POLICIES & PROCEDURES MANUAL
NATIONAL PREDICTIVE MODELING TOOL INITIATIVE
(NPMTI)
September 15, 2023

Table of Contents

I. National Predictive Modeling Tool Initiative (NPMTI) Background, Goals, and Methodology

A. Background, Next Steps NPMTI [1]

1. How NPMTI Got its Start: The National Agricultural Genotyping Center (NAGC) presented the concept for what became NPMTI during a March 2018 meeting of scientists to discuss advances in corn technologies. After some initial reservations, Dr. Alison Robertson, corn pathologist at Iowa State University developed the first draft of the proposal, which Pete Snyder, president of NAGC further developed by gaining the involvement of the National Association of Wheat Growers, Cotton Inc, and Los Alamos National Laboratory. The enhanced proposal was endorsed by the Soil Health Partnership and the National Association of State Departments of Agriculture. In April 2019, during a meeting with the USDA Agriculture Research Service, Dr. Tim Widmer, National Program Leader, Crop Protection & Protection, supported the proposal. A Congressional Appropriation for fiscal year 2020 was earned through the help of Senator John Hoeven, at the time Chairman of the Agriculture (et al) Appropriations subcommittee. NPMTI has received a Congressional Appropriation every year since.
2. Future Direction: Ultimately, NPMTI will be a national, multi-crop disease forecasting tool that will expand to include a diversity of crops and scientific disciplines across the United States. The current endeavor brings together a network of scientists from 23 different universities (many of whom are Extension pathologists), USDA Agricultural Research Service (ARS), and cooperating national laboratories. Over the life of this initiative, primary research will provide insight into management decisions pertaining to crop selection, hybrid/varietal selection, cover crop selection, tillage options, seed treatments, foliar fungicides, and other agronomic tools that focus on minimizing the impact of crop disease. The resulting research efforts will be published in newsletters, peer-reviewed journals, and other forms of communication to the immediate benefit of the agricultural community. As a result, this increasing knowledge base will provide site-specific (i.e., field, region) and evidence-based suggestions for on-farm disease management to an audience of farmers, Extension agents, USDA personnel, crop consultants and agronomic advisors. The information in aggregate will be disseminated by press releases to national agricultural media outlets and available on the Initiative's website. NPMTI will stay abreast of and use the most up-to-date communication vehicles to reach its audiences, with particular emphasis on end users. Tools will include web-based graphical user interfaces (GUIs), smartphone application (app) platforms, use of the online Early Detection and Distribution Mapping System (EDDMapS), and the continued development of new communication avenues.

B. NPMTI Goals: The overall goals of NPMTI are to:

1. Ensure crop sustainability and crop quality;
2. Provide climate change resilience;
3. Improve soil health;
4. Monitor pathogens and microbial diversity in the environment, including, but not limited to, crop residues, soils, and air;
5. Improve crop disease management thereby reducing yield losses;
6. Increase precision of in-season crop disease management tactics; and
7. Increase precision of pesticide use.

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[1] NPMTI is also known as and operates under AgPMT. Either name may be used.

C. **Summary:** NPMTI will incorporate monitoring techniques to address all sides of the "plant disease triangle" concept to provide a more precise predictive tool for in-season disease risk. In turn, this will help to achieve the goals listed above.

D. **NPMTI Hypothesis:** In-season risk for plant disease development can be improved to near real-time by developing a comprehensive and coherent modeling tool that integrates:
   1. Quantifying pre-season pathogen inoculum density in the field;
   2. Superior crop/host genetics;
   3. The effects of soil type and other agronomic factors on pathogen inoculum density;
   4. An air monitoring system for wind-borne pathogens;
   5. Meteorological (and other agronomic data), in a coherent information and decision support system;
   6. The use of other artificial intelligence platforms (e.g., unmanned aerial vehicles); and
   7. Information from historic outbreaks for specific plant diseases.

II. NPMTI Deliverable Methodology

A. Important to the ongoing progression of this Initiative is the pursuit and delivery of a comprehensive forecasting tool to the agricultural community. As collection and analysis of multiple variables aggregate, the primary deliverable, a site-specific forecasting model, must be considered during all stages of research and development of the Initiative. The success of this deliverable requires collaboration with data scientists and mathematicians skilled in computational analyses that provide longevity through continual maintenance, storage, and calibration of the forecasting tool. A successful forecasting tool of this magnitude and breadth is contingent on delivering simplicity (user-friendly interface for farmers and other end users) out of complexity (advanced predictive modeling).

