you will not have a set of questions corresponding to "incomes and outcomes".
 - Some questions i.e. "Number of producer's indication adopted of recommended practices" may be relevant to your project. Fill in the blank with an estimated number of stakeholders who have adopted recommended projects.
 - Many of the questions may not be relevant to your research. Answer these questions by filling in "0" in the blank.
- The full set of Indicators and Outcome questions for all Associated Planned Programs are given on the next pages.
- When you have completed the web form, hit the submit button at the bottom of the page.

Appendix L National Outcomes and Indicators

AREERA Plan of Work Reporting System

Background

NIFA is required to report outcomes (“evidence of performance”) to USDA, the Office of Management and Budget (OMB) and Congress in its budget documents. Guidance has been received from USDA and OMB leadership that national outcomes that aggregate data across all states and territories are desired. Meanwhile, NIFA itself recognizes that impacts stated on a national scale help better tell the formula fund story and garner support for continued funding. Regarding the Plan of Work reporting system, in the past, NIFA has gleaned and reported primarily single university outcomes as examples of evidence of past performance because those are what the reporting system provides. A Panel of Experts was convened in May 2010 to identify improvements that could be made to the POW reporting system. As part of the overall charge, the Panel agreed that NIFA and select Land Grant University representatives would lead an initiative to develop National Outcomes and Indicators that would satisfy the need for NIFA to report nationally aggregated data. Ultimately, the ability of NIFA to report on nationally aggregated data on certain outcomes and indicators will help OMB and Congress see the continued value of the formula funding covered by the AREERA State Plan of Work system.

Summary of this Document

This document contains outcomes grouped according to the five NIFA Priority Areas: Childhood Obesity, Climate Change and Sustainable Energy Food Safety, and Global Food Security and Hunger. They are the result of a conference held in New Orleans, LA, on February 22-24, 2011. Attendees at the conference consisted of: 60 Land-Grant Participants (equal representation of Research and Extension; Evaluation Specialists; Professional Facilitators) and 10 NIFA National Program Leaders. Five groups were each charged with developing outcomes and associated indicators for their assigned NIFA Priority Area. Where applicable, definitions have been provided for the outcomes, and other information, such as potential associated KAs and other measurement guidance, have been listed within each area to help facilitate reporting.

The original list of outcomes and indicators (129) proposed in 2011 has been shortened to 7.

NOTE: As reported in multiple other communications by NIFA, all outcomes and indicators contained in this document are available for states to voluntarily adopt and report on in the Plan of Work (the first available iteration of this will occur in the 2012 Annual Report of Accomplishments & Results, to be submitted in April 2013).

Planned Program: Childhood Obesity

Report outcomes of programs funded by Hatch, Smith-Lever 3(b and c), Evans-Allen and 1890 Extension. Outcomes of these programs funded by multiple sources may be included, unless they are reported elsewhere (please do not include EFNEP data).

Outcome #1: Children practice healthy eating
KAs: 703, 704, 724, 806, 802, 701, 702, 501,502

Outcome Definition: Children and youth practice healthy eating as defined by the current U.S. Dietary Guidelines for Americans. Recommendations include: A) consuming more healthy foods

such as: vegetables, fruits, whole grains, fat-free or low-fat milk and milk products, seafood, lean meats and poultry, eggs, beans and peas, and nuts and seeds; B) consuming less foods/food components that are commonly eaten in excess such as: sodium, solid fats, added sugars, and refined grains; and C) following healthy eating patterns such as: eating breakfast, eating as a family, making healthy snack choices, etc.

Indicators:

1. C. The number that reported eating more of healthy foods ____

Planned Program: Climate Change and Sustaining Energy (Sustaining Natural resources)

Outcome #1: Development of new knowledge and technologies

Outcome Definition: Development of new knowledge and new technologies in agricultural and forestry science and the transfer of these to clientele to address the effects of climate variability and change.

Indicators:

4. Number of new crop varieties and genotypes with climate adaptive traits ____

Outcome #3: Energy Security:

Indicator 2: Number of farmers who adopted a dedicated bioenergy crop. ____

Planned Program: Food Safety

Outcome #1: Increase number of viable technologies to improve food safety

Outcome Definition: On national and global scales, increase and improve the number of viable (validated, statistically relevant, economical, environmental and socially acceptable) technologies (to include communication and information technologies, and sampling strategies) for the detection and characterization of food supply foodborne threats. Foodborne threats include microbial pathogens, toxins, chemical contaminants, and biologics (vaccines, allergens, nanoparticles, etc). Develop or increase the number of improved viable prevention, intervention, and control strategies for foodborne threats along the food production continuum and for all food production scales (small, medium and large producers, processors and retail).

Indicators:

1. Number of viable technologies developed or modified for the detection and characterization of food supply contamination from foodborne threats. (KAs 404, 501, 711) ____

Planned Program: Global Food Security & Hunger

Outcome #1: Enhanced capacity of a sustainable global food system including new/improved plans, animals, technologies and management systems

Indicators:

4. Adoption of best practices and technologies resulting in increased yields, reduced inputs,

increased efficiency, increased economic return, and conservation of resources.

- a. Number of producers indicating adoption of recommended practices __

Outcome #2: More sustainable, diverse, and resilient food systems across scales.

Outcome Definition: Because there is no accepted definition of “sustainable” as an end-point, “sustainable” is typically viewed as a journey toward more sustainable endeavors. We do know what it means to be “more sustainable,” and clearly recognize certain practices, behaviors, policies, and institutions as more sustainable than others. The term “scales” can apply to many dimensions of food systems. For example, it can refer to the size of farms/processors/retailers (as defined by annual revenue), the size of crop markets (e.g., wheat vs. kumquats), or land productivity levels (e.g., central Illinois farmland vs. high-plains rangeland).

Indicators:

Background Note: The following four indicators deal with innovation development, adoption, and economic benefits.

1. Number of new or improved innovations developed for food enterprises. __
[Innovations could be any of: models (biological, economic, business, management, etc.), technologies, networks, products, processes, etc. that provide expanded opportunities for food system enterprises. Enterprises include all entities along the food supply chain: producers, processors, distributors, retailers, allied services, etc.]

APPENDIX M

Request for One-Year Extension to Active NHAES Research Project

In occasional cases of compelling and unavoidable circumstances, USDA-NIFA provides a mechanism for a NHAES research project to receive a one-time, one-year extension at the discretion of the Director's Office. Valid reasons for approval include unavoidable circumstances that have significantly delayed or prevented adequate progress, such as weather anomaly, critical equipment malfunction, sickness or injury, etc. Failure to make expected progress does not in itself constitute appropriate justification of extension.

A PI requesting a one-year extension of an active NHAES project should contact the Faculty Fellow to discuss the reasons and potential for solution and must provide a concise (one or two paragraphs) justification outlining the compelling case to be considered by the Director's Office. Time extension does not necessarily include provision of additional funding. The latter will be discussed and considered as a part of the overall request. If deemed appropriate the Faculty Fellow will submit a formal request and notification of extension to USDA-NIFA. The PD will be notified of the outcome by email within a few weeks.