B. As a general guide, the following recommendations are briefly outlined with the objective of promoting information collaboration, transfer and partnership:
   1. Academic Laboratories shall include working groups within Land Grant and other research institutions. The success of the Initiative relies on their expertise in study design, development, and validation of new methods and technology that provide a clearer understanding of disease prediction. At the forefront of scientific discovery, these "Academic Laboratories" will identify variables and thresholds associated with disease risk. As focal variables emerge for use within the forecasting tool, the next objective will be to transfer methods, where applicable, to Service Laboratories to minimize time and resources spent on highly repetitive sample testing and instrumentation calibrations.
   2. Service Laboratories shall be defined as those laboratories that can provide additional support for data collection. Service Laboratories will be invited to participate in situations where Academic Laboratories may not have the equipment, personnel, or administrative authority to perform high-throughput testing of samples outside their primary research scope. Service Laboratories will collaborate with Academic Laboratories to develop standard operating procedures (SOPs) on focal variables (e.g., pathogen detection), which may require standardization for regional forecasting models or field-level specificity for more personalized and real-time user models. Service Laboratories must have quality control procedures in place. Ideally, Service Laboratories will be in good standing with the International Organization for Standardization (ISO) or hold an accreditation through another certification body. Service Laboratories should have SOP development experience to provide validations on the original or updated methods, as communicated by the Academic Laboratories.

3. Proficiency Testing: existing accredited Service Laboratories will conduct interlaboratory comparisons and implement proficiency tests on SOPs (standard operating procedures) as new Service Laboratories join the Initiative.

III. NPMTI Action Plan (AP)

A. Since its launch in 2020, NPMTI has been focused on key diseases of three agronomically important annual row crops: corn, cotton, and wheat, each of which is organized into a Research Area Committee (RAC). In 2023, a pilot program for pulse crops was added.

B. Eventually, additional crops and new diseases will be added, funding permitting, on a Request for Proposal (RFP) basis as recommended to USDA-ARS by the Executive Committee (EC), in consultation with the Steering Committee (SC) and each RAC.

C. RACs shall draft individual action plans, which are comprised of RAC program descriptions, progress to date, and research priorities for year one and year five that are in support of NPMTI Goals and Objectives. In aggregate, individual RAC action plans (and those of collaborating organizations) will comprise the Consolidated 5-Year Action Plan (CAP). Action Plans and the CAP will be publicized on the NPMTI website.

D. CAP will help to guide the RFP process. CAP will be updated annually. The expected outcomes of CAP are improved research planning and accountability for USDA-ARS funding, greater collaboration among researchers, better communication with NPMTI stakeholders and public at large, and more rapid attainment of NPMTI goals.

E. CAP is a dynamic document and therefore will continue to evolve and change as needed.

IV. NPMTI Governing Procedures

A. Informality: The procedures to be used at all meetings (RAC, SC, and EC) shall, to the extent exercised by the presiding officer of such meeting, be based on fair, impartial, and reasonable actions intended to permit full, but respectful, participation by attendees. Formal rules of procedure shall be dispensed with, though elements thereof, such as moving adoption of, and seconding, resolutions, calling for a vote, polling, and the like shall be permitted. It is hoped that a respectful exchange will lead to a consensus which all participants will accept.

B. Ground Rules: Meeting Participants are encouraged to:

1. State views and ask genuine questions;
2. Share all relevant information;
3. Use specific examples and agree on what important words mean;
4. Test assumptions and inferences;
5. Jointly design next steps; and
6. Discuss issues

C. Adherence: to all Policy & Procedures is required of all funded NPMTI participants.

V. NPMTI Transgenic Management Policy: When operating with NPMTI funds, all principal Investigators (PI) and other researchers must manage gene edited plants according to USDA-Animal and Plant Health Inspection Service (APHIS) Biotechnology Regulatory Service (BRS) guidelines and standards for transgenic plant work.

VI. Structure of NPMTI Committees

A. Tiers: NPMTI committees are structured in tiers.

1. Research Area Committees: Specific crops, pathogens that affects multiple crops, and associated commodity groups are represented by Research Area Committees (RAC).
   a. Alternatively, a RAC can be formed by representatives of multiple crops that are addressing a shared problem or a specific pathogen (e.g., a mycotoxin).
2. Steering Committee: The Steering Committee (SC) is comprised of up to six (6) select members of each RAC, along with representation from contributing grower associations and from collaborating organizations (CO). The SC makes recommendations to the Executive Committee (EC).
3. Executive Committee: The Executive Committee (EC) is comprised of the chair (and the co-chair, if any) of each RAC, representatives of contributing grower associations, and representatives from the COs, along with administrative support of the Networking & Facilitation Office (NFO).

B. Funding Parameters: Congressional Agricultural Appropriations budgeting is a dynamic one in which funding can vary from year to year. USDA-ARS has established guidelines for funding of national initiatives (see Appendix A). Each year, membership in SC and EC will be based on the funding amount the RAC is allocated through the RFP process. Each RAC will earn one seat on the SC for each $100,000 of research funding the RAC receives.

C. Budget Submissions to USDA: The EC makes the final funding recommendations to USDA-ARS on behalf of the overall NPMTI.

VII. Research Area Committees (RAC)

Each **RAC** represents the interests of a specific crop, and includes the associated contributing commodity group. Groups studying pathogens that affect multiple crops, or groups that represent a category of crops (e.g. pulse or cole crops) can also form a RAC.

1. Participation: Participation on each RAC is open to all interested parties and stakeholders of a specific crop or pathogen, including but not limited to, academicians, Extension Service personnel, USDA-ARS researchers, staff of crop/commodity groups and associations, industry representatives, crop consultants and farmers. Those interested in being involved in a RAC should submit the following information to the NFO in order that interested individuals may be added to the NPMTI database.
   a) Name;
   b) U.S. Postal Address;
   c) Email address;
   d) Phone numbers;
   e) Organizational or other basis of interest and affiliation.
2. Ex Officio Members: USDA-ARS National Program Staff who oversees NPMTI may participate *ex officio*, with vote, in all RAC meetings.
3. Organization of RAC Committee Positions: Each RAC shall have a Chair and Co-Chair, subject to the following requirements and limitations.
   a) Qualifications: The Chair and Co-Chair of each RAC will be limited to university researchers (Extension Service researchers preferred) and USDA-ARS researchers.

b) Election: A majority of each RAC's participants shall be necessary to elect the Chair and Co-Chair. If more than two candidates run for such a position, the two highest vote getters shall participate in a run-off election. The Chair and Co-Chair shall not run as a slate but shall be elected on separate ballots held for each position.

c) Term: The Chair and Co-Chair shall serve a term of three (3) years; a Chair or Co-Chair may serve for up to three (3) consecutive terms.

d) Chair's Duties: The Chair shall have overall responsibility for the business of the RAC, but shall consult via duly called meetings on all business pertaining to the CAP, as defined below. In the absence of the Chair, the Co-Chair shall exercise all of the rights, powers and powers authority of the Chair until the return of the Chair. In addition to the foregoing duties, the Chair, and where applicable, Co-Chair, shall:

(1) Act as the liaison between the EC and NFO;

(2) Serve as a member of the SC and EC;

(3) Work with RAC members to draft the annual RAC Action Plan;

(4) Draft and submit overall (not individual PI) RAC proposals to the NFO;

(5) Facilitate the review of proposals submitted to the RAC;

(6) Develop recommendations for funding of individual PIs; and

(7) Provide comments/suggestions for proposed recipients and non-recipients to be included in the notification of funding.

4. Quorum: A quorum for purposes of conducting the business of a RAC shall consist of at least thirty percent (30%) of participants in the RAC.

5. Notices: A meeting may be called by the Chair with at least five (5) and not more than sixty (60) days written notice delivered as first-class mail or via email to the last known address of each member.

6. Meetings: Meetings shall be conducted either in person or through the use of electronic means allowing all participating members to hear each other in real time.

a) RAC participants should confer as needed to accomplish its responsibilities.

b) All RAC participants will be invited to the Annual Meeting. The cost of attendance will not be borne by the RAC or the NFO.

7. RAC Responsibilities: As explained above, each RAC shall draft an annual Action Plan that includes a one-year and five-year forecast for what the goals and expected outcomes of the RAC's short-term and long-term objectives are. Together with the plans for CO's, the RAC Action Plans will help guide the Consolidated 5-Year Action Plan (CAP) for NPMTI, which, in turn, will facilitate the Request for Proposal (RFP) process. The CAP will also help guide the annual overall NPMTI budget.

VIII. Steering Committee (SC)

A. Members: Membership on the Steering Committee shall be composed as follows:

1. The Chair of each RAC shall be a member of the Steering Committee. Further, for each RAC achieving at least $200,000 in funding through the RFP process during the prior fiscal year, one (1) additional member may be appointed to the Steering Committee, and an additional member for each $100,000 of funding achieved, not to exceed six (6) seats (including the RAC Chair and Co-Chair) for each RAC. Members appointed by a RAC may be re-appointed for consecutive terms. Notice of such appointment, or re-appointment shall be forwarded to the NFO.

2. Collaborating Organizations may petition the Steering Committee for appointment, and re-appointment, each fiscal year. Collaborating Organizations, as a group, shall not have greater than ten (10) seats on the Steering Committee.
3. Contributing grower associations may petition the Steering Committee for appointment, and re-appointment, each fiscal year. Contributing grower associations shall not have greater than two (2) seats on the Steering Committee for each contributing association.
4. USDA-ARS National Program Staff who oversees NPMTI may participate *ex officio*, with vote, in all Steering Committee meetings.
5. Term: The term of each member shall be one (1) year and may be reappointed annually, if desired.
6. If a Steering Committee position becomes vacant through resignation, more than three (3) unexcused absences from consecutive meetings, removal upon the vote of at least two-thirds (2/3) of all of the Steering Committee members (other than *ex officio* members), death, or other cause permitted under law, the Executive Committee may appoint a person to serve out the remainder of such term.

B. Organization of Steering Committee: The Steering Committee shall have a Chair and Co-Chair, subject to the following requirements and limitations.

1. Chair: The NFO director shall serve as the Chair of the Steering Committee until such time as the Steering Committee selects a new NFO Chair by a simple majority vote.
2. Co-Chair may be selected by agreement of the Steering Committee members.
3. Chair's Duties: The Chair shall have overall responsibility for the business of the Steering Committee, but shall consult with the members via duly called meetings on all substantial business pertaining to recommendations for funding, future planning, and the like. In the absence of the Chair, the Co-Chair shall exercise all of the rights, powers and authority of the Chair until the return of the Chair. In addition to the foregoing duties, the Chair, and where applicable, Co-Chair, shall:
   a) Act as the liaison between the EC, NFO, and USDA-ARS;
   b) Serve as Chair of the Executive Committee;
   c) Review RAC proposals and provide recommendations to the USDA-ARS for consideration;
   d) Review proposals and provide recommendations to RAC Chairs for funding of individual PIs;
   e) Appoint organizing committees for the twice-yearly meetings.
4. Quorum: A quorum for purposes of conducting the business of the Steering Committee shall consist of at least thirty percent (30%) of the members of the Steering Committee.
5. Notices: A meeting may be called by the Chair with at least five (5) and not more than sixty (60) days written notice delivered as first-class mail or via email to the last known address of each member.
6. Meetings: Meetings shall be conducted either in person or through the use of electronic means allowing all participating members to hear each other in real time. The Steering Committee shall meet at least twice each fiscal year.

IX. Executive Committee (EC)

A. **Membership** – the overall EC size will be determined by the funds that Congress appropriates to NPMTI each year, minus the funds that are allocated to USDA-ARS. The EC will be comprised of one and possibly two representatives of qualifying RACs, representatives of contributing grower associations, as well as representatives from funded COs along with administrative support of NFO.

1. To qualify for an EC seat, the RAC must have earned a minimum allocation of $200,000 in funds through the RFP process. RACs that have earned over $400,000 in research funds may seat two representatives; typically, the RAC Chair/Co-Chair.
2. USDA-ARS National Program Staff who oversees NPMTI has a standing invitation to participate as a voting member of all NPMTI meetings.

B. **Executive Committee Positions** – EC Chair, EC Co-Chair and EC Member

1. Length of Term – Three years, and up to three (3) consecutive terms
2. Number of EC members is based on the annual NPMTI appropriation
3. EC Chair and Co-Chair
   a) The director of NFO shall be Chair of the EC. A Co-Chair will be appointed by acclimation of EC members. These individuals will also chair (co-chair) the SC. The co-chair shall assume the role of the chair in the absence of the chair
   b) Organize and lead meetings, conferences and calls. Ensure minutes are taken.
   c) Lead the effort to educate Congressional staffers on the importance of NPMTI. Oversee the educational efforts.

C. **Meetings** – EC will meet as needed, but not fewer than two (2) in-face meetings (including virtual "in-face" meetings) per year.

D. **Responsibilities** of the EC:

1. Review each RAC's Action Plan;
2. Review and approve annual Request for Proposals (RFP) document developed by NFO;
3. Develop in conjunction with NFO the process for evaluating proposals;
4. Develop annual budget based on review of proposals, CAP, and recommendation of SC;
5. Select the location and dates for the twice-yearly meetings. An Organizing Committee for each meeting will be drafted by the NFO;
6. Work on securing/increasing the appropriations budget for NPMTI;
7. Review and approve annual calendar/timetable of NPMTI activities;
8. Quality Assurance as it relates to data management – identify quality, content and format standards for data and software;
9. Inform SC of all executive actions and decisions; and
10. The Executive Committee shall have authority to act on behalf of the Steering Committee in the absence of direction from the Steering Committee.

E. Voting Procedures

1. Quorum – shall consist of more than 50% of current EC members, including e-voting
2. Voting outcomes shall be determined by a simple majority of votes cast.

X. Networking & Facilitation Office (NFO)

A. Purpose – of NFO is to act as the administrative and communication headquarters for NPMTI

B. Personnel

1. Executive Director
2. Administrator
3. Financial Manager
4. Others as deemed necessary

C. Responsibilities

1. Facilitate Communications
   a) Facilitate communications between SC, EC, and RAC
   b) Manage NPMTI Website
   c) Oversee production and distribution of NPMTI newsletters and press releases
   d) Act as liaison between NPMTI and USDA-ARS
   e) Maintain mailing lists
   f) Act as a rapid clearinghouse of NPMTI related questions
2. Provide administrative support for SC and EC
   a) Organize SC and EC meetings and conference calls
   b) Record and distribute minutes
   c) Inform SC of EC actions, meetings, etc.
   d) Monitor NPMTI committees; facilitate appointments
   e) Assist RAC chair/co-chair with communication of meetings and calls, if requested
3. Meeting Management – Manage the NPMTI Annual Meeting (AM) and its Summer Meeting of SC and EC members
   a) Manage meeting location and lodging in city selected by the EC
   b) Coordinate all facets of meeting arrangements
4. RFP – NFO will draft the annual Request for Proposal (RFP), incorporating feedback from RAC and SC, and submit the document to the EC for final approval
   a) Distribute the RFP application using various electronic mailing lists
   b) Facilitate review process for proposals
   c) Notify applicants of funding recommendations
   d) Forward NPMTI's recommended budget and grant proposals to USDA-ARS
5. Resource Management/Accountability Center
   a) Maintain records on all proposals, projects, and grants submitted and recommended for funding to USDA-ARS
   b) Generate and process progress-reporting forms
   c) Oversee production and management of the NPMTI website including various communications pertaining to research and administrative aspects of NPMTI
   d) Maintain records of all EC and SC activities and actions
   e) Generate reports requested by committees.

XI. Request for Proposal (RFP) Process

A. RFP Development – NFO shall develop the annual, two-step RFP process, incorporating feedback from RAC, SC, and EC.

1. Step One – Letter of Intent (LOI) – PI briefly (3 pages or less) describes proposed project. This will help ensure that the proposal is on-target and consistent with RAC plans and NPMTI goals. If the PI has been funded in the prior year, then the PI just needs to indicate whether funding will be sought or not in the upcoming year.
   a) LOI instructions, available at www.AgPMT.org will include budget guidance
   b) LOI instructions will include deadlines, which will be on or about December 15
   c) RAC will notify PI (via NFO) to proceed to full proposal or not
      (1) PI notification will occur on or about December 30
      (2) Notification may include guidance for why the LOI was not selected
      (3) LOI acceptance notification may include guidance for full proposal funding
2. Step Two – Once the LOI is accepted, PI writes a full proposal. Full proposal instructions, application and appendices will be posted on the NPMTI website at www.AgPMT.org.
   a) Instructions will include deadline for full proposal, which will be on or about January 31.

B. Distribution – To the extent possible, electronic copies of the RFP shall be distributed to the following:

1. Current and former NPMTI researchers
2. Non-funded researchers who previously submitted pre-proposals
3. Attendees of the Annual and Summer Meetings
4. Electronic notices shall be posted on the NPMTI website and sent to the following:
   a) NPMTI Listserv / mailing lists
   b) Agricultural Experiment Station Directors and Extension Service Director
   c) Administrative Heads and Academic Heads at 1862 and 1890 land grant institutions
   d) USDA-ARS National Program Staff (NPS)

C. RFP participation – open to any member of a RAC, including SC, and EC members.

1. Recusal – RAC, SC, and EC members shall recuse themselves from voting on submittals in which they have a financial interest.
2. New Areas – individuals and groups not represented by a current and active RAC are encouraged to engage in the RFP process, if the proposed activity supports the goals and objectives of NPMTI.
3. At-Large – NPMTI shall have an "at-large" category for researchers not involved in a specific RAC, but with an interest in NPMTI proceedings.

D. Review Process – Processing and Review of Proposals

1. Confidential – Proposals are confidential documents that include all information and documentation required to evaluate the value of the project
2. Internal Distribution – Proposals are sent to NFO for appropriate distribution
   a) Proposals received by NFO will be sorted by research area, and copies will be sent to the appropriate RAC Chair and Co-Chair.
   b) The RAC Chair/Co-Chair may be assisted by a Review Committee
   c) Members must recuse themselves during review of their own proposal.
   d) After proposal review, the RAC Chair/Co-Chair shall compile a recommendation that will be submitted to the NFO and ARS, prior to the Annual Meeting

e) Proposals that are received from an individual or group not represented by a current and active RAC (in NPMTI) shall be forwarded to the NFO for review by the SC
f) The EC shall meet just prior to the start of the Annual Meeting with each of the RAC Chairs and Co-Chairs (if applicable) to discuss their committee's recommendations.

3. Funding Recommendation
   a) Once the EC has received the RAC's recommendations regarding submitted proposals, the EC shall reconcile the recommendations with the available funds.
   b) Once the EC approves the budget allocation, NFO shall send written notification to all researchers who submitted a proposal.
   c) NFO will forward the grant proposals as a comprehensive recommendation to USDA-ARS.
      (1) All Grant Agreements that are recommended by NPMTI are for a one-year award period.
      (2) Grant proposals are confidential documents.
      (3) PIs shall submit electronically to NFO one non-technical abstract for each NPMTI recommended project that will be made public through the Initiative's website.
4. Handling and Storage of Proposals
   a) Original copies of proposals will be stored confidentially by NFO for at least three years.
   b) RAC reviewers should destroy all copies of proposals immediately following the final submission of all grant applications to USDA-ARS.

XII. Research Information Management

A. Agreement – All institutions that are involved in NPMTI must work cooperatively in sharing and publishing research information. Primary research, which is collected in field research plots, are needed for secondary analysis, e.g., modeling, by members of NPMTI. In addition, it is anticipated that users (private and public entities) outside of the network will request access to research generated by the Initiative.

B. Public Access to Research – is generally expected within 4 years of project initiation. Once research is publicly available, outside users may use it by citing/acknowledging the source, without any additional permissions needed.

C. Code of Ethics – outlines the basic understanding regarding the transfer of "Research Information" between funded parties involved in NPMTI. Where appropriate, an individual agreement between a PROVIDER of information and a REQUESTER of information may be desired. The NPMTI Networking & Facilitation Office (NFO) will help facilitate individual agreements, in keeping with the spirit of this Code of Ethics.

All participants that are receiving funds from NPMTI must adhere to the NPMTI Policy & Procedures Manual.

The Code of Ethics will protect the PROVIDER from unauthorized use of provided Research Information. It also establishes expectations of the PROVIDER regarding reporting of research results to the funding agency (USDA-ARS) and a timeline for when Research Information is disseminated.

The Code of Ethics establishes the rules by which a REQUESTER of Research Information can use said information.

The Code of Ethics covers three potential Research Information transfer activities:

- Development of assays for quantitative analysis of specific pathogens.
- Analysis of samples that are submitted by a researcher to a service laboratory (see service laboratory definition in this manual).
- Dissemination of data collected from NPMTI activities.

1. Base Premises:

PROVIDER will provide NPMTI participants with Research Information, and associated knowhow. The Research Information will be used by participants only for research purposes, and use is restricted to furthering the goals and objectives of NPMTI.

NPMTI participants in general, and REQUESTOR in particular, agree to the following before the PROVIDER transfers Research Information:

a) Research Information is the property of the PROVIDER and is made available as a service to NPMTI participants.

b) Research Information shall not be used for commercial or other profit-making purposes. Any and all commercial or profit-making uses of Research Information require the REQUESTOR to obtain in advance an appropriate license or other written permission from the PROVIDER.

c) Research Information will not be further distributed to others without the PROVIDER's written consent. REQUESTOR shall refer requests for Research Information to PROVIDER.

d) REQUESTOR cannot present Research Information or use said information for any public purpose including teaching or publication without the express written consent of the PROVIDER. REQUESTOR agrees to acknowledge the contribution of the PROVIDER in all written or oral public disclosures concerning the Research Information. REQUESTOR agrees to supply the PROVIDER with copies of public materials based on the use of said research.

e) REQUESTOR agrees to use the Research Information in compliance with all applicable statutes, regulations, and policies.

f) NPMTI-funded (in part or whole) Research Information is to be provided at no cost.

g) Unless specified otherwise, all Research Information provided by PROVIDER is deemed Confidential Information, including information that is disclosed during any and all NPMTI meetings; therefore, it must be treated as such for a period of 3 (three) years from receipt of the Confidential Information. This provision excludes Research Information that:

   (1) has been published or otherwise publicly available at the time of disclosure;
   (2) was in the possession of, or was readily available to REQUESTOR without being subject to a confidentiality obligation from another source prior to the disclosure;
   (3) has become publicly known, by publication or otherwise, not due to any unauthorized act of REQUESTOR;
   (4) REQUESTOR can demonstrate it developed independently, or acquired without reference to, or reliance upon, such Confidential Information; or
   (5) is required to be disclosed by law, regulation, or court order.

h) The provisions of this Code of Ethics are to be deemed severable and the invalidity, illegality or unenforceability of one or more of such provisions shall not affect the validity, legality or enforceability of the remaining provisions.

i) This Code of Ethics is effective for a period of two (2) years from the end of the funding period. In the event this Agreement comes to an end, all Research Information provided by the PROVIDER shall promptly be return to PROVIDER or, at PROVIDER'S option, destroy all copies of Research Information, which the NPMTI NFO shall confirm in writing. Obligations under paragraphs 2, 3, 4, 5, 6 and 7, as well as under Additional Requirements shall survive the termination of this agreement.

2. Additional Requirements
   a) All funded NPMTI participants must submit an Annual Report of activities within 90 days of the end of the funding period. The report is sent to the USDA-ARS authorized departmental officer (ADO, which for NPMTI is the grants management specialist) and to the ARS PI in charge, with a copy to the NPMTI NFO.
   b) If the project has come to an end, or if the participant will no longer be funded, then a Final Report must be submitted to the USDA-ARS and NFO per above.
   c) These reports are requirements of the Code of Federal Regulations, 2 CFR 200.329 "Monitoring and reporting program performance."
   d) Changes in the Principal Investigator (PI) at a funded institution must be done in writing to the ADO, the ARS PI in charge and the NPMTI NFO.
3. Transfer Activities:
   a) Assay Development – can be done by several NPMTI participating university, governmental or private laboratories. Developer of said assay is the PROVIDER. Those wishing to use said assay are the REQUESTORs. NPMTI-funded assay development, in part or whole, should be made available to NPMTI participants as soon as possible, but no later than one year from development of the assay. For the protection of the PROVIDER, (particularly as it relates to publishing rights), REQUESTORs of assay protocols (including identification of primers and probes) must adhere to all provisions of the Base Premises as spelled out above.
   b) Sample Analysis – can be done by any number of NPMTI participating university, governmental or private laboratories. These labs are the PROVIDERs of sample analysis. NPMTI participants that submit samples for analysis are considered REQUESTORs. Unless stipulated in writing by the REQUESTOR, the PROVIDER will report sample analysis results to the REQUESTOR and only to the REQUESTOR.
   c) Data dissemination – is directed by the researcher, who is the PROVIDER. It is strongly urged that the PROVIDER of data use the NPMTI-developed database that is personalized (available only) to the PROVIDER of that data. By inputting into the NPMTI-developed database, the PROVIDER will only have to keystroke once, while having access to the data for updates. Within a year of data collection, it is expected the data will be shared with other research area (RAC) collaborators, and within two years to other NPMTI participants. The ultimate goal is to use the data for the development of predictive modeling tools within three to four years of data collection. The PROVIDER will be protected by the above Base Premises.
4. Compliance/Misconduct – It is the intent of the Code of Ethics that all NPMTI participants act in good faith. However, if a NPMTI participant feels that one or more NPMTI participants aren't acting in good faith and are in violation of the Code of Ethics, then a grievance should be filed in writing, specifying the cause of the grievance with the NPMTI NFO director and the USDA-ARS research leader (PI) in charge.

a) The NPMTI NFO director will notify the NPMTI Executive Committee (EC) of the filing of a grievance. On behalf of the EC, the NFO director will initiate a hearing in which the parties involved in the grievance will present their cases. The EC will adjudicate the grievance by simple majority and let the parties involved in the grievance know of its decision.
b) Failure to comply with all aspects of this Code of Ethics by any NPMTI participant may result in a reduction in, or elimination of funding during the next funding cycle.

XIII. Reporting of Progress – USDA-ARS contractually requires annual Performance Reports (PR) and a Final Performance Report (FPR) at the conclusion of the research for all research grant agreements

A. Purpose – Accountability and real-time communication among scientists

B. Process – PIs are required to submit a Performance Report (PR) for each single year an award is received. A final report (FPR) is required at the end of the final year of the Research Agreement.

1. NFO, working with the EC and USDA-ARS, will generate the PR and FPR forms, which will be sent to the PIs in August. PIs shall submit one electronic version of the PR, with signature, to NFO by September 15, reporting for activities to September 30. NFO shall forward the PRs to USDA-ARS's Grants Management Specialist.
2. USDA-ARS requires Final Performance Reports be accessible to the public. Therefore, the Final Performance Reports shall be made available through the NPMTI website.

XIV. NPMTI Meetings

A. Frequency – NPMTI will have two meetings per year (either in-face or virtual). The NFO will organize committees for each to insure NPMTI issues are addressed.

B. Annual Meeting – will be open to all NPMTI participants. No quorum necessary.

C. SC Summer Meeting – open to SC and EC members, along with EC invited guests. If possible, the SC meeting will be held in the same city as, and immediately preceding the American Phytopathological Society annual meeting. A quorum is 50% of SC members.

XV. Amendments

A. Amending Policies & Procedures (P&P) process

1. The NFO will review P&P annually and recommend P&P changes to the SC.
2. P&P may be amended at any time with SC approval. Any member of the SC may request changes to the P&P, said change requires SC approval.
3. Any non-policy changes (i.e., language change) to the P&P require only EC approval.
4. The NFO will inform SC of all requested changes, including any that were not recommended to be incorporated into the P&P.

B. Updating CAP (Consolidated 5-Year Action Plan) and individual RAC Action Plans

1. Each RAC is responsible for reviewing and approving the its Action Plan (AP). The chair of each RAC will obtain a simple majority vote of the proposed changes.
2. Action Plans in aggregate will comprise the Consolidated 5-Year Action Plan (CAP).
3. Any member of the SC may request changes to the CAP.
4. NFO will then incorporate the proposed updates into the draft CAP document and circulate it to the relevant RAC committee members, researchers and stakeholders for further discussion and review during planning meetings and/or conference calls.

ACRONYMS

AgPMT – the operating name for NPMTI, short for Agricultural Predictive Modeling Tool
AM – Annual Meeting
AP – Action Plan
APHIS – Animal + Plant Health Inspection Service
ARS – Agricultural Research Service
BDA – Big Data Assessment
BRS – Biotechnology Regulatory Service
CAP – Consolidated 5-Year Action Plan
CO – Collaborating Organization, support from mesur.io, NAGC, LANL, EDDMapS and others
EC – Executive Committee
ED – Executive Director
EDDMapS – Early Detection and Distribution Mapping System
FPR – Final Performance Report
GAMB – Grants and Agreements Branch
IP – Intellectual Property
iPIPE – Integrated Pest Information Platform for Extension and Education
ISO – International Organization for Standardization
LANL – Los Alamos National Laboratory
LOI – Letter of Intent
NACA – Non-Assistance Cooperative Agreement
NAGC – National Agricultural Genotyping Center
NFO – Networking & Facilitation Office
NPMTI – National Predictive Modeling Tool Initiative
NPS – National Program Staff
P&P – Policies & Procedures
PDRP – Program Descriptions & Research Priorities
PI – Principal Investigator
PR – Performance Report
RA – Research Agreement
RAC – Research Area Committee
RFP – Request for Proposal
RGA – Research Grant Agreement
RPB – Research Plan & Budget
SBIR – Small Business Innovation Research
SC – Steering Committee
SM – Summer Meeting
USDA – United States Department of Agriculture

APPENDIX A

Guidelines of Principals for USDA-ARS Initiatives
September 15, 2023

- Terms of the Initiative will be established in agreement with USDA-ARS and its collaborators.
- USDA-ARS is not a funding agency.
- All outgoing money must be directed through a Non-Assistance Cooperative Agreement (NACA). USDA-ARS takes a management fee of 16.7% of all NACA funds prior to distribution.
- Based upon the terms of a NACA, no Indirect Costs will be allowed if the Cooperator is a State Cooperative Institution as defined in 7 U.S.C. 3103(18).
- Based upon the terms of a NACA, the official negotiated Indirect Cost is not to exceed 10% of the total Direct Cost if the Cooperator is a Non-profit Organization.
- Based upon the terms of a NACA, the Cooperator must contribute 20% by way of in-kind/cost sharing.
- USDA-ARS will hold 10% at the headquarter location and up to 10% at the managing location of all appropriated funds.
- A Small Business Innovation Research (SBIR) fee of 3.65% will be charged on all NACAs.
- A Big Data Assessment (BDA) fee of 1% will be charged to all appropriated monies, minus the 10% headquarter allocation.
- Final decisions for funding of any research proposals will be the responsibility of USDA-ARS which will take under consideration the recommendation of the Research Area Committee (RAC) members and of the Executive Committee (EC).
- In case of a government shutdown, deadlines may get pushed back for an equivalent amount of time